

Faculty of Engineering and Environment Programme Guide



MSc Professional Engineering

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1. INTRODUCTION

The purpose of this handbook is to provide students with a comprehensive guide to the structure and operation of this Programme within the Faculty of Environment and Engineering (referred to hereafter as Faculty). It should be read as a companion document to the *Partnership in Learning and Assessment Regulations for Northumbria Awards*.

The Faculty has a strong post-graduate research base and is expanding its research facilities with an investment of over eight million pounds over the past two years. The research is mainly carried out in the following research groups: Energy Systems and Advanced Materials (ESAM), Information Knowledge and Systems (IKS), Intelligent Modeling Laboratory (IML), Learning and Teaching (L&T), Manufacture and Design (M&D) and the Northumbria Communications Laboratory (NCR, remained AGILENT Laboratory). Details of research within the Faculty are given in the Research Handbook, which is available from the Faculty office. The Faculty also has a proven reputation for consultancy and has undertaken a considerable amount of work for a very wide range of companies, covering such topics as radio fire-alarms, road tolling, vision recognition, microcontroller applications, microwave communications, materials failure, vibration and stress analysis and product design.

The Faculty has almost thirty laboratories with many of them containing fast moving, high voltage or dangerous machinery. It is for this reason that the Faculty has a Student Code of practice for Safe Working and Health and Safety Guidelines in the Faculty that can be found in Appendix A.

Blackboard/ Faculty Website

Teaching and learning materials for modules can be found on Blackboard (elearningportal.unn.ac.uk).

2. DEFINITIONS

Module: is the smallest sub-division of a Programme that represents a coherent learning experience with its own curriculum and assessment methodology (in other words a subject).

1 Module = 10 credit points = nominally 100 hrs of study

(The majority of the subjects studied within the School are double Modules i.e. worth 20 credit points and incorporating 200 hrs of study).

Programme: is a course of study consisting of a group of core Modules having a coherent structure and theme to form a specific award

Programme Leader: is the person who oversees the academic coherence of the Programme.

Module Tutor: is the person who is responsible for the delivery and assessment of a module.

Semester: is the minimum period over which a Module must be taught and assessed. It consists of 15 weeks of which, generally, 12 weeks are material delivery weeks and 3 weeks are assessment.

3. DIRECTOR OF PROGRAMMES FOR ENGINEERING AND PROGRAMME LEADERS

A number of academic staff are assigned to act as Programme Leaders for each Programme. They are your first point of contact if you have any general difficulties or queries. Their names are given below.

PROGRAMME	PROGRAMME LEADER/ TUTOR	STAFF MEMBER
MSc Programmes	Director of Programmes for Engineering	Dr Fawad Inam Room WJ 115 Tel.Ext.3741 Email: fawad.inam@northumbria.ac.uk
MSc Professional Engineering	Programme Leader	Dr N.Perera Room WJ 202 Tel.Ext. 7228 Email: noel.perera@northumbria.ac.uk

4. ADMINISTRATION

The Faculty Office EB B201 is open from 8.30 - 5.00 Monday to Thursday, 8.30 – 4.30 on Friday. The telephone number is (0191) 243 7379.

The Faculty Office is generally the first point of call for queries; staff can then direct students to the appropriate person or department. Students will hand course work into this office and will also be able to request and collect standard information, including; standard letters, council tax exemption forms, programme information, assessment regulations and student handbooks.

The Faculty office also holds all personal details and is responsible for processing personal extenuating circumstance forms.

There is a notice board outside the Faculty Office which is regularly updated and includes information regarding results publication, examination timetables and deadlines for personal extenuating circumstances.

The following page shows the areas that are considered as student responsibility, please read this page carefully.

5. STUDENT RESPONSIBILITY

The Faculty regards certain areas as ultimately being the responsibility of the student and you are therefore requested to carefully consider the following advice:

Submission of Personal Extenuating Circumstance Claims

The deadlines for submission of personal extenuating circumstances are published on the noticeboard outside the Faculty Office (EB B201), they are normally set as the first Tuesday after the last examination. The Faculty reserves the right not to accept claims submitted after the published date. To be considered by the PEC Board, claims must be substantiated with third party evidence. In cases where this evidence is not yet available, forms should be completed and submitted; with a note indicating that evidence will be provided when available (the diagram on the following page explains when a Personal Extenuating Circumstances form should be used and the process that will be followed).

Confirmation of withdrawal and/or programme transfers

If you decide to withdraw from a programme or you decide to transfer programme, the Faculty Office EB B201 and your programme leader must be informed of this change. It is also essential that you discuss this matter with an adviser from student services before withdrawal so that you are aware of all the implications of programme transfer / programme withdrawal. A change to option/module selection which is not formally notified will result in submission of incorrect data to the Examination Board, which in turn may cause problems with your progression on the programme. **Please note: - Any periods of absence from the programme should be reported to the Faculty Office, students with unsatisfactory attendance may be withdrawn from the programme.** In the case of an unconfirmed withdrawal the Faculty will inform your LEA/SLC/Sponsor.

Confirmation of Personal Data

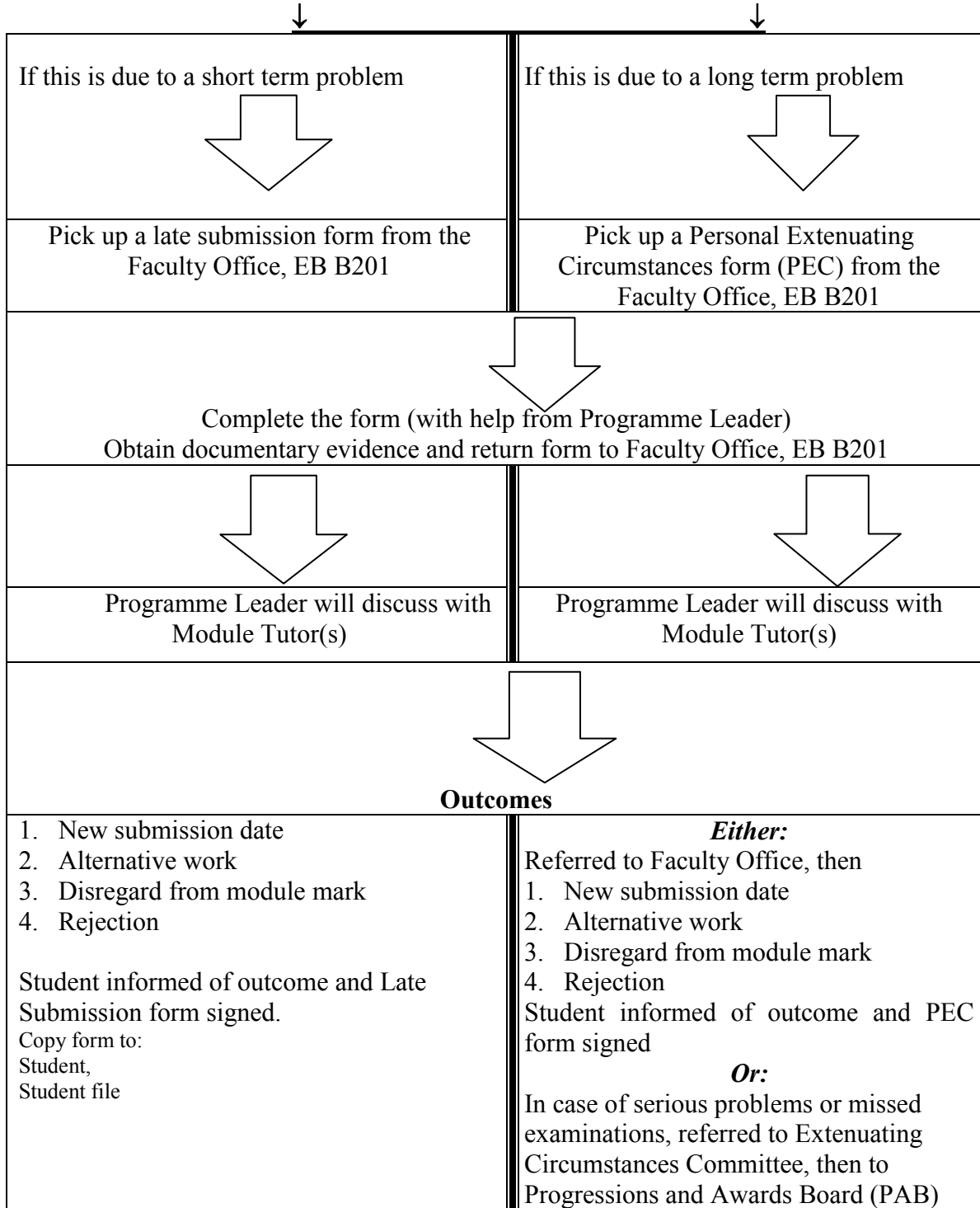
The Faculty Office EB B201 must be informed of any changes to your personal data, such as change of address, sponsor, name etc. Claims that you have not received information will not be considered unless you formally notify the Faculty Office.

Submission of Coursework

Students must adhere to published deadlines given by individual tutors for submission of coursework and it is important that you receive and retain receipts for work submitted. All course work must be submitted to the Faculty Office at the following times; Monday – Friday, 8.30 – 4.00 (the diagram on the following page explains when a late submission form should be used and the process that will be followed).

6. SUMMARY OF LATE SUBMISSION OF WORK/ PERSONAL EXTENUATING CIRCUMSTANCES REGULATIONS

DEADLINES - HAVE YOU MISSED ONE OR ARE YOU GOING TO DO SO?



NB: Computer problems are not accepted by the University as an excuse for failing to meet a deadline. If students cannot meet an assignment deadline due to a computer/printer fault, they should submit what they have on a CD disk and/ or USB stick for the deadline and they will not be given an extension.

7. ASSESSMENT REGULATIONS

For all students the assessment procedures and regulations will follow the “Assessment Regulations for Northumbria Awards”.

The University allows variation of the standard regulations to meet the accreditation requirements of the Engineering Institutions. Where this applies it will be detailed in section 15 of the Programme Specification.

Handing work in

All work that is submitted for marking is handed in via the Faculty Office. The lecturer will inform the Faculty Office that work is to be handed in on a particular day and time period. The student must obtain a proforma to attach to the front of the work and fill in the necessary details such as Module Number, Lecturer, Students name etc. and they will get back a receipt as proof of handing in. The work can only be handed in at this time and failure to do so will result in a mark of zero.

Late submission of work

The rules and regulations regarding the late submission of work and personal extenuating circumstances are as defined in ARNA. A summary of the regulations regarding the late submission of work and Personal Extenuating Circumstances can be found on page 8 and 9.

Plagiarism

Any assessed work that is submitted by a student should ensure that it is their own work and it fully acknowledges the opinions of others. This will normally include the following:-

- A full citation of all sources of material used
- Properly referenced sources using a recognized referencing system. Use “Cite them right” available at http://elp.northumbria.ac.uk/bbcswebdav/library/Library%20Content/Cite_them_right_secure.pdf

Full details of the regulations governing plagiarism can be found in Appendix 1 of the Assessment Regulations for Northumbria Awards.

8. PROGRAMME SPECIFICATION

The Programme Specification for the Programme, including the Programme structure and the Learning Outcomes to Module mapping grid, can be found in Appendix A.

9. STUDENT FEEDBACK

Students are encouraged to provide feedback to the Faculty and this is done through a number of mechanisms, both formally and informally.

Formally

Staff/Student Liaison Committee meeting

The Programme Director Chairs the meeting and is joined by the relevant year tutors. Students are required to elect a representative(s) from each year of the Programme, or more if required, to represent their views at the meeting, which take place once per semester. This is a forum for the students' to comment on any issue relating to the running of the Programme. These meetings then feed in to the Programme Committee.

Programme Committee meeting

Three elected student representatives, from within the Staff/Student liaison committee members, are invited to attend the Programme Committee Meetings to represent the student body. These occur once per semester and it is a forum for discussing and improving the programme, via Annual Review, with input from other sources as well as students and staff, such as external examiners, professional institutions and external validating bodies.

Module Evaluation Questionnaire.

The module tutor is responsible for obtaining feedback from all students via this proforma. It gives the students the opportunity to comment on the particular module, with respect to its delivery, content, suitability of assessment etc. feeds in to the Annual Review of the Programmes. The results of this are posted in the module box within Blackboard along with any response from the module tutor.

Programme Evaluation Questionnaire.

The Programme Leader is responsible for obtaining feedback from all students on the Programme and this information feeds in to the Annual Review of the Programmes.

Faculty Learning Experience Committee (FLEC).

One student from within the Faculty, who should be elected by the students, is required to attend the FLEC to ensure that the student body has an input in to the Quality Assurance and Enhancement of the Programmes.

Informally

Teaching Evaluation Questionnaire.

All members of academic staff are required to obtain feedback on their teaching. This is confidential but designed to improve individual teaching practice.

Programme Leader.

Students are encouraged to discuss openly with the Programme Leader any problems they may have. This allows any actions to be carried out quickly and outside of the formal mechanisms which can take longer.

The Faculty has an open door policy and students are encouraged to identify any problems they have at an early stage, via any mechanism, so that they can be dealt with promptly.

APPENDIX A



FACULTY OF ENGINEERING AND ENVIRONMENT

PROGRAMME SPECIFICATION

Please note that from January 2005

- *Where a programme is delivered in more than one mode:

 - a full Programme Specification is completed for what is deemed to be the **main** mode
 - details of other modes (part-time, franchise deliveries etc.) are entered onto a Delivery Supplement which is attached to the main document
 - one or more delivery supplements may be included at the time of validation, or added when an additional mode of delivery is subsequently approved.*
- *Any changes made to an approved Programme Specification are indicated on a Log of Changes sheet, and appended.*

Sections 1-10 below indicate all modes of delivery and attendance, with the **main mode** highlighted by the use of **bold** type; sections 11-20 refer to the main mode of delivery.

1.	<u>Programme Title and Award</u>	MSc Professional Engineering		
2.	<u>External Admissions Code</u> if applicable			
3.	<u>Northumbria Programme Code(s)</u> please indicate the programme code(s) for the main delivery in bold	14FENG-N-PEN6 BN, 14FENG-N-PEN6 FN		
4.	<u>Mode(s) of Delivery</u> please indicate the main mode of delivery in bold	Classroom-based _____	Distance Learning _____	Blended _____
5.	<u>Mode(s) of Attendance</u> please indicate the main delivery in bold	Full-time _____	Sandwich _____	Part-time _____
		Other please specify _____	Work Based Learning (WBL) _____	
6.	<u>Location(s) of Delivery</u> if other than Northumbria	Employer's venue and/or Northumbria University		
7.	<u>Collaborative Provision</u> if applicable	Franchised _____	Validated _____	Joint _____ Dual _____
		Partner Institution(s) _____		
8.	<u>Date(s) of Approval/Review</u>			
9.	<u>QAA Subject Benchmark Group</u> if applicable	Engineering		
10.	<u>PSRB accreditation</u> if applicable	Suitably qualified graduates from the programme will be eligible to apply for individual accreditation by the Institution of Engineering and Technology (IET) and The Institution of Mechanical Engineering (IMechE)		

Sections 11 – 20 relate to the main delivery as indicated in bold above.

