STAFFORDSHIRE
UNIVERSITY

Faculty of Computing Engineering and Technology

AWARD HANDBOOK 2009-10

List of all award titles

PgC/PgD/MSc Electronic Engineering

PgC/PgD/MSc Electrical Engineering

PgC/PgD/MSc Mechanical Engineering

PgC/PgD/MSc Mechatronics

PgC/PgD/MSc Automotive Engineering

PgC/PgD/MSc Autosport Engineering

PgC/PgD/MSc Telecommunication Engineering

Author: Professor Sarath B Tennakoon
Date of Issue: September 2009

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1. Welcome to the Faculty

Welcome to the Faculty of Computing, Engineering and Technology at Staffordshire University. You are now a student in one of the largest such faculties in UK universities, and we are delighted that you are one of our students. The faculty is host to one of the first UK university computing provisions, to technology programmes that are amongst the leaders in the UK, and to an engineering scheme founded on large engineering employer needs. Your course of study will therefore be up to date and appropriate, will be serviced by well qualified staff, and will also be geared to preparing you for life and employment after university. Staffordshire University aims to 'create the difference' by helping all of its students to achieve what they want to in life.

As one of our students we expect you to work hard, to set high standards for yourself. To help you to succeed you will have access to excellent staff and facilities, and also to a range of student support services to help deal with your particular needs. Of course, in addition the academic, administration and technical staff that you come across as part of your studies will also be delighted to advise and support you. Your part is to take your study seriously, to set appropriate time aside for your study, and to make full use of lectures and other scheduled class contact. It is important to us that you are successful and that you go on to be a good ambassador for the university.

You are now part of the Faculty 'family', and we look forward to working with you to help you to 'create the difference'!

Very best wishes,

Professor Michael J Goodwin
Dean
Faculty of Computing, Engineering and Technology

On behalf of all the staff who contributes to the MSC Engineering Awards I would like to welcome you to the MSc Engineering awards. I am sure you will find our staff is helpful and professional in everything they do and we will do our best to make you feel very welcome here. Please do not hesitate to contact the appropriate staff for any academic or personal matter.

As you will soon find out your learning will involve significant industrial involvement in terms of teaching, industrial placements and visits which I consider extremely important for the development of an engineer. I hope that you will study hard here and leave as a fully fledged engineering professional ready to embark on a career leading to Chartered Engineer status.

Professor Sarath B Tennakoon
Programme Manager: Taught Engineering Masters Awards

2. Useful Contacts and Resources

Academic Contacts

Engineering Taught Masters Awards Programme Manager

Professor Sarath B Tennakoon
Location: D102
Telephone: 01785 353488
E-mail: s.b.tennakoon@staffs.ac.uk

Role: overall management of the suite of taught masters awards

Award Leaders

Electronic Engineering and Mechatronics
Dr Ian Taylor
Loaction: C201
Telephone: 01785 353210
E-mail i.taylor@staffs.ac.uk
Role: management of the Electronic Engineering and Mechatronic Masters awards

Electrical Engineering
Professor Sarath B Tennakoon
Location: D102
Telephone: 01785 353488
E-mail: s.b.tennakoon@staffs.ac.uk
Role: management of the Electrical Engineering Masters award

Mechanical Engineering, Automotive Engineering and Autosport Engineering
Professor David Cheshire
Location: C208
Telephone: 01785 353273