11. **Educational Aims of the Programme** Specified in terms of the general intentions of the programme and its distinctive characteristics; these should be consistent with any relevant benchmark and with the Mission of the University.

This Work Based Learning (WBL) programme aims to meet the demand for further learning for individuals with partial fulfilment of the educational requirements of professional bodies. Students enrolled on the programme have expertise to understand, critically evaluate and apply modern advanced engineering techniques within the context of the workplace. Moreover, students are expected to possess in-depth knowledge and understanding coupled with the skills to analyse, model and optimise advanced engineering systems. This programme aims to provide a clear a route to professional body registration with the ultimate goal in attaining the chartered status.

Aims:

- *Develop competent graduates who are academically and technically competent in the problem solving process.*
- *Enhance the students' academic and professional development thereby enabling them to be self-evaluative, reflective and life long learners.*
- *Develop the application of professional and ethical principles, standards and practices in the related subject discipline.*
- *Develop the ability of exploiting new insights and proposing new solutions through critical appreciation and assessment of current engineering issues.*
- *Enable students to develop higher order skill sets - of synthesis, analysis and communication through reflective systemic practice.*

The MSc Professional Engineering has adopted the university framework for Work Based Learning with an overarching design to meet the needs of industry and professional bodies through the application of work-based learning. This programme is facilitated through close cooperation between the university, industry and relevant professional bodies providing a framework for the integration of professional expertise and scholarly activity. This is in keeping with the University Mission by promoting:

- Challenging, innovative teaching and learning which empowers the active learner;
- Widening participation through the application of work based learning;
- Strengthening of the economic, environmental and cultural life of the region through opportunities in higher education, creating partnerships, integrating with communities, and generating and disseminating valuable knowledge.

12. **How Students are Supported in their Learning/Employability/Career Development** eg curriculum design, personal development plans, placements, fieldwork, practical projects.

The programme supports Northumbria University's aim to "promote a high-quality student experience, through a comprehensive network of student support and guidance services". Support for students in their learning is provided by:

- the Induction Programme, informing students of further details of the programme, assessment, University support (Student Services), careers guidance, information services (library, internet, intranet, Blackboard, email), laboratory hardware and software, the Guidance Tutor System and their particular Guidance Tutor,
- the Programme Handbook detailing programme structure, assessment schedule, regulations, available support, module descriptors,
- the University and School web resources, including Blackboard, detailing staff, programme and module information, and providing learning materials,
- the Programme Team – the individual Module Tutors and the Projects Tutor, the Programme Leader and the Director of Programmes for Engineering,
- the School's Retention Advisor whose role is to enhance student progression and programme completion,
- direct access to all staff,
- direct academic support via Blackboard, email, telephone, post and fax,
- the Electronic Gateway which provides 24 hour access on and off campus to subject gateways, periodicals, electronic databases and library catalogues, including the City and Newcastle University Libraries.

The programme is designed as a system of work-based modules which:

- (i) Enable individuals/organisations to negotiate the focus of their learning
- (ii) Relate theory to practice through critical reflection
- (iii) Enables learners to focus on the workplace, contextualising their learning
- (iv) Promote innovative teaching, learning and assessment strategies applicable to the workplace
- (v) Promote professional and personal development of learner and allow for recognition of previous learning.

The first module on the programme is a Learning Contract (10 credits), forming an entry gateway. This is designed to provide a professional development audit from which a knowledge, skills, and competencies gap assessment can be determined. Highlighted deficiencies from the audit are then planned by the student into an unfolding work based learning roadmap throughout the programme.

The programme is structured with varying in size modules of work based learning to accommodate a flexible structure to accommodate a number of patterns of study that a student may require in their learning. Applied Prior Learning (APL) is available up to 50 credits and will be assessed within the learning contract. Exception from modules of study is limited to the first year of the programme and can be applied for by demonstrating experiential or certificated forms of learning.

The last module on the programme is an exit gateway composed of the MSc dissertation (60 credits). Within the dissertation assessment is looking at the combination of both technical depth and breadth where the student exemplifies all aspects of the learning outcomes for the module. Moreover the student provides a critical reflection on their achievements at the end of the programme in contrast to the professional development audit in the learning contract.

The programme has been designed to support an aim of the University, namely to "promote the employability, lifelong learning and continuing professional development of its students". It is structured to enable students to study in a flexible manner which can adapt to lifestyle commitments.

All postgraduate students will have enhanced research skills to enable them to progress, if desired, to an academic or research oriented career, where careers advice and information concerning further research is available to all students

13. **Learning Outcomes of Programme** Specified in terms of performance capabilities to be shown on completion of the programme. Please identify numerically to correspond to the map of learning outcomes in section 18.

a) Knowledge and Understanding

A1. A comprehensive understanding of the scientific principles of own specialisation and related disciplines.

A2. An awareness of developing technologies and how these can influence current technologies related to own specialisation,

A3. The ability to use fundamental knowledge to investigate new and emerging technologies, in the construction of new solutions to complex problems.

A4. Clear knowledge and understanding of both management and business practices, and their limitations, and how these may be applied appropriately

A5. A breadth of knowledge and understanding of a wide range of engineering materials and components.

b) Intellectual Skills

B1. Clear understanding and application of complex engineering concepts from within the specialist discipline and a broader awareness of concepts over a range of areas including some outside engineering.

B2. Ability to extract data pertinent to an unfamiliar problem from a variety of sources, and apply in its solution using computer based engineering tools when appropriate.

B3. Within the development of projects or problem solutions a wider general evaluation of commercial risks with the ability to mitigate such risks.

B4. A demonstrated individual ability to identify, project manage and execute a significant project by conducting appropriate independent research and applying a range of specific technical, mathematical and computer aided design skills.

B5. The ability to apply mathematical modelling and computer based simulation tools to find new solutions to existing or new problems, and yet maintain awareness to the fundamental limitations of such methodologies.

c) Practical Skills

- C1. Appropriately apply analytical and modelling techniques in the design of solutions to commercial problems.
- C2. Comprehensive understanding of design processes and different design methodologies with the critical ability to adapt any such process or methodology to fit new and unfamiliar situations.
- C3. Prepare and manage project reports, integrating practical skills across disciplines effectively with an overview of current sustainability.
- C4. Be innovative and creative in application of technology in solving problems, finding solutions or developing new procedures to fulfil new needs.
- C5. Comprehensive ability to apply computer modelling and simulation tools to the design process

d) Transferable/Key Skills

- D1. The ability to learn independently, improving existing skills and developing new skills to a high level, enabling them continued professional development, a strategy for life long learning.
- D2. Demonstrate effective communication skills for ideas, arguments, problems and their solution in both written and oral form to specialist and non-specialist audiences
- D3. An individual's ability to engage in critical self appraisal of their own learning experience, personal strength, limitations and performance.
- D4. Ability to manage time resources over extended periods of time.
- D5. An understanding of current practices within the subject discipline and their limitations and likely new developments.
- D6. Ability to apply engineering knowledge and skills into non technical areas taking into account the business case, commercial exploitation aspects and any industrial constraints.

14. **Learning, Teaching and Assessment Strategy** Specified to enable learners to achieve and demonstrate the above learning outcomes.

The curriculum and learning, teaching and assessment methods have been designed to provide a developmental continuum from Post graduate

Certificate through to the Diploma to full Masters awards, supporting the progressive development of the Learning Outcomes and the demands of increasingly advanced postgraduate work.

The learning, teaching and assessment strategy complies with the two key pedagogic principles of work-based learning that:

- a) the learning is negotiated with the workplace where learner need provides the curriculum focus.
- b) the role of reflection on the link between practice and theory is central.

The work-based learning and the learning strategy arising from this will be unique to individuals or groups of learners. This programme will employ a wide variety of teaching and learning strategies, which will be negotiated between learner, tutor and the relevant organisation and detailed within the study proposal. Learners will be supported by way of a negotiated series of induction programmes; workshops; training sessions; directed and independent study; employer-led provision including CPD (Continual Professional Development) activity. In addition, they will receive on-line, paper-based and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

The learning, teaching and assessment methods fully comply with the University and School strategy and guidelines, and the QAA Code of Practice on Assessment. The methods provide diversity, incorporating appropriate techniques to fit both the particular subject under study and the depth of learning required at postgraduate level. The assessment strategy complies with the requirements of the work-based learning framework and includes:

- 1) *Formative Assessment*, predominantly through: individual learning plans, project proposals, presentations and evidence of reflective practice e.g. learning journals which use the workplace and practice, to demonstrate achievement;
- 2) *Summative Assessment*, mainly by way of formal learning contracts project reports, independent study reports and critical incident logs all wrapped up together inside a portfolio structure.

The intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice through a *portfolio of activities*. Knowledge and understanding is continuously assessed via tutor-assessed portfolios. The learner is required to construct a portfolio of evidence using a variety of assessment activities. The learning process provides for a number of formatively assessed activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue. The culmination of this process is the submission of the required evidence in the form of a portfolio which reflects the individual's personal and professional development, intellectual growth and journey of learning. The portfolio comprises the formatively assessed mandatory proposal and presentation, and a summatively assessed report along with other supporting evidence.

Intellectual skills are assessed by tutor-marked assignments, requiring critical evaluation and creative interpretation of theories and concepts and project reports. The overall assessment strategy is designed so that the learners draw on their personal and professional experience as a resource for learning and as sites for the application of course concepts.

Practical skills are fostered through the use of work-based research activities, teaching materials and an assessment strategy concerned with enabling students to use the concepts and skills in their own professional and personal contexts. These are assessed through *work-based projects* requiring application of theory into practice, including a consultancy project.

Transferable/key skills are developed through teaching materials that require students to be self-organised and support via tutor feedback and guidance.

Learning skills developed include planning, time management, project management, and self-assessment and reflective writing which helps the learner to identify strengths and needs so as to aid the setting of priorities and to monitor personal progress. Key skills are assessed by tutor-marked assignments and presentations. As part of assessment students are required to reflect on and to evaluate their own conduct, communication and team work skills.

Assessment is seen as an integral part of the learning process and the programme has been designed to ensure that the overall balance of assessment tasks measures the learning outcomes in an effective and efficient way. Both summative and formative elements are utilised, the latter to provide students with feedback.

It has been ensured that the learning outcomes for each individual module are not over-assessed, and do not produce unmanageable workloads for students and staff. This measure ensures that students can produce work to the best of their abilities and that staff can be confident that the marks given are accurate. To support the University's aims of promoting and disseminating research and scholarly activity and knowledge, where possible and appropriate a student will be paired with an academic supervisor who is an active researcher in the student's area of research. This activity has the potential of generating publishable research papers, for the mutual benefit of the student, the School, the University and the discipline itself.

15. Programme Structure The Modularised Framework for Northumbria Awards² allows programmes to be validated with up to 30 Level 6 credits. Possible stages/awards are indicated; please delete rows as required. Diagrams can also be used to demonstrate the structure.

Programme Structure Refer if necessary to appended diagrams

	Postgraduate Certificate 60 credits at Level 7	Conditional exit point for candidates who are unable to complete their studies. The student will be expected to have successfully achieved 60 credits at level 7.
	Postgraduate Diploma 120 credits at Level 7	"In accordance with section 4.1.3 of the Assessment Regulations for Northumbria Awards, this programme has a formal progression point after completion of 120 credits."
	Level 7 180 credits at Level 7	180 credits. The programme structure is described in Appendix A

² The Modularised Framework for Northumbria Awards available from <http://Northumbria.ac.uk/sd/central/ar/lts/approval/framework/>

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POSTGRADUATE PROGRAMME SPECIFICATION**

16.	Lower Level Awards Credit Structure and Programme Learning Outcomes for Lower Level Awards. Please delete or add rows as appropriate, with reference to the Assessment Regulations for Northumbria Awards ³ . Learning outcomes should be specified for each lower level award in accordance with the QAA Framework for Higher Education Qualifications ⁴ which also provides generic qualification descriptors for each level. The standard credit structure for each award is given below. The Modularised Framework for Northumbria Awards ² allows postgraduate taught programmes to be validated with up to 30 Level 6 credits.	
	Award	Programme Learning Outcomes may be completed with reference to section 13.
	Postgraduate Certificate 60 credits at Level 7	The fulfilled Programme Learning Outcomes depend upon the modules successfully completed. Please refer to section 13 for full details of the Programme Learning Outcomes corresponding to each module.
	Postgraduate Diploma 120 credits at Level 7	All learning outcomes except b7, which requires the execution of the work based dissertation. Please refer to section 18 for full details of the Programme Learning Outcomes corresponding to each module.

17.	Variation from Assessment Regulations or the Modularised Framework Provide details of any approved variations from the Assessment Regulations for Northumbria Awards (ARNA) ³ or the Modularised Framework for Northumbria Awards ² .	
	None.	

² The Modularised Framework for Northumbria Awards available from <http://Northumbria.ac.uk/sd/central/ar/lts/approval/framework/>

³ The Assessment Regulations for Northumbria Awards available from <http://Northumbria.ac.uk/sd/central/ar/lts/approval/assess/>

⁴ There is a link to the QAA Framework for Higher Education Qualifications at <http://Northumbria.ac.uk/sd/central/ar/lts/approval/>

NORTHUMBRIA UNIVERSITY
POSTGRADUATE PROGRAMME SPECIFICATION

18. Mapping of Learning Outcomes

This section shows how the individual modules (with module learning outcomes as written in the module descriptor) together contribute to programme learning outcomes. It should be presented as a matrix of programme learning outcomes (as identified numerically in section 13), against modules. Where a module contributes to a programme learning outcome it should be flagged. Standard practice will be for a single symbol to indicate a learning outcome addressed in the module. See guidance notes for discussion of alternative practices.

The following matrix is for a programme structure with 6 learning outcomes in each of the categories of section 13, with rows for modules. See guidance notes for a discussion of the treatment of option modules. The matrix should be extended as required.

Module code	A) Knowledge & Understanding					B) Intellectual Skills					C) Practical Skills					D) Transferable Key Skills						
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6	
<i>UKSPEC Learning outcomes</i>	<i>A1</i>	<i>A1</i>	<i>A2</i>	<i>C1</i> <i>E1</i>	<i>B2</i> <i>E2</i>	<i>B1</i> <i>B2</i>	<i>B2</i> <i>B3</i>	<i>C2</i>	<i>C1</i> <i>C3</i>	<i>B3</i> <i>C4</i>	<i>E3</i>	<i>C1</i>	<i>D2</i> <i>E3</i>	<i>C4</i>	<i>A2</i> <i>B3</i>	<i>E4</i>	<i>D1</i> <i>D2</i>	<i>D3</i> <i>E4</i>	<i>C3</i> <i>C4</i>	<i>E3</i>	<i>C2</i> <i>C4</i>	
IS0752				X			X	X		X	X		X	X			X		X		X	
EN0760	X		X	X	X	X			X		X	X	X			X			X	X		
EN0732	X	X	X	X							X		X			X		X		X		
EN0733				X		X	X			X	X		X		X	X		X		X		
EN0734				X	X	X		X	X							X	X	X		X	X	
EN0735	X	X		X	X	X	X		X			X				X		X				
EN0761			X	X	X	X		X	X	X	X					X	X	X			X	
EN0738	X			X		X		X		X			X				X				X	
EN0739 Dissertation		X	X			X	X	X	X	X	X	X		X	X						X	

NORTHUMBRIA UNIVERSITY
POSTGRADUATE PROGRAMME SPECIFICATION

<p>A1. A comprehensive understanding of the scientific principles of own specialisation and related disciplines.</p> <p>A2. An awareness of developing technologies and how these can influence current technologies related to own specialisation,</p> <p>A3. The ability to use fundamental knowledge to investigate new and emerging technologies, in the construction of new solutions to complex problems.</p> <p>A4. Clear knowledge and understanding of both management and business practices, and their limitations, and how these may be applied appropriately</p> <p>A5. A breadth of knowledge and understanding of a wide range of engineering materials and components.</p>	<p>C1. Appropriately apply analytical and modelling techniques in the design of solutions to commercial problems.</p> <p>C2. Comprehensive understanding of design processes and different design methodologies with the critical ability to adapt any such process or methodology to fit new and unfamiliar situations.</p> <p>C3. Prepare and manage project reports, integrating practical skills across disciplines effectively with an overview of current sustainability.</p> <p>C4. Be innovative and creative in application of technology in solving problems, finding solutions or developing new procedures to fulfil new needs.</p> <p>C5. Comprehensive ability to apply computer modelling and simulation tools to the design process</p>
<p>B1. Clear understanding and application of complex engineering concepts from within the specialist discipline and a broader awareness of concepts over a range of areas including some outside engineering.</p> <p>B2. Ability to extract data pertinent to an unfamiliar problem from a variety of sources, and apply in its solution using computer based engineering tools when appropriate.</p> <p>B3. Within the development of projects or problem solutions a wider general evaluation of commercial risks with the ability to mitigate such risks.</p> <p>B4. A demonstrated individual ability to identify, project manage and execute a significant project by conducting appropriate independent research and applying a range of specific technical, mathematical and computer aided design skills.</p> <p>B5. The ability to apply mathematical modelling and computer based simulation tools to find new solutions to existing or new problems, and yet maintain awareness to the fundamental limitations of such methodologies.</p>	<p>D1. The ability to learn independently, improving existing skills and developing new skills to a high level, enabling them continued professional development, a strategy for life long learning.</p> <p>D2. Demonstrate effective communication skills for ideas, arguments, problems and their solution in both written and oral form to specialist and non-specialist audiences</p> <p>D3. An individual's ability to engage in critical self appraisal of their own learning experience, personal strength, limitations and performance.</p> <p>D4. Ability to manage time resources over extended periods of time.</p> <p>D5. An understanding of current practices within the subject discipline and their limitations and likely new developments.</p> <p>D6. Ability to apply engineering knowledge and skills into non technical areas taking into account the business case, commercial exploitation aspects and any industrial constraints.</p>

19. Admission Requirements Please give details of specific programme requirements including approved arrangements for admission with advanced standing, where appropriate.

Two of Northumbria University's aims are "to promote opportunities and access to students with a variety of ambitions and from different circumstances", and "to promote global recruitment and international activity". In support of both of these aims, the ability to benefit from the programme is assessed on a combination of academic and personal qualities that can be demonstrated in a number of ways. Successful completion of a Degree level study (or some other equivalent qualification) is just one way. Students, who can in other ways demonstrate their ability to benefit from the programme, in particular mature students without formal qualifications, will always be considered and will be invited to contact the School's Postgraduate Admissions Tutor to discuss their application.

It is University policy to recognise a wide variety of evidence, and potential applicants may wish to discuss this aspect of their application with the Programme Leader.

Standard Entry Requirements

Successful applicants will normally hold an honours degree (2:2 or above) in either Electronic Electrical Engineering or Mechanical Engineering. Candidates may hold a professional qualification of equivalent standing which had a significant requirement for academic study. Applicants who are not graduates and do not hold professional qualifications of equivalent standing may be considered for entry if they show evidence of a strong motivation and capability for academic study and personal development (e.g. evidence of attendance at short courses) and/or significant depth of work experience and responsibilities for initiating and influencing performance improvement and innovation.

Where the English language is not the first language, applicants are required to have an English Language IELTS score of 6.5, or equivalent.

Interviews will be held where

- further evidence is sought from the candidate,
- candidates present an unusual set of qualifications taken or pending, and an appropriate conditional offer needs to be determined,
- candidates may need advice on the appropriateness of the programme, or on the appropriateness of a proposed preparatory programme of study.

Applicants invited for an interview will always be informed of its purpose.

20. Application Procedure The approved procedure should be indicated

The standard University postgraduate applications procedure will apply.

NORTHUMBRIA UNIVERSITY
POSTGRADUATE PROGRAMME SPECIFICATION

APPENDIX A. MSc Professional Engineering. Programme Structure.

MSc Professional Engineering			September Start		Work Based Learning
First Year			Second Year		
Semester 1	Semester 2	Summer	Semester 1	Semester 2	Summer
Oct - Jan	Feb - May	Jun - Sep	Oct - Jan	Feb - May	Jun - Sep
EN0760 Learning Contract and Managing Learning	IS0752 Research & Project Management (DL)	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738

MSc Professional Engineering			January Start		Work Based Learning
First Year			Second Year		
Semester 2	Summer	Semester 1	Semester 2	Summer	Semester 1
Feb - May	Jun - Sep	Oct - Jan	Feb - May	Jun - Sep	Oct - Jan
EN0760 Learning Contract and Managing Learning	IS0752 Research & Project Management (DL)	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738

MSc Professional Engineering			May Start		Work Based Learning
First Year			Second Year		
Summer	Semester 1	Semester 2	Summer	Semester 1	Semester 2
Jun - Sep	Oct - Jan	Feb - May	Jun - Sep	Oct - Jan	Feb - May
EN0760 Learning Contract and Managing Learning	IS0752 Research & Project Management (DL)	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738	OPTION Select one from: EN0732, EN0733, EN0734, EN0735, EN0761 , EN0738

Note:

EN0732, EN0733, EN0734, EN0735, EN0761 and EN0738 delivered during each semester.

Third Year: EN0739 Work Based Dissertation, 60 credits

Option modules:

- EN0732 Technology Developments, 20 credits
- EN0733 Scientific Principles in Design, 20 credits
- EN0734 Business Practice and New Technology, 20 credits
- EN0735 Computer Models and Problem Solving, 20 credits
- EN0761 Adopting New Technology, 20 credits
- EN0738 Academic Recognition for CPD, 20 credits

MODULE DESCRIPTORS

Go to <http://northumbria.ac.uk> to view Module Descriptors

- **Go to current student**
- **Module Search**

Module descriptors of all the modules on this programme are listed on the next page.

MODULE DESCRIPTOR

Guidelines for completion are available¹ as are Red Guides on Developing a new module and Delivering a module².

1. Module Code	EN0760	2. Title of new module	Learning Contract and Managing Learning
3. Subject Division where relevant	Mechanical Engineering		
4. Module level 4, 5, 6 etc.	7	5. Module Tutor	Noel Perera
6. Credit points 10, 20,30 etc	20	7. Year long or semester based	YL
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work based study		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Newcastle City Campus		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is concerned with the concept of the autonomous learner and the process of continuous self-development and improvement. Learners will be expected to develop a constructive approach to the acquisition of high level skills and knowledge through the identification of their own development needs and the systematic reflection and evaluation of the learning, which has been derived through this process.

The module will employ distance and work based teaching and learning strategies, which will be negotiated between learner, tutor and the relevant organisation. Learners will be supported by way of a negotiated series of surgeries at which they will be directed and supported through the various stages of the module. In addition, they will receive support via email correspondence, e-learning platforms, telephone conversation and face to face surgery support (as appropriate) from

¹ <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>
² <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

their academic tutor and from their workplace supervisor (where appropriate).

Summative assessment will be via the development of:

- A detailed Learning Contract (LC) (50%). The LC will be based upon the learner's own identified professional and workplace development needs for the whole programme of learning.
- A portfolio of evidence which reflects the individual's personal and professional development, intellectual growth and journey of learning (50%). The portfolio will consist of a Critical Incident Log with supporting evidence that records key positive and negative occurrences in the learner's workplace, and a personal review of learning in the form of a report based upon a reflection on the cause and impact of the event(s) and what personal / behavioural / organisational changes are identified

Written and verbal (as appropriate) feedback will be provided during the negotiated series of surgeries and via email correspondence, e-learning platforms, telephone conversation and face to face surgery support. Written feedback will be provided on the Critical Incident Log and personal review of learning report, and on the LC.

11. Indicative reading list or other learning resources (SITS 0002)

1. Recommendations for purchase by students

N/A

2. Books

- Anderson, G., Boud, and D., Sampson, J. (2003). Learning Contracts: a Practical Guide. Kogan Page
- Cunningham, I., Bennett, B., and Dawes, G. (2000). Self Managed Learning in Practice. Gower
- Jarvis, P., Holford, J., and Griffin, C. (2008). The Theory and Practice of Learning 2nd ed. Kogan Page London

3. Journal Articles

N/A

4. Journals and Newspaper Titles

N/A

5. Databases and Websites

N/A

6. Any Other Resources

- IET. (2004). UK-Specification for Engineering – UK-Spec, IET
- Learners will also be encouraged to exploit the full range of resources available to them within their working environment, from the University Learning Resources and other appropriate sources

12. Outline syllabus (SITS 0003)

A list of module contents

- Devise a learning programme under guidance from the tutor – the learner will analyse their previous learning achievements, identify their own objectives and then devise a learning programme in order to achieve these objectives in the form of a Learning Contract based on the following headings:
 - Title of programme/award
 - Details of those involved:
 - Learner(s)
 - University (i.e. Academic Tutors, Programme Leader)
 - Signed Agreement
 - Learner(s)
 - University (Programme Leader)
 - Professional Development Audit (PDA) which includes
 - A biographical outline of the learner's relevant experience
 - Learner self-evaluation of personal /professional development and prior learning experience / style of learning
 - Description of the learner's skills, knowledge and experience with reference to the UK-Spec Learning Outcomes
 - Programme Aims and Outcomes
 - Programme details including schedule of Modules (by title), AP(E)L
 - Start & End Dates
 - Module details including learner derived outcomes (where applicable), learner activity and mode of assessment
- Develop under guidance from the tutor a Critical Incident Log – whereby the learner records key positive and negative occurrences in the workplace. This will be used as the basis for reflection upon the cause and impact of the event(s) and what personal / behavioural / organisational changes are identified.
- Understanding the process of learning through concepts such as Kolb's Learning Cycle, Action Learning, and Social Learning etc.
- The use of techniques such as SWOT analysis to appraise and critically analyse current learning and experience
- The use of Training Needs Analysis (TNA) techniques to identify own learning needs and the 'Training Gap'
- Methods to identify resources and support needs
- Effective use of study skills and resources
- The use of Learning Styles questionnaires to identify own learning styles
- Methods to identify and manage learning and professional development opportunities within the work context and within other traditional and non traditional learning environments
- Methods to recognise and present learning gained from experience
- Strategies to: plan; organise; negotiate; effectively manage; implement; record; review and evaluate a programme of study within a specified/agreed time-scale
- Time management, SMART action planning, and personal goal setting

13. Aims of module (SITS 0004)*Broad statement of educational intent and overall purpose of module*

The module aims to enable learners undertaking an MSc Professional Engineering

award through the Work-based Learning Framework to develop the skills and knowledge necessary to analyse their previous learning achievements, identify personnel learning objectives based on their professional and workplace development needs and devise a programme which will enable them to be met. Specifically the learner will determine the gap between their current competences and those required by the relevant Professional Engineering Institution (PEI) to achieve the educational basis for CEng status according to the UKSpec Learning Outcomes. They will then devise and manage a learning programme to help them develop the necessary knowledge and skills. The student will evaluate and reflect upon the learning derived through their learning programme.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

Upon completion of this module the student will be able to:

1. Critically evaluate their previous and current learning in order to identify its extent and level measured against the requirements of the intended programme of study (UKSpec E4)
2. Critically evaluate potential projects and opportunities in the organisation and implement learning strategies that contribute to the ongoing strategic development of the organisation (UKSpec C1, B2)
3. Demonstrate a thorough understanding of the scientific principles of their own specialisation and related disciplines, including current practice and its limitations, and some appreciation of likely new developments (UKSpec A1, C3)
4. Apply engineering techniques and concepts from a range of areas including some outside engineering them effectively in engineering projects, taking account of a range of commercial and industrial constraints as appropriate (UKSpec A2, B2, E3)
5. Present the learning achieved and critically evaluate its impact on their career and upon the strategic development of their organisation and/or profession (UKSpec C4, D2)
6. Accept full responsibility and accountability for the development and implementation of a learning contract (UKSpec C2, D2, E4)

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

Learners must:

- be in employment, preferably in an engineering environment, or engaged in voluntary work through which their learning development can be focused, planned and demonstrated
- have the support of their employer, or another relevant organisation or individual.

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

The module enables learners to engage with reflective practitioner strategies to consider their academic and professional strengths and weaknesses, and to identify areas for development.

The learner will take responsibility for the development of a personal Learning Contract designed to meet their learning objects and the UKSpec Learning Outcomes, drawing on tutor and workplace supervisor support.

Learners will be supported and guided through the various stages of developing the Learning Contract. Learners will be supported by way of a negotiated series of surgeries at which they will be directed and supported through the various stages of carrying out a piece of independent study. In addition, they will receive support via email correspondence, e-learning platforms, telephone conversation and face to face surgery support (as appropriate) from their academic tutor and from their workplace supervisor (where appropriate).

This module will employ distance and work based teaching and learning strategies. These will be negotiated between the learner, the tutor and the relevant organisation. The learner will reflect upon these strategies within a critical incident log and a personal review of learning.

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a Summative assessment and rationale for tasks

There will be two components of summative assessment which are designed to incorporate the intrinsic nature of work-based learning into the assessment strategy by encouraging learner autonomy and reflection on practice.

In the first (50%) the learner will be required to construct a Learning Contract (LC)

based upon their personal/professional development needs. The LC will form the entry gateway to the MSc Professional Engineering programme. Its development will include a Professional Development Audit (PDA). The PDA will be a reflective examination and assessment of the learner's education, qualifications, experience and competences upon enrolment. The PDA, and the resulting LC will be used by the student to

- Determine the gap between their current competences and those required by the relevant Professional Engineering Institution (PEI) to achieve the educational basis for CEng status according to the UKSpec Learning Outcomes
- Devise and manage a learning programme to help them develop the necessary knowledge and skill to achieve the programme learning outcomes.

The LC will need to take into consideration relevant ethical, commercial, industrial, confidential and data protection constraints. Any Accredited Prior Learning (APL) undertaken will also be recorded in the LC. The LC will include a PDA with a 2,000 word description of the learner's skills, knowledge and experience that is cross-referenced to the UK-Spec Learning Outcomes to show where they will be met by the learner. The learner will need to demonstrate that relevant ethical, commercial, industrial, confidential and data protection constraints have been taken into consideration.

In the second (50%) the learner will be required to construct a portfolio of evidence which reflects the individual's personal and professional development, intellectual growth and journey of learning. The portfolio will consist of a Critical Incident Log (1,500 words) with supporting evidence that records key positive and negative occurrences in the learner's workplace, and a personal review of learning in the form of a report (1,000 words) based upon a reflection on the cause and impact of the event(s) and what personal / behavioural / organisational changes are identified. Learners will be assessed on their ability to:

- manage, record, reflect and critically evaluate the learning process and take into consideration relevant ethical, commercial, confidential and data protection issues
- apply and evaluate a range of solutions to complex organisational and personal issues
- identify and manage complex personal and organisational development needs
- implement solutions

b. Additional formative assessment – detail of process and rationale

The learning process provides for formative assessment as part of an iterative process of negotiation of and feedback on the evidence required to meet the assessment criteria involving the learner and tutor (and workplace mentor where appropriate).

c. Indication of how students will get feedback and how this will support their learning

Written and verbal (as appropriate) feedback will be provided during a negotiated series of surgeries and via email correspondence, e-learning platforms, telephone conversation and face to face surgery support.

Written feedback will be provided formally after the Critical Incident Log and personal review of learning report has been submitted. The process of the development of the Critical Incident Log and report may be iterative, providing clear and targeted feedback to help the learner improve their work.

Written feedback will be formally provided after the submission of the Learning Contract to clearly identify the strengths and weaknesses of the proposed programme study plan. The process of the development of the Learning Contract may also be iterative, providing clear and targeted feedback to help the learner improve their work.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)
Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery
 (SITS Module Descriptor Sequence 0012)
The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>	FT/PT			
Lectures	0			
Seminars	0			
Tutorials	6			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	114			
Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	0			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

* Other hours are indicative of student support provided by the tutor in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

22. Form of Reassessment
Either synoptic or non-synoptic reassessment

Y/N

Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i>	Y
Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	N

23. Component Assessment

To be completed for each component of assessment

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation</i>	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting <i>% or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall</i>	Final assessment Y/N
001	CW	Written Programme Learning Contract (2,500 words)	50	N
002	CW	Portfolio comprising a Critical Incident Log (1,500 words) with supporting evidence, and a personal review of learning in the form of a report (1,000 words)	50	Y

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24. **Date of SLT Approval**

25. **Subject code**
This ensures that the correct area receives appropriate funding and should be completed in consultation with the School Registrar or nominee. Advice can also be sought from Financial Planning.

26. **Module mark scheme assigned³**

27. **Component mark scheme assigned³**

- For each component listed in section 23 indicate the mark scheme attached.

³A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>

	<ul style="list-style-type: none"> Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN. 	
	001	

28.	Date of entry onto SITS	
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³A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available⁴ as are Red Guides on Developing a new module and Delivering a module⁵.

1. Module Code	EN0761	2. Title of new module	Adopting New Technology
3. Subject Division <i>where relevant</i>	Electrical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Safwat Mansi
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	YL
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	City Campus / Off site- candidate's work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is work-based and will focus on the effects of the deployment of new technology within a business. Problematic issues are raised in the module to heighten awareness of new technology as applied within the context of the learner's employment. Learners are required to identify a work-based project involving the deployment of new technology that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be accountable for developing and managing this project.

The work performed has to ensure it has a clear focus towards achieving the relevant UKSpec learning outcomes mapped in the Learning Contract that the student will have produced for the MSc Professional Engineering programme of study.

⁴ <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>
⁵ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

The module seeks to raise the learner's awareness of the workplace as a learning environment and extend their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational-based issues and seek to develop higher level skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation.

Learners will be assessed through the development of a portfolio. This will consist of a:

- mandatory written project proposal (including a project plan), 500 words, and presentation concerning the deployment of new technology in their business that will be formatively assessed
- 4,000 word report based on the formative project proposal and presentation that will be summative assessed. A draft version of this work will be formatively critiqued to focus the learner towards UKSpec mapping and clarity of mapping academically to the workplace.
- written reflection on the contribution that the assessed work for this module makes in achieving the relevant UKSpec learning outcomes specified in the learning contract and the learning that they have derived from it. Changes to the Learning Contract are expected and need to be planned for where company work in practice can be assessed in part through a reflection section of the written report.

In the assessment, learners will be expected to demonstrate that relevant ethical, commercial, confidential and data protection issues are taken into consideration. Personal development, intellectual and practical skills should be exemplified in the work performed for the module that provides benefit to the learner's employing organisation.

Learners will be supported and guided through the module, including the various stages of carrying out a work-based project, receiving formative feedback as required. They will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate). Written feedback will be provided on the report.

11. Indicative reading list or other learning resources (SITS 0002)

7. Recommendations for purchase by students

N/A

8. Books

- Boud, D, Soloman, N. (2001). Work-based Learning – A New Higher Education? Open University Press
- Leedy, P.D. (2004). Practical research : planning and design 8th ed Upper Saddle River, N.J. Merrill
- Luck, M. (1999) Your student research project. Gower
- Maylor, H. (2002) Project Management Prentice HallU
- Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed. Gower

9. Journal Articles

N/A

10. Journals and Newspaper Titles

N/A

11. Databases and Websites

- Engineering Gateways Project, <http://www.engineeringgateways.co.uk/>
- The Engineering Council UK, <http://www.engc.org.uk>
- The Institution of Engineering and Technology (IET), <http://www.theiet.org>
- The Institution of Mechanical Engineers (IMechE), <http://www.imeche.org/>

12. Any Other Resources

N/A

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based project required for this module will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), an agreement for the project work in which they will identify:

- the subject and scope of the project
- the specific aims and learning outcomes unique to the project
- the relationship of the learning outcomes to the original learning contract plan, including a mapping to UKspec
- the method by which the learning outcomes will be achieved
- how the project will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness
- the resources needed, including materials, equipment, time and support from work colleagues and the university
- major progress review points and target dates for assessment

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to focus on highlighting the issues embedded in projects that involve deploying new technology. Many pertinent issues arise from the deployment of old or new technology within a product and these will be explored within the module with application within the context of the learner's workplace. Learners are required to identify a work-based project involving the deployment of new technology that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be

accountable for developing and managing this project.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

Upon completion of this module the student will be able to:

1. Determine the business scope for utilising new technology developments within the context of an existing business product line. (UKSpec A2, B1)
2. Provide a business evaluation of the safety of new products and their compliance with national and international standards where appropriate. (UKSpec E2)
3. Demonstrate the ability to analyse company needs and lead negotiations towards a suitable work based project, adhering to suitable quality standards. (UKSpec C2, C4)
4. Identify and plan for relevant ethical, commercial, confidential and data protection issues and ensure that they are addressed appropriately (UKSpec E1, E3)
5. Apply higher level thinking skills in practice. (UKSpec E4)

(USx, Ex, Dx etc denotes specific learning outcomes stated in IMechE Education Base and Criteria for Degree Accreditation)

16. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract and Managing Learning

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required e.g. materials, communication facilities, hardware, software etc.

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module employs work-based and distance learning strategies, which will be negotiated between the learner, tutor and the relevant organisation. These will be detailed within the study proposal.

Learners will be supported and guided through the various stages of implementing a work-based project. Support for the project may take many forms including

email correspondence, e-learning platforms, phone conversation and face to face surgery support from their academic tutor. Further support may also be pertinent from both the workplace supervisor and potentially from the professional body mentor (where appropriate).

- 19. Assessment and feedback strategy** (SITS Module Descriptor Sequence 0010)
Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.) If the module or an assessment component is exempt from the Anonymous Marking Policy please indicate this below.

a Summative assessment and rationale for tasks

The learner is required to construct a structured report outlining the scope of work to be performed the work done and an analysis of the outcomes of the work. Analytical, self reflective skills are also adopted as part of the work, where for example the conclusion will contain elements of reflection as to the success of the project. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The report should form an effective portfolio of evidence structured to accommodate the initial planning, a technical report (with supporting evidence), and a review and update to the Learning Contract planning.

An assessment exemplar of the portfolio shown below indicates the criteria that learners will be assessed on:

- Appropriateness of the work-based project in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the project
- Ability to negotiate a project proposal (500 words, formatively assessed)
- Ability to independently manage, record, analyse and critically evaluate the work-based project
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the project and the likely impact the project will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the project and take into consideration relevant ethical, commercial, confidential and data protection issues
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility
- Record and critically evaluate the project and learning process within a 4,000 word report in an appropriate academic format. This will include recommendations that detail innovative solutions to complex and unpredictable situations for organisational development, based upon own ideas and theories and from research
- Reflection of the outcomes from the work done through critical self reflection
- The ability to present the project through the use of oral viva presentation.

d. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formatively assessed activities, including the development of a project plan and presentation. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

- e. Indication of how students will get feedback and how this will support their learning

Formative feedback (verbal and/or written as appropriate) will be provided formally throughout the module after a draft submission of the planning phase to clearly identify the strengths and weaknesses of the proposed project work. This process may be iterative therefore providing clear and targeted formative feedback. During the project work formative feedback may also take the form of visits, phone conversations, email or other forms of face to face communication.

Written feedback will be provided on the summative report and on the written reflection.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

Complete a separate table where the distribution of NSW differs for a particular delivery pattern - DL

Activity type*	Hours	KIS category	KIS category hours
Lecture		Scheduled	0
Seminar			
Tutorial			
Project Supervision			
Demonstration			
Practical classes and workshops			
Supervised time in studio/ workshop			
Fieldwork			
External visits			
Work based learning			
Guided independent study	160		
Placement	40	Placement	40
Year abroad			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200		200

Complete a separate table where the distribution of NSW differs for a particular delivery pattern - Indicate Mode of Delivery FT PT DL N/A

Activity type*	Hours	KIS category	KIS
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			category hours
Lecture		Scheduled	
Seminar			
Tutorial			
Project Supervision			
Demonstration			
Practical classes and workshops			
Supervised time in studio/ workshop			
Fieldwork			
External visits			
Work based learning			
Guided independent study			
Placement		Placement	
Year abroad			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>			

Complete a separate table where the distribution of NSW differs for a particular delivery pattern - Indicate Mode of Delivery FT PT DL N/A

Activity type*	Hours	KIS category	KIS category hours
Lecture		Scheduled	
Seminar			
Tutorial			
Project Supervision			
Demonstration			
Practical classes and workshops			
Supervised time in studio/ workshop			
Fieldwork			
External visits			
Work based learning			
Guided independent study			
Placement		Placement	
Year abroad			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>			

SUMMATIVE ASSESSMENT

22. Form of Reassessment

Either synoptic or non-synoptic reassessment

	Y/N
Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i>	Y
Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	N

Sequence 001, 002 etc.	Activity type ⁶ indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	Brief description of assessment e.g. type/ length of exam, type/ word limit of coursework	Weighting % or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall	Final assessment Y/N
001	CW	Portfolio, including a written report on a work- based project (4000 words) and a written reflection	100%	Y

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24. Date of SLE Approval

25. Subject code
This ensures that the correct area receives appropriate funding and should be completed in consultation with the School Registrar or nominee. Advice can also be sought from Financial Planning.

26. Module mark scheme assigned⁷

27.	Component mark scheme assigned³ <ul style="list-style-type: none"> For each component listed in section 23 indicate the mark scheme attached. Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
	001

28.	Date of entry onto SITS	<input type="text"/>
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⁶ For KIS reporting, CP and PRE will be aggregated together as 'Practical' assessment types

³A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available⁸ as are Red Guides on Developing a new module and Delivering a module⁹.

1. Module Code	IS0752	2. Title of new module	Research & Project Management (DL)						
3. Subject Division <i>where relevant</i>	ICM								
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Colin Damm						
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Semester based						
8. Type of module <i>eg standard, dissertation, work-based study A full list of module types is provided in the guidelines¹.</i>	Standard								
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	<table border="1"> <tr><td>City Campus</td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>			City Campus					
City Campus									

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

Throughout the world of science, engineering, technology and business, the ability to pursue research is seen as a requisite for continued career progression in the appropriate subject discipline. This module introduces students to the nature of research and the processes involved in carrying out research. General research approaches and methods for research will be covered including literature searching, evaluation and reviewing. This generic introduction will be followed by the inclusion of topics specifically designed to meet the requirements of the students' programme of study.

Work within each discipline is centred on a project environment so knowledge of the project management process is essential. Students will explore and use a number of tools and techniques that are in general use in the field of project management to ensure that the project is completed within the required time limit, within the budget and to specification.

⁸ <http://northumbria.ac.uk/sd/central/ar/ts/approval/forms/>
⁹ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

As an integral part of this module students will develop a range of generic academic skills that will support them on this and other modules in their programme of study. In particular, this module will provide essential preparation for their dissertation or individual project.

Summative assessment on this module will be through an assignment in project management, and the production of an individual research proposal for the dissertation or individual project.

The two main themes of the module are research methods and project management. These are considered to be essential prerequisites for the future career development of students on programmes studying this module.

11. Indicative reading list or other learning resources (SITS 0002)

1. Recommended Reading Sources

The reading sources here are recommended by the subject specialists in each section of the module:

Information Literacy:

- Cottrell, S. (2008) *The study skills handbook*, 3rd edn. Basingstoke : Palgrave Macmillan
- Neville, C. (2010) *The complete guide to referencing and avoiding plagiarism*. 2nd edn. Maidenhead : Open University Press. This is also available through the library as an e-book.

Project Management:

- Lock, D (2007) *Project Management*, 9th edition, Gower Publishing. This is also available through the library as an e-book.

Research Methods - for Computing Students:

- Berndtsson, M. et al (2008), 2nd edition, *Thesis Projects: A Guide for Students in Computer Science and Information Systems*, Springer
- Dawson, C (2009), 2nd edition, *Projects in Computing and Information Systems: A Student's Guide*, Pearson Education. This is also available through the library as an e-book.
- Rowntree, D (2004) *Statistics without tears: A primer for non-mathematicians*, Pearson. This is also available through the library as an e-book.

Research Methods - for Engineering Students:

- Pickard, A J (2007) *Research Methods in Information*. London, Facet.
- Mike Ashby, "How to Write a Paper", <http://www-mech.eng.cam.ac.uk/mmd/ashby-paper-V6.pdf>

Research Methods - for Business Information students:

- Pickard, A J (2007) *Research Methods in Information*. London, Facet.

2. Books

This list is not intended to be either comprehensive or prescriptive.

- Black, T.R. (1999) Doing quantitative research in the social sciences: an integrated approach to research design, measurement and statistics. Sage
- Bryman, A. and Cramer, D. (1994) Quantitative data analysis for social scientists. Rev ed. Routledge.
- Chapman, C. & Ward, S (2000) Project Risk Management, John Wiley & Sons
- Cryer, P. (2000) The research students guide to success. 2nd ed. Open University.
- Gill, J. & Johnson, P. (2002) Research methods for managers. 3rd ed. Sage. [Earlier editions are still useful]
- Gomm, R., Hammersley, M & Foster, P. (Eds.) (2000) Case study method: key issues, key texts. Sage
- Gray, D E (2004) Doing research in the real world. Sage
- Hart, C. (1998) Doing a literature review: releasing the social science research imagination. Sage.
- Hughes, B & Cotterell, M (2005) Software Project Management 4th edition, McGraw-Hill
- Hussey, J. & Hussey, R. (1997) Business research: a practical guide for undergraduate and postgraduate students. Macmillan Business
- Jankowicz, A. D. (2000) Business research projects. 3rd ed. Business Press/Thomson Learning.
- Kerzner, H. (2000) Applied Project Management - Best Practices on Implementation, John Wiley & Sons Inc.
- Lock, D (2003) Project Management, Gower Publishing
- Oppenheim, A. N. (1996) Questionnaire design, interviewing and attitude measurement. Continuum
- Maylor, H (2003) Project Management 3rd edition, Prentice Hall
- Meredith, J. R. & Mantel, S. J Project Management, A Managerial Approach 5th Ed., John Wiley & Sons
- Nicholas, J.M. (2004) Managing Business and Engineering Projects, Prentice-Hall
Nicholas, J. M. (2001) Project Management for Business and Tech'y, Prentice-Hall
- Patton, M. Q. (1990) Qualitative evaluation and research methods. 2nd ed. Sage.
Pickard, A J (2007) Research Methods in Information. London, Facet.
- Robson, C. (2002) Real world research: a resource for social scientists and practitioner-researchers. 2nd ed, Blackwell.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research methods for business students. 4th ed. Financial Times/Prentice Hall. [Earlier editions are still useful]

- Schwalbe, K. (2004) Information Technology Project Management 3rd edition, Course Technology (Thomson)
 - Srinagesh, K (2006) The principles of experimental research. Butterworth-Heinemann
 - Yates, S. J. (2004) Doing social science research. Rev. & expanded ed. Sage/Open University
 - Yin, R. K. (2003) Case study research: design and methods. 3rd ed. Sage. [Earlier editions are still useful]
- 3. Journal Articles**
N/A
- 4. Journals and Newspaper Titles**
Project Management Journal – available as an e-resource
The PM Network – available as an e-resource
- 5. Databases & Websites**
Project Management Institute - www.pmi.org
Support site for the recommended text by Dennis Lock on project management - www.projectmanagement9.com
- 6. Any Other Resources**
MS Project (available on Desktop Anywhere)

12. Outline syllabus (SITS 0003)

A list of module contents

Introduction to Research

- The nature of research, an introduction to the research process, generic research skills, information literacy
- Literature searching, evaluation and reviewing
- Research philosophy and approaches
- Research strategies, methods and analysis

Project Management

- The nature of project management in terms of key drivers, issues and management approaches that relate to the role
- Planning, estimating, scheduling and controlling projects using standard techniques and tools including: work break down structures, Gantt charts, PERT/CPM
- The management of risk including risk analysis/classification and risk handling strategies
- Human resources and organisational aspects of project management

- Monitoring and control, configuration management and change control in a range of business and technical project environments

Subject Specific Research

To provide an introduction to the dissertation or individual project, which is specific to the subject discipline of the programme being studied, and which is linked to the appropriate dissertation or individual project module.

Typically, this will introduce the project/dissertation process; deal with issues regarding the identification of a suitable title; identify suitable sources of literature, research methods or experimental procedures, analytical methods; and set out the structure of the Project Proposal (and the Final Report from the project or dissertation module).

Career Professional Development Issues

- Knowledge and understanding of commercial and economic context
- Legal, professional, ethical and social issues in a range of business and technical environments
- Good professional practice with particular relevance to the requirements of the accrediting professional bodies
- Employability Issues
- Issues associated with working in a global economy including cultural and religious sensitivity

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

1. To develop a critical appreciation of the various philosophies and principles underlying research that will enable students to discuss, evaluate and apply a variety of research approaches, methods and techniques.
2. To prepare students to consider, evaluate and apply the key knowledge and skills that underpin the professional practice of project management - as it is used in a wide range of technical and business related disciplines.
3. To develop an understanding of the issues associated with pursuing a professional career within their subject discipline

4. To prepare students for their individual project or dissertation

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

After completing this module, the student should be able to:

1. Understand the business context of projects within their subject discipline and be able to select and apply appropriate techniques and tools for the planning and management of those projects.
2. Critically understand and professionally deal with the wide range of legal, professional, social and ethical issues and responsibilities that relate to their future working within their subject discipline.
3. Critically evaluate various research approaches, methods and techniques.
4. Produce a Research Proposal based on searching, retrieving, selecting and critically evaluating information

17. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

None

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

Distance learning delivery will be supported by a student handbook. This handbook may be presented in part through the ePortal or in part be substituted by appropriate set book(s).

Library and Learning Services will provide facilities for accessing eBooks, issuing books and photocopying journal articles.

The software available to full-time students will also be available to distance learning students either through the Library & Learning web site, the ePortal or Desktop Anywhere.

Distance Learning students will be able to communicate via email or phone to a designated tutor, or through a discussion board within the ePortal.

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

Teaching and learning will be based on a set of weekly sessions in the workbook that reflect the content of the lectures and workshops taken by full-time students. These sessions will be aimed to provide a generic view of research and project management that would be useful in a wide range of environments. The workshop sessions will be used to gain familiarity with a range of standard tools and services which typically may include accessing the library catalogue, NORA, Endnote, Pebblepad, Turnitin, MS Project .

Students will be required to produce a properly researched and planned bid to obtain funding for a project.

As individuals they will also be required to develop a Research Proposal for the dissertation or individual project they intend pursuing as part of their programme of study.

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)
Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a Summative assessment and rationale for tasks

Students will prepare a bid for funding a project. This bid will require careful research, planning and presentation. This will provide practical experience of the issues, techniques and tools available for project management.

They will then develop a Research Proposal. This will provide useful preparation time and an opportunity for feedback prior to starting their own individual dissertation or project.

f. Additional formative assessment – detail of process and rationale

Students will be encouraged to obtain interim formative feedback through email from the module team. During the preparation of their individual Research Proposal, students will communicate with their project supervisor on a weekly basis for advice and formative feedback. This will be through an exchange of emails (or by phone if this is more feasible).

g. Indication of how students will get feedback and how this will support their learning

Students will be assessed on the bid for funding for a project. This will be completed approximately half way through this module. Feedback will be given to each student by email.

Students will then be assessed on the individual Research Proposal they have prepared for their dissertation or project. Each student will be given formal feedback by email by their project supervisor.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)
Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

Exclusions:
 IS0430 Research Methods
 IS0737 Project Management Studies
 LI0709 Research Methods for Information Management
 IS0749 Research & Project Management

21. Notional Student Workload (NSW) for each mode of delivery
 (SITS Module Descriptor Sequence 0012)
The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>	DL			
Lectures				
Seminars				
Tutorials				
Laboratory/studio/practical work	12			
Directed learning	100			
Independent learning	76			
Placement/work experience learning/fieldwork				
Duration of examination(s)/test(s)				
Other (please give details of other hours indicated) <ul style="list-style-type: none"> • Individual exercises (in lieu of seminars) 	12			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

SUMMATIVE ASSESSMENT

22. Form of Reassessment

Either synoptic or non-synoptic reassessment

	Y/N
Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i>	Y
Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	

23. Component Assessment

To be completed for each component of assessment

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation</i>	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting <i>% or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall</i>	Final assessment Y/N
001	CW	Assignment in Project Management	40%	N
002	CW	Research Proposal	60%	Y

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24. Date of SLT Approval

25. Module mark scheme assigned¹⁰

26.	Component mark scheme assigned³	
	<ul style="list-style-type: none"> • For each component listed in section 23 indicate the mark scheme attached. • Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN. 	
	001	

27.	Date of entry onto SITS	<input style="width: 450px;" type="text"/>
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¹⁰ A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available¹¹ as are Red Guides on Developing a new module and Delivering a module¹².

1. Module Code	EN0732	2. Title of new module	Technology Developments
3. Subject Division <i>where relevant</i>	Mechanical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Roger Penlington
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Semester
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is work-based, focusing on the developments in, and utilisation of technology. Application of technology should be in the context of the learner’s employment, where the work performed has to ensure it has a clear focus towards achieving UKSpec competancies mapped as a learning outcome in the Learning Contract in supporting the students career development.

Personal development, intellectual and practical skills should be exemplified in the work performed and provide benefit to the learner’s employing organisation. It seeks to raise the learner’s awareness of the workplace as a learning environment and extend

¹¹ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
¹² <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational-based issues and seek to develop higher level skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation. Learners will demonstrate that relevant ethical, commercial, confidential and data protection issues are taken into consideration. Learners will be expected to reflect on the learning derived from carrying out the necessitated work.

Learners will be formatively assessed through a mandatory project proposal and presentation, summatively assessed by way of a 4,000 word report; all of which will be submitted in a portfolio along with any relevant supporting evidence. The final element of the portfolio is a reflection on the learning contract and the contribution that this project work makes to achieve programme learning outcomes. Changes to the plan are expected and can be documented and assessed in part through this section of the portfolio. The percentage grade will be based upon the final report, which is informed by the formative elements.

Learners will be supported and guided through the various stages of carrying out a work-based project. In addition they will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

11. Indicative reading list or other learning resources (SITS 0002)

Guidance to specific reading on work related project topics will be provided from the module tutor or supervisor.

Generic Work Related Learning references:

Leedy, P.D. (2004) Practical research : planning and design 8th ed
Upper Saddle River, N.J., Merrill

Boud D, Soloman N, (2001) Work-based Learning – A New Higher Education?, Open University Press

Luck, M.(1999) Your student research project Gower

Maylor, H. (2002) Project Management Prentice HallU

Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed Gower

Web related references:

Engineering

Gateways

Project,

<http://www.engineeringgateways.co.uk/>

The Engineering Council UK, <http://www.engc.org.uk>
The Institution of Engineering and Technology (IET),
<http://www.theiet.org>
The Institution of Mechanical Engineers (IMechE),
<http://www.imeche.org/>

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based project and the specific aim(s) and learning outcomes arising from it will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), an agreement in which they will identify:

- the subject and scope of the project,
- the specific aims and learning outcomes unique to the project,
- the relationship of the learning outcomes to the original learning contract plan including mapping to competancies,
- the method by which the learning outcomes will be achieved,
- how the project will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness,
- the resources needed, including materials, equipment, time and support from work colleagues and the university,
- major progress review points target dates for assessment.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to focus on the developments in and the utilisation of technology within the workplace. The module utilises examples of the work performed inside a company or organisation as a means to gain higher level learning. The focus of the all learning will reflect the planning shown in the Learning Contract and have clear reference to UKSpec learning outcomes.

All learners will be expected to plan their work and submit this for formative feedback, re-plan appropriately and then conduct the work based project submitting a portfolio of evidence with a structured report.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

In this module, learners are required to identify a work-based project that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be accountable for developing and managing this project.

The learner will be able to

1. Demonstrate a clear theoretical approach to the application of advancing developments in technology within the scope of the work based project. (UKSpec A1)
2. Be creative in the design, development and implementation of the work based project all linked to the company aims and aspirations. (UKSpec A2)
3. Demonstrate the ability to analyse company needs and negotiate a suitable work based project with identifiable benefit to the company and the learner. (UKSpec E4)
4. Identify and ensure that the relevant ethical, commercial, confidential and data protection issues are addressed appropriately (UKSpec E1, E3)
5. Develop the learner's skills in applying higher level thinking skills in practice.

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

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18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module employs work-based and distance learning strategies, which will be negotiated between learner, tutor and the relevant organisation and detailed within the study proposal.

Learners will be supported and guided through the various stages of implementing a work-based project. Support for the project may take many forms including email correspondence, e-Learning platform, phone conversation and face to face surgery support from their academic tutor. Further support may also be pertinent from both the workplace supervisor and potentially from the professional body mentor (where appropriate).

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of learning activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The portfolio of evidence is structured to accommodate the initial planning document, a technical report with supporting evidence and a review and update to the Learning Contract.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formative activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this learning dialogue.

c. Indication of how students will get feedback and how this will support their learning

Feedback will be provided formally after submission of the planning phase to clearly identify the strengths and weaknesses of the proposed project work. This process may also be iterative therefore providing clear and targeted feedback.

The student will be guided to consider the following within their portfolio:

- Appropriateness of the work-based project in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Demonstration of mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the project
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the project and the likely impact the project will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the project and take into consideration relevant ethical, commercial, confidential and data protection issues
- Ability to independently manage, record, analyse and critically evaluate the work-based project
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	117			

Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

22. Form of Reassessment

Either synoptic or non-synoptic reassessment

<p>Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i></p> <p>Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i></p>	<p>Y/N Y</p>
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23. Component Assessment

To be completed for each component of assessment

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation</i>	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting <i>% or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall</i>
001	Portfolio	Portfolio to contain: <ul style="list-style-type: none"> • Project planning outline • Technical report 4000 words • Critical reflection of original Learning Contract 	100%

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24. Date of SLT Approval

25. Module mark scheme assigned¹³

¹³ A list of marking schemes (module and component) can be accessed from

26..	Component mark scheme assigned³ <ul style="list-style-type: none"> • <i>For each component listed in section 23 indicate the mark scheme attached.</i> • <i>Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.</i>
001	
27.	Date of entry onto SITS

MODULE DESCRIPTOR

Guidelines for completion are available¹⁴ as are Red Guides on Developing a new module and Delivering a module¹⁵.

1. Module Code	EN0733	2. Title of new module	Scientific Principles in Design
3. Subject Division <i>where relevant</i>	Electrical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Richard Binns
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Sem
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is work-based, focusing on the technical detail in the design process required for various products. This is anticipated to require the research of engineering or scientific principles applicable to the specific product or task.

Application of scientific or engineering principles should be in the context of the learner’s employment, where the work performed has to ensure it has a clear focus towards achieving UKSpec competencies mapped out in the Learning Contract.

Personal development, intellectual and practical skills should be

¹⁴ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
¹⁵ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

exemplified in the work performed and provide benefit to the learner's employing organisation. It seeks to raise the learner's awareness of the workplace as a learning environment and extend their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational-based issues and seek to develop higher level skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation. Learners will demonstrate that relevant ethical, commercial, confidential and data protection issues are taken into consideration. Learners will be expected to reflect on the learning derived from carrying out the project.

Learners will be formatively assessed through a mandatory project proposal and presentation, summatively assessed by way of a 4,000 word report; all of which will be submitted in a portfolio along with any relevant supporting evidence. The final element of the portfolio is a reflection on the learning contract and the contribution that this project work makes to achieve UKSpec competencies. Changes to the plan are expected and can be documented and assessed in part through this section of the portfolio. The percentage grade will be based upon the final report, which is informed by the formative elements.

Learners will be supported and guided through the various stages of carrying out a work-based project. In addition they will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

11. Indicative reading list or other learning resources (SITS 0002)

Guidance to specific reading on work related project topics will be provided from the module tutor or supervisor.

Generic Work Related Learning references:

Leedy, P.D. (2004) Practical research : planning and design 8th ed Upper Saddle River, N.J., Merrill

Boud D, Soloman N, (2001) Work-based Learning – A New Higher Education?, Open University Press

Luck, M.(1999) Your student research project Gower

Maylor, H. (2002) Project Management Prentice HallU

Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed Gower

Web related references:

Engineering Gateways Project,
<http://www.engineeringgateways.co.uk/>
 The Engineering Council UK, <http://www.engc.org.uk>
 The Institution of Engineering and Technology (IET),
<http://www.theiet.org>
 The Institution of Mechanical Engineers (IMechE),
<http://www.imeche.org/>

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based project and the specific aim(s) and learning outcomes arising from it will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), an agreement in which they will identify:

- the subject and scope of the project,
- the specific aims and learning outcomes unique to the project,
- the relationship of the learning outcomes to the original learning contract plan including mapping to UKSpec
- the method by which the learning outcomes will be achieved,
- how the project will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness,
- the resources needed, including materials, equipment, time and support from work colleagues and the university,
- major progress review points target dates for assessment.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to focus on the scientific or engineering research required within the developments of new products within the workplace. The module utilises examples of the work performed inside a company or organisation as a means to gain higher level learning. The focus of the all learning will reflect the planning shown in the Learning Contract and have clear reference to UKSpec learning outcomes.

All learners will be expected to plan their work and submit this for formative feedback, re-plan appropriately and then conduct the work based project submitting a portfolio of evidence with a structured report. Changes to the original Learning Contract will be critically reflected upon and updated inside revisions to the Learning Contract.

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14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

In this module, learners are required to identify a work-based project that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be accountable for developing and managing this project.

The learner will be able to

1. Utilise scientific and engineering principles in the conduct of designing a product. (UKSpec B3, C1).
2. Conduct research (scientific or engineering) to be able to undertake design and development of solutions. (UKSpec B2).
3. Demonstrate the ability to analyse company needs and negotiate a suitable work based project with identifiable benefit to the company and the learner. (UKSpec E4).
4. Identify and plan for the relevant ethical, commercial, confidential and data protection issues are addressed appropriately (UKSpec E1, E3)
5. Develop the learner's skills in applying higher level thinking skills in practice.

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent engineering experience

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module employs work-based and distance learning strategies, which will be negotiated between learner, tutor and the relevant organisation and detailed within the study proposal.

Learners will be supported and guided through the various stages of implementing a work-based project. Support for the project may take many forms including email correspondence, e-learning platforms, phone conversation and face to face surgery support from their academic tutor. Further support may also be pertinent from both the workplace supervisor and potentially from the professional body mentor (where appropriate).

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of assessment activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The portfolio of evidence is structured to accommodate the initial planning document, a technical report with supporting evidence and a review and update to the Learning Contract planning.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formatively assessed activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

c. Indication of how students will get feedback and how this will support their learning

Feedback will be provided formally after submission of the planning

phase to clearly identify the strengths and weaknesses of the proposed project work. This process may also be iterative therefore providing clear and targeted feedback.

During the project work feedback may also take the form of visits, phone conversations, email or other forms of face to face communication.

An assessment exemplar of the portfolio is shown below:

Learners will be assessed on:

- Appropriateness of the work-based project in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the project
- Ability to negotiate a project proposal (500 words, formatively assessed)
- Ability to independently manage, record, analyse and critically evaluate the work-based project
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the project and the likely impact the project will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the project and take into consideration relevant ethical, commercial, confidential and data protection issues
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility
- Record and critically evaluate the project and learning process within a 4,000 word report in an appropriate academic format. This will include recommendations that are innovative solutions to complex and unpredictable situations for organisational development, based upon own ideas, theories and from research
- Ability to present the project through the use of oral presentation (15 minutes, formatively assessed) and written report (summatively assessed) to academic assessor, line manager and external specialist in the field.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

*The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc.**Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.*

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	117			
Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT**22. Form of Reassessment***Either synoptic or non-synoptic reassessment*

Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i> Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	Y/N Y
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23. Component Assessment*To be completed for each component of assessment*

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types:</i> AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting <i>% or Pass/Fail (for grade only components)</i> <i>Note: % weightings should add up to 100% for module overall</i>
001	Portfolio	Portfolio to contain: <ul style="list-style-type: none"> Project planning 	100%

		outline <ul style="list-style-type: none"> • Technical report 4000 words • Critical reflection of original Learning Contract • Mapping of learning to UKSpec and associated professional Body 	

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24. Date of SLT Approval

25. Module mark scheme assigned¹⁶

26..	Component mark scheme assigned³ <ul style="list-style-type: none"> • For each component listed in section 23 indicate the mark scheme attached. • Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
	001

27. Date of entry onto SITS

¹⁶ A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available¹⁷ as are Red Guides on Developing a new module and Delivering a module¹⁸.

1. Module Code	EN0734	2. Title of new module	Business Practice and New Technology
3. Subject Division <i>where relevant</i>	Mechanical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Kian Tan
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Semester
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is work-based, focusing on the business practices and management issues embedded in technical projects. The issue of inclusion of new technology within a product may be problematic, this module raises awareness of the issues arising in the social, environmental and economic areas of new technology as applied within the context of the learner’s employment. The work performed has to ensure it has a clear focus towards achieving UKSpec learning outcomes mapped out in the Learning Contract.

Personal development, intellectual and practical skills should be exemplified in the work performed and provide benefit to the

¹⁷ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
¹⁸ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

learner's employing organisation. It seeks to raise the learner's awareness of the workplace as a learning environment and extend their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational-based issues and seek to develop higher level skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation. Learners will demonstrate that relevant ethical, commercial, confidential and data protection issues are taken into consideration. Learners will be expected to reflect on the learning derived from carrying out the project.

Learners will be formatively assessed through a mandatory project proposal and presentation, summatively assessed by way of a 4,000 word report; all of which will be submitted in a portfolio along with any relevant supporting evidence. The final element of the portfolio is a reflection on the learning contract and the contribution that this project work makes to achieve UKSpec learning outcomes. Changes to the plan are expected and can be documented and assessed in part through this section of the portfolio. The percentage grade will be based upon the final report, which is informed by the formative elements.

Learners will be supported and guided through the various stages of carrying out a work-based project. In addition they will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

11. Indicative reading list or other learning resources (SITS 0002)

Guidance to specific reading on work related project topics will be provided from the module tutor or supervisor.

Generic Work Related Learning references:

Leedy, P.D. (2004) Practical research : planning and design 8th ed
Upper Saddle River, N.J., Merrill

Boud D, Soloman N, (2001) Work-based Learning – A New Higher Education?, Open University Press

Luck, M.(1999) Your student research project Gower

Maylor, H. (2002) Project Management Prentice HallU

Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed Gower

Web related references:

Engineering Gateways Project, http://www.engineeringgateways.co.uk/
The Engineering Council UK, http://www.engc.org.uk
The Institution of Engineering and Technology (IET), http://www.theiet.org
The Institution of Mechanical Engineers (IMechE), http://www.imeche.org/

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based project and the specific aim(s) and learning outcomes arising from it will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), an agreement in which they will identify:

- the subject and scope of the project,
- the specific aims and learning outcomes unique to the project,
- the relationship of the learning outcomes to the original learning contract plan including mapping to UKSpec,
- the method by which the learning outcomes will be achieved,
- how the project will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness,
- the resources needed, including materials, equipment, time and support from work colleagues and the university,
- major progress review points target dates for assessment.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to focus on the business practices and management issues embedded in technical projects. Many issues are pertinent to the management of technical projects arising from the deployment of old or new technology within a product. Many of the issues arising from the business perspective of the social, environmental and economic areas of new technology as applied within the context of the learner's workplace are explored.

The module utilises examples of the work performed inside a company or organisation as a means to gain higher level learning. The focus of the all learning will reflect the planning shown in the Learning Contract and have clear reference to UKSpec learning outcomes.

All learners will be expected to plan their work and submit this for

formative feedback, re-plan appropriately and then conduct the work based project submitting a portfolio of evidence with a structured report. Changes to the original Learning Contract will be critically reflected upon and updated inside revisions to the Learning Contract.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

In this module, learners are required to identify a work-based project that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be accountable for developing and managing this project.

The learner will be able to

1. Determine the business scope for utilising new technology developments within the context of the existing business product line. (UKSpec B1)
2. Critically analyse the performance of the team from a business perspective to be able to highlight team needs and be able to provide potential solutions through feedback. (UKSpec C3, D1, D3)
3. Provide a business evaluation of the safety of new products and their compliance with national and international standards where appropriate. (UKSpec E2)
4. Demonstrate the ability to analyse company needs and lead negotiations towards a suitable work based project, adhering to suitable quality standards. (UKSpec C2)
5. Identify and plan for the relevant ethical, commercial, confidential and data protection issues are addressed appropriately (UKSpec E1, E3)
6. Develop the learner's skills in applying higher level thinking skills in practice. (UKSpec E4)

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent engineering experience

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module employs work-based and distance learning strategies, which will be negotiated between learner, tutor and the relevant organisation and detailed within the study proposal.

Learners will be supported and guided through the various stages of implementing a work-based project. Support for the project may take many forms including email correspondence, e-learning platforms, phone conversation and face to face surgery support from their academic tutor. Further support may also be pertinent from both the workplace supervisor and potentially from the professional body mentor (where appropriate).

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of assessment activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The portfolio of evidence is structured to accommodate the initial planning document, a technical report with supporting evidence and a review and update to the Learning Contract planning.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formatively assessed

activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

- c. Indication of how students will get feedback and how this will support their learning

Feedback will be provided formally after submission of the planning phase to clearly identify the strengths and weaknesses of the proposed project work. This process may also be iterative therefore providing clear and targeted feedback.

During the project work feedback may also take the form of visits, phone conversations, email or other forms of face to face communication.

An assessment exemplar of the portfolio is shown below:

Learners will be assessed on:

- Appropriateness of the work-based project in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the project
- Ability to negotiate a project proposal (500 words, formatively assessed)
- Ability to independently manage, record, analyse and critically evaluate the work-based project
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the project and the likely impact the project will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the project and take into consideration relevant ethical, commercial, confidential and data protection issues
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility
- Record and critically evaluate the project and learning process within a 4,000 word report in an appropriate academic format. This will include recommendations that are innovative solutions to complex and unpredictable situations for organisational development, based upon own ideas, theories and from research
- Ability to present the project through the use of oral presentation (15 minutes, formatively assessed) and written report (summatively assessed) to academic assessor, line manager and

external specialist in the field.

- 20. Implications for Choice** (SITS Module Descriptor Sequence 0011)
Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

- 21. Notional Student Workload (NSW) for each mode of delivery**
 (SITS Module Descriptor Sequence 0012)
The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	117			
Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

- 22. Form of Reassessment**
Either synoptic or non-synoptic reassessment

<p>Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i></p> <p>Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i></p>	<p>Y/N Y</p>
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- 23. Component Assessment**
To be completed for each component of assessment

Sequence <i>001, 002</i>	Assessment type <i>indicate ONE of the</i>	Brief description of assessment	Weighting <i>% or Pass/Fail</i>
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etc.	<i>following types:</i> AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	<i>e.g. type/length of exam, type/word limit of coursework</i>	(for grade only components) <i>Note: % weightings should add up to 100% for module overall</i>
001	Portfolio	Portfolio to contain: <ul style="list-style-type: none"> • Project planning outline • Technical report 4000 words • Critical reflection of original Learning Contract • Mapping of learning to UKSPEC and associated professional Body 	100%

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24. Date of SLT Approval

25. Module mark scheme assigned¹⁹

26..	Component mark scheme assigned³ <ul style="list-style-type: none"> • For each component listed in section 23 indicate the mark scheme attached. • Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
001	

27.	Date of entry onto SITS	<input style="width: 500px; height: 20px;" type="text"/>
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¹⁹ A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available²⁰ as are Red Guides on Developing a new module and Delivering a module²¹.

1. Module Code	EN0735	2. Title of new module	Computer Models and Problem Solving
3. Subject Division <i>where relevant</i>	Electrical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Krishna Busawon
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Sem
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module is work-based, focusing on mathematical or logical modelling of elements in the company business. This may take on the form of either technical or business related modelling where the learner can utilising mathematical or software tools. Technical problems are often simulated to achieve solutions to complex tasks this may utilise many different software tools as applied to specific technologies. The modelling should be applied within the context of the learner’s employment. The work performed has to ensure it has a clear focus towards achieving UKSpec learning outcomes mapped out in the Learning Contract.

²⁰ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
²¹ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

Personal development, intellectual and practical skills should be exemplified in the work performed and provide benefit to the learner's employing organisation. It seeks to raise the learner's awareness of the workplace as a learning environment and extend their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational based issues and seek to develop higher level skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation. Learners will demonstrate that relevant ethical, commercial, confidential and data protection issues are taken into consideration. Learners will be expected to reflect on the learning derived from carrying out the project.

Learners will be formatively assessed through a mandatory project proposal and presentation, summatively assessed by way of a 4,000 word report; all of which will be submitted in a portfolio along with any relevant supporting evidence. The final element of the portfolio is a reflection on the learning contract and the contribution that this project work makes to achieve UKSpec learning outcomes. Changes to the plan are expected and can be documented and assessed in part through this section of the portfolio. The percentage grade will be based upon the final report, which is informed by the formative elements.

Learners will be supported and guided through the various stages of carrying out a work-based project. In addition they will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

11. Indicative reading list or other learning resources (SITS 0002)

Guidance to specific reading on work related project topics will be provided from the module tutor or supervisor.

Generic Work Related Learning references:

Leedy, P.D. (2004) Practical research : planning and design 8th ed
Upper Saddle River, N.J., Merrill
Boud D, Soloman N, (2001) Work-based Learning – A New Higher Education?, Open University Press
Luck, M.(1999) Your student research project Gower
Maylor, H. (2002) Project Management Prentice HallU
Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed Gower

Web related references:

Engineering Gateways Project,
<http://www.engineeringgateways.co.uk/>
 The Engineering Council UK, <http://www.engc.org.uk>
 The Institution of Engineering and Technology (IET),
<http://www.theiet.org>
 The Institution of Mechanical Engineers (IMechE),
<http://www.imeche.org/>

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based project and the specific aim(s) and learning outcomes arising from it will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), an agreement in which they will identify:

- the subject and scope of the project,
- the specific aims and learning outcomes unique to the project,
- the relationship of the learning outcomes to the original learning contract plan including mapping to UKspec,
- the method by which the learning outcomes will be achieved,
- how the project will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness,
- the resources needed, including materials, equipment, time and support from work colleagues and the university,
- major progress review points target dates for assessment.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to focus on the ability to model either a business process, business costing, or some in depth technical issue. The process of modelling may utilise a mathematical approach or some software tools to simulate specific technical problems. The clear focus of modelling within this module is to provide and be able to evaluate problems critically as applied within the context of the learner's workplace are explored. The module utilises examples of the work performed inside a company or organisation as a means to gain higher level learning. The focus of the all learning will reflect the planning shown in the

Learning Contract and have clear reference to UKSpec learning outcomes. All learners will be expected to plan their work and submit this for formative feedback, re-plan appropriately and then conduct the work based project submitting a portfolio of evidence with a structured report. Changes to the original Learning Contract will be critically reflected upon and updated inside revisions to the Learning Contract.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

In this module, learners are required to identify a work-based project that provides the opportunity for personal, professional and organisational development. The learner will accept responsibility and be accountable for developing and managing this project.

The learner will be able to

1. Model a specific problem researching, procuring and then utilising the most suitable methodology and tools to achieve a work-related business goal. (UKSpec A1, B2)
2. Demonstrate that modelling has a clear and distinct impact to improve project or business specification or deliverable. (UKSpec C4)
3. Demonstrate the ability to analyse company needs and plan towards a suitable work based project, gathering necessary resources as need from both the company and outside. (UKSpec C1)
4. Identify and plan for the relevant ethical, commercial, confidential and data protection issues are addressed appropriately (UKSpec E2)
5. Develop the learner's skills in applying higher level thinking skills in practice. (UKSpec E4)

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent engineering experience

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module employs work-based and distance learning strategies, which will be negotiated between learner, tutor and the relevant organisation and detailed within the study proposal.

Learners will be supported and guided through the various stages of implementing a work-based project. Support for the project may take many forms including email correspondence, e-learning platforms, phone conversation and face to face surgery support from their academic tutor. Further support may also be pertinent from both the workplace supervisor and potentially from the professional body mentor (where appropriate).

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of assessment activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The portfolio of evidence is structured to accommodate the initial planning document, a technical report with supporting evidence and a review and update to the Learning Contract planning.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formatively assessed

activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

- c. Indication of how students will get feedback and how this will support their learning

Feedback will be provided formally after submission of the planning phase to clearly identify the strengths and weaknesses of the proposed project work. This process may also be iterative therefore providing clear and targeted feedback.

During the project work feedback may also take the form of visits, phone conversations, email or other forms of face to face communication.

An assessment exemplar of the portfolio is shown below:

Learners will be assessed on:

- Appropriateness of the work-based project in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the project
- Ability to negotiate a project proposal (500 words, formatively assessed)
- Ability to independently manage, record, analyse and critically evaluate the work-based project
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the project and the likely impact the project will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the project and take into consideration relevant ethical, commercial, confidential and data protection issues
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility
- Record and critically evaluate the project and learning process within a 4,000 word report in an appropriate academic format. This will include recommendations that are innovative solutions to complex and unpredictable situations for organisational development, based upon own ideas, theories and from research
- Ability to present the project through the use of oral presentation (15 minutes, formatively assessed) and written report (summatively assessed) to academic assessor, line manager and

external specialist in the field.

- 20. Implications for Choice** (SITS Module Descriptor Sequence 0011)
Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

- 21. Notional Student Workload (NSW) for each mode of delivery**
 (SITS Module Descriptor Sequence 0012)
The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	117			
Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

- 22. Form of Reassessment**
Either synoptic or non-synoptic reassessment

Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i>	Y/N Y
Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	

- 23. Component Assessment**
To be completed for each component of assessment

Sequence	Assessment type	Brief description of	Weighting
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001, 002 etc.	indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	assessment e.g. type/length of exam, type/word limit of coursework	% or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall
001	Portfolio	Portfolio to contain: <ul style="list-style-type: none"> • Project planning outline • Technical report 4000 words • Critical reflection of original Learning Contract • Mapping of learning to UKSpec and associated professional Body 	100%

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24. Date of SLT Approval

25. Module mark scheme assigned²²

26..	Component mark scheme assigned³ <ul style="list-style-type: none"> • For each component listed in section 23 indicate the mark scheme attached. • Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
001	

27.	Date of entry onto SITS	<input type="text"/>
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²² A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available²³ as are Red Guides on Developing a new module and Delivering a module²⁴.

1. Module Code	EN0738	2. Title of new module	Academic Recognition for CPD
3. Subject Division <i>where relevant</i>	Mechanical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Noel Perera
6. Credit points <i>10, 20,30 etc</i>	20	7. Year long or semester based	Semester
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

Many people working in both the public and private sector undertake continuing professional development (CPD) as part of their work, either on a voluntary or compulsory basis. Often this is required for membership of their relevant professional body or it can be simply through a desire to keep abreast of developments in their field of work.

The module will enable learners to gain academic credit from their CPD, such as short courses, conferences, workshops, one to one coaching etc. which is not currently credit-rated by the University.

²³ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
²⁴ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

Learners will negotiate a learning proposal which will identify:

1. The areas for their development
2. The learning activity to be undertaken to meet their development needs
3. How they will reflect upon this learning and how will this reflection be documented for assessment
4. An Action Plan/Timeline for completion

Learners will attend and participate in the event(s) in whatever way is appropriate and intended by the organisers.

Learners will produce a portfolio to provide evidence of the learning gained from their experiences. Learners will evaluate their learning and reflect upon it with respect to their current and future personal development needs.

11. Indicative reading list or other learning resources (SITS 0002)

Learners will identify relevant 'subject' specific resources in conjunction with their tutor.

Generic reading:

Anderson, G., Boud, D., Sampson, J. (2003) Learning Contracts: a Practical Guide Kogan Page

Cunningham, I., Bennett, B., Dawes, G. (2000) Self Managed Learning in Practice Gower

Jarvis, P., Holford, J., Griffin, C. (2003) The Theory and Practice of Learning 2nd ed Kogan Page London

12. Outline syllabus (SITS 0003)

A list of module contents

Part 1 Syllabus of the learning experience undertaken. This will be exclusive to the learner and will cover a spectrum of types of learning and subject / vocational specialism.

Part 2 Skills, knowledge and understanding necessary to maximise learning from CPD.

- Identification of professional development needs
- Design and presentation of a CPD Learning Proposal
- Methods to recognise and present learning gained through CPD
- Strategies to plan; organise; negotiate; effectively manage; implement; record; review and evaluate CPD within an agreed timescale
- Portfolio construction

- Report writing.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

Many people working in both the public and private sector undertake Continuing Professional Development (CPD) as part of their work, either on a voluntary or compulsory basis. Often this is required for membership of their relevant professional body or it can be simply through a desire to keep abreast of developments in their field of work. Therefore the aims of the module are:

- To enable individuals to gain academic credit from CPD learning experiences and events such as short courses, conferences, workshops, one-to one coaching etc. which is not currently credited by the University.
- To develop and demonstrate the skills and knowledge gained from attending, participating in, recording and reporting on higher-level work-related learning which will include demonstrating that relevant ethical, commercial, industrial, confidential and data protection constraints are addressed appropriately.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

The learner will be able to:

1. Devise a learning proposal identifying the learning to be undertaken, justifying CPD activity in relation to job role, own development and the wider needs of the organisation / sector. (UKSpec C2, E4)
2. Utilise their knowledge and understanding of their company management and business practices, and their limitations and how these may be applied appropriately. (UKSpec B1, C2, C4)
3. Critically appraise how the knowledge and skills gained build upon current competence and how these have been/ will be applied in order to manage complexities, lacunae and dilemmas. (UKSpec B3, D1)
4. Demonstrate critical understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects. (UKSpec A1, C1, D2)
5. Critically evaluate the effectiveness of the CPD activity including impact outside the immediate context of the workplace.

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent engineering experience

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required

e.g. materials, communication facilities, hardware, software etc.

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

A) The Learning Proposal

Learners will negotiate a learning proposal with their academic supervisor and workplace mentor (where appropriate) which will identify:

1. The areas for their development*
2. The learning activity to be undertaken to meet their development needs*
3. The process by which they will reflect on this learning and the method by which they will report this
4. An Action Plan/Timeline for completion

** Some learners may already be some way through this process prior to enrolment. In such cases the academic tutor will need to be reassured that the learning activity being pursued is of a relevant HE level and volume.*

B) The CPD Learning Activity

Learners will participate in the event(s) i.e. a short full-time management course; a manufacturer's equipment course; one-to-one coaching; workshops; conferences including such elements as papers, discussions and plenaries; etc.

C) Evidence of reflection on learning

Learners will produce a portfolio to provide evidence of the learning gained from their experiences as follows:

- 1) Personal details, needs analysis and the learning proposal

- 2) A factual account of the learning event, giving appropriate detail of the proceedings and summarising the material presented
- 3) A brief assessment of the effectiveness of the event as a learning experience
- 4) An evaluation of the student's own learning, and considering how the learning gained relates to the learner's own work situation and personal development.

This analysis should demonstrate understanding of the facts, principles, opinions and skills acquired, explain how the knowledge and skills gained build upon current competence and how these have been/ will be applied to own work. In addition it should show how their understanding of the knowledge gained is based upon relevant and up to date theory.

Guidance on reflective practice and portfolio construction will be provided via Blackboard and on-line / face to face tutor support.

- 19. Assessment and feedback strategy** (SITS Module Descriptor Sequence 0010)
Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of assessment activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice. The culmination of this process is the submission of the required evidence in the form of a formatively assessed portfolio which reflects the learner's personal and professional development, intellectual growth and journey of learning.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a number of formatively assessed activities. This enables an iterative process of negotiation of and feedback on evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

b) Indication of how students will get feedback and how this will support their learning

Formative feedback to the learner is implicit where the module structure is iterative in nature. Therefore the module explicitly

operates a high degree of feedback to the learner.

Below is an exemplar of the assessment and how it will be marked:
Learners will produce a portfolio of their learning which includes:

1. A learning proposal identifying the learning to be undertaken along with a justification of this CPD activity in relation to job role and own development
2. A record and evidence of the CPD undertaken including evidence of attendance and information gathered
3. A demonstration of their mastery of the facts, principles, concepts, opinions and skills acquired which will include taking into consideration relevant ethical, commercial, confidential and data protection issues
4. A critical appraisal of how knowledge and skills gained build upon current competence and how these have been/ will be applied
5. An examination of how the knowledge gained draws upon relevant and up to date theory
6. A critical evaluation of the effectiveness of the development activity / learning and its impact.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc.

Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	40			
Independent learning	117			
Placement/work experience learning/fieldwork	40			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	200			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

22. Form of Reassessment

Either synoptic or non-synoptic reassessment

<p>Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i></p> <p>Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i></p>	<p>Y/N Y</p>
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23. Component Assessment

To be completed for each component of assessment

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types:</i> AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting % or Pass/Fail (for grade only components) <i>Note: % weightings should add up to 100% for module overall</i>
001	Portfolio	The portfolio will contain: <ul style="list-style-type: none"> • Learning proposal • Learning activity • Reflection • Assessment of the impact on the Learning Contract 	100%

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24. Date of SLT Approval

25. Module mark scheme assigned²⁵

26..	<p>Component mark scheme assigned³</p> <ul style="list-style-type: none"> • For each component listed in section 23 indicate the mark scheme attached. • Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
001	

27.	Date of entry onto SITS	<input style="width: 500px; height: 20px;" type="text"/>
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²⁵ A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

MODULE DESCRIPTOR

Guidelines for completion are available²⁶ as are Red Guides on Developing a new module and Delivering a module²⁷.

1. Module Code	EN0739	2. Title of new module	Work Based Dissertation
3. Subject Division <i>where relevant</i>	Mechanical Engineering		
4. Module level <i>4, 5, 6 etc.</i>	7	5. Module Tutor	Noel Perera
6. Credit points <i>10, 20,30 etc</i>	60	7. Year long or semester based	Semester
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Work-based		
9. Location(s) of delivery <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	Off site – candidates work premises		

MODULE DESCRIPTIONS

10. Synopsis of module (SITS Module Descriptor Sequence 0001)
A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale

This module forms the culmination of a work based programme of study, composed of an extensive work based project along with a critical reflection of the learning achieved in this module and throughout the programme. This total programme oriented reflection is defined as an “*exit gateway*” highlighting the learning achieved by the learner throughout the programme.

This module promote personal development and a range of inter-personal, intellectual and practical skills based around and demonstrated through an individually negotiated real-time work-based dissertation that will be of benefit to the learner’s employing

²⁶ <http://northumbria.ac.uk/sd/central/ar/lts/approval/forms/>
²⁷ <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

organisation. It seeks to raise the learner's awareness of the workplace as a learning environment and extend their capability and enhance their individual effectiveness, employability and business competitiveness. It will focus on organisational-based issues and seek to develop skills in the diagnosis of problems, research and analysis, development of strategies to address problems, and techniques of presentation.

Learners will be expected to reflect on the learning derived from carrying out the dissertation.

Learners will be formatively assessed through a mandatory project proposal and oral presentation, and also summatively assessed by way of a 10-15,000 word dissertation which will be submitted along with any relevant supporting evidence. The percentage grade will be based upon the final dissertation report, which is informed by the formative elements.

Learners will be supported and guided through the various stages of carrying out a work-based dissertation. In addition they will receive on-line and face to face support from their academic tutor and from their workplace supervisor (where appropriate).

11. Indicative reading list or other learning resources (SITS 0002)

Guidance to specific reading on work related project topic will be provided from the module tutor or supervisor.

Engineering communication references:

Stevenson S (2002) Strategies for Engineering Communication 1st ed John Wiley & Sons

Ashby M, (2005) How to Write a Paper 6th ed, accessed on 23-09-2008

<http://www.grantadesign.com/userarea/teachingresource/writeapaper.htm>

Generic Work Related Learning references:

Leedy, P.D. (2004) Practical research : planning and design 8th ed Upper Saddle River, N.J., Merrill

Maylor, H. (2002) Project Management Prentice Hall

Sharp, JA. Howard, K. (2002) The management of a student research project 2nd ed Gower

12. Outline syllabus (SITS 0003)

A list of module contents

The subject of the work-based dissertation and the specific aim(s) and learning outcomes arising from it will be unique to each individual learner. Learners will negotiate with their employers and their university tutor(s), a dissertation proposal in which they will identify:

- the subject and scope of the dissertation,
- the specific aims and learning outcomes unique to the dissertation,
- the relationship of the learning outcomes to the original learning contract plan including mapping to UKSpec,
- the method by which the outcomes will be achieved,
- how the dissertation will develop the learner's capability in respect of their effectiveness, employability and/or business competitiveness,
- the resources needed, including materials, equipment, research skills, ethical considerations, time and support from work colleagues and the university,
- major progress review points,
- Target dates for assessment.

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

The aim of this module is to evaluate the overall learner's achievements through a larger and extended work based project. The work performed in this module should utilise examples of learning from other modules and with clear focus towards UKSpec. The module additionally critically appraises the learning achieved throughout both the project and the whole programme performing an exit gateway to complement the entry gateway in the learning contract.

General aims of this module are to:

- Enhance the learner's individual effectiveness, employability and/or business competitiveness by locating the learning and development in his/her own organisation
- Extend the learner's capability, promote personal development and a range of inter-personal, intellectual and practical (functional) skills and knowledge based around and demonstrated through an individually negotiated real-time work-based dissertation, which will be of benefit to their organisation
- Undertake research and apply findings to the workplace in order to improve professional practice and performance
- Demonstrate that relevant ethical, commercial, confidential and data protection issues are addressed appropriately.

- Demonstrate the knowledge and skills of applying complex systems thinking to makings sense of, improving and innovating organisations.

14. Learning outcomes (SITS 0005)

State what expected to know and/or be able to do at end of module

In this module, learners are required to identify an area of work that provides the scope and opportunity for personal, professional and organisational development and improvement, which will then form the basis of the dissertation. The learner will accept responsibility and be accountable for developing and managing this process to ensure that it meets the UKSpec Learning Outcomes.

Learning Outcomes

The learner will be able to demonstrate:

- The ability of identifying professional outcomes resulting from the dissertation which addresses the learner's personal goals and strategic organisational / professional requirements in consultation with learner's tutor.
- An understanding of current practice and its limitations with appreciation of developing engineering technologies including some outside engineering plus the ability to apply them effectively in engineering projects. (UKSpec A2, C2)
- The ability to apply mathematical and computer based models for solving problems in engineering plus the ability to assess and appreciate their limitations. (UKSpec B2, B3)
- An extensive knowledge of innovative design processes, engineering components and materials in addition to the ability to apply plus adapt them in unfamiliar situations to fulfil new needs. (UKSpec C4, E3)
- The ability to make general evaluations of commercial risks and to apply engineering techniques taking account of a range of commercial and industrial constraints. (UKSpec A1, C3)

15. Pre-requisite(s) (SITS 0006)

Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required

EN0760 Learning Contract or equivalent
IS0752 Research and Project Management or equivalent

In addition learners must:

- be employed preferably in an engineering environment or have access to an organisation within which the dissertation can be located
- be working at an occupational level within the organisation that will

enable them to undertake learning which is at least equal to the level of the work-based learning dissertation module they are pursuing

- have the support of their employer or the organisation in which the dissertation is to be located, in the form of time, resources and advice
- where appropriate learners can identify a work-based mentor who is able to help, advice, and support the learner and to critically comment on the progress and outcomes of the dissertation.

16. Co-requisite(s) (SITS 0007)

Modules at this level which must be taken with this module

None

17. Distance learning delivery (SITS 0008)

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required
e.g. materials, communication facilities, hardware, software etc.*

None

18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)

This module will employ work based and distance learning and teaching strategies which will be indicated within the dissertation proposal. The proposal will be negotiated between learner, tutor and the relevant organisation, where appropriate.

Learners will be supported and guided through the various stages of implementing the work-based dissertation report. They will receive on-line and face to face surgeries from their academic tutor and from their workplace supervisor (where appropriate).

19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.)

a. Summative assessment and rationale for tasks

The learner is required to construct a portfolio of evidence using a variety of assessment activities. In this way, the intrinsic nature of work-based learning is incorporated into the assessment strategy by encouraging learner autonomy and reflection on practice.

The culmination of this process is the submission of the required evidence in the form of a dissertation report along with other supporting evidence which reflects the learner’s personal and

professional development, intellectual growth and journey of learning.

The following provide the requirements for assessed work. Learners will be assessed on:

- Appropriateness of the work-based dissertation report in terms of relevance to the work-role, academic level and learning and development needs of the learner
- Mastery of concepts, theories, principles and models relevant to complex issues/situations addressed within the dissertation
- Ability to negotiate a dissertation proposal (2,000 words, formatively assessed)
- Ability to independently manage, record, analyse and critically evaluate the work-based dissertation report
- Application of an in-depth knowledge and understanding of their organisation within its wider context, recognising the implications for the dissertation and the likely impact the dissertation will have upon organisational development and within the discipline
- Ability to design, and carry out practical and methodologically sound research which will contribute significantly to the dissertation, addressing relevant ethical, commercial, confidential and data protection issues appropriately where these arise
- Application of a broad base of knowledge, experience and new learning to a range of workplace problems, dilemmas and value-conflicts within and beyond their area of responsibility
- Record and critically evaluate the area of research and learning process within a 10-15,000 word dissertation report in an appropriate academic format. This will include recommendations that are innovative solutions to complex and unpredictable situations for organisational development, based upon own ideas, theories and from research
- Ability to present the dissertation through the use of oral presentation (30 minutes, formatively assessed) and a written dissertation report (summatively assessed) to academic assessor, line manager and an appropriate external specialist in the field.

b. Additional formative assessment – detail of process and rationale

The learning process provides for a dissertation proposal (2000 words) and oral presentation (30 minutes) which is formatively assessed. This activity provides an iterative process of negotiation of and feedback on the evidence required to meet the assessment criteria as the learner, tutor (and workplace mentor where appropriate) engage in this dialogue.

c. Indication of how students will get feedback and how this will support their learning

Feedback is provided at all formative assessment times and will be provided formally after submission of any element of the dissertation or reflection. This aims to clearly identify the strengths and weaknesses of the proposed dissertation.

During the course of the proposed work, feedback may also take the form of visits, phone conversations, email or other forms of face to face communication.

20. Implications for Choice (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc.

Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>				
Lectures	0			
Seminars	0			
Tutorials	0			
Laboratory/studio/practical work	0			
Directed learning	118			
Independent learning	359			
Placement/work experience learning/fieldwork	120			
Duration of examination(s)/test(s)	0			
Other (please give details of other hours indicated)	3			
Total workload <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	600			

Other hours are indicative of student support in specific surgeries which may be facilitated through visits, phone conversations or email correspondence.

SUMMATIVE ASSESSMENT

22. Form of Reassessment

Either synoptic or non-synoptic reassessment

Synoptic reassessment <i>One form of reassessment that tests all module learning</i>	Y/N Y
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<p>outcomes</p> <p>Non-synoptic reassessment Where module referred overall, individual failed components of assessment are reassessed</p>	
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23. Component Assessment

To be completed for each component of assessment

Sequence 001, 002 etc.	Assessment type indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation	Brief description of assessment e.g. type/length of exam, type/word limit of coursework	Weighting % or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall
001	Dissertation report	<ul style="list-style-type: none"> Written dissertation report with supporting evidence (10-15,000 words) 	100%

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24. Date of SLT Approval

25. Module mark scheme assigned²⁸

26..	<p>Component mark scheme assigned³</p> <ul style="list-style-type: none"> For each component listed in section 23 indicate the mark scheme attached. Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.
001	<input type="text"/>
	<input type="text"/>

27. Date of entry onto SITS

²⁸ A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/its/approval/forms/>

Library

The libraries at City Campus and Coach Lane provide access to a wide range of print and electronic resources including over half a million print books, over 700,000 eBooks and more than 50,000 electronic journals. More details can be found on the University Library website: <http://library.northumbria.ac.uk/home>

City Campus Library (number 14 on City Campus map) is housed near the Student Union building (number 30 on City Campus map).

Coach Lane Library is situated on the East Side of the Campus, in F Block (number 16 on Coach Lane Campus map).

City Campus library is open 24/7 during term time and from 9am to midnight during vacation times. Coach Lane library is open 7am until midnight (Monday to Friday), 9am until midnight (Saturday and Sunday). Opening hours are prominently displayed in the foyers of the library buildings, any changes are advertised on the Library website and on social media. Opening hours vary during bank holidays and are subject to change, so please check before you travel.

You will need to keep your smartcard with you to gain access to and leave the libraries. Your Smartcard is a universal card which not only gives access to the Libraries and other University buildings, but it also allows you to print, copy, scan, borrow books and make cashless payments.

The Library Catalogue can be accessed on and off-campus through the University Library website and the dedicated catalogue computers on each floor of both Libraries. The catalogue can be used to search for books and eBooks located in the University Library. It is quick and easy to use and will give you the information you need to locate the material on the shelves or read online. eBooks can be read on and off-campus, anytime, anywhere. NORA can be used to search for, and retrieve, up-to-date scholarly materials including articles, reports and statistics that are relevant to your studies. You can browse through all the online resources relating to your subject in one place including databases, journals and websites.

Students are entitled to borrow up to 15 items at any one time. Items can be issued using the self-issue machines on the ground floor of City and Coach Lane Libraries. You can renew your library books online through the MyLibrary section of MyNorthumbria or via the Library Catalogue.

Northumbria students can use other libraries such as the Robinson Library at Newcastle University and Newcastle City Library using the SCONUL access scheme. For more information see the Library SCONUL information page: <http://library.northumbria.ac.uk/sconul-holiday>

The Northumbria Skills Programme is a comprehensive skills programme designed to develop the key skills you need to succeed at university and beyond provided by the Library. It runs throughout the year and provides classroom style skills sessions on many topics including academic writing skills, giving accomplished presentations, and referencing your work correctly, as well as regular drop in surgeries. Some sessions are bookable; simply consult the timetable on the Northumbria Skills Programme website: <http://library.northumbria.ac.uk/skillsdev-nsp>

Skills Plus is the Library's collection of online learning materials, with a focus on digital literacy and study skills that can be accessed on and off-campus. Using these resources is an excellent way to develop your skills through a range of online tutorials with quizzes, video demonstrations and printable help guides. <http://nuweb2.northumbria.ac.uk/library/skillsplus/topics.html?I3-0>

If you need help or advice, on or off campus, you can contact Ask4Help. The Ask4Help service provides you with help and support to access a range of University services including Library, Disability Support, Student Finance and Careers. The quickest way to find answers to some of the most popular questions asked by students is to look at Ask4help online. You can also contact us by phone and speak to a member of our dedicated enquiry team or email us your questions.

www.northumbria.ac.uk/ask4help

ask4help@northumbria.ac.uk

0191 227 4646

Northumbria Students' Union (NSU)

Northumbria Students' Union (NSU) is here to make sure you have the best experience possible. NSU is one of the largest and most exciting Unions in the country and that's all because of YOU. We represent you, the student, on all levels, on the issues students are concerned about; receiving a great academic experience, being very employable when you graduate, being safe on campus and in the city and having a fantastic time while a student.

NSU is run by students for students. You can have your say in what NSU does and how it is run, by contacting your [Sabbatical Officers](#) or by coming along to [Student Council](#)

MEMBERSHIP: As a student of Northumbria University you are automatically a member of the Students' Union. We also sell NUS Extra Card from the Students' Union at both [Coach Lane](#) and [City Campus](#) giving you discounts in shops and online, but you don't need one to use any of our services.

DIVERSE: Your Students' Union is a place which brings together students from all walks of life, all parts of the country and the world and many different cultures. NSU provides lots of opportunities for you to [Get Involved](#), make lasting friendships, increase employability and have FUN!

INDEPENDENT: NSU is independent of the University, with its own staff, services and decision-making structure. Run by students for students, providing the best services and opportunities for students we push for change from the University to deliver for students. Find out more at our [You Said, SU Did](#) page. If you need advice about academic appeals or other issues, we can help. Check out the [Advice Page](#).

VALUE: Your NSU offers the best value for money, and everything you spend goes straight back into the Students' Union to fund all the activities that we run for you.

If you would like more information check out the website www.mynsu.co.uk or come and see us at our [offices](#) in City, Coach Lane and London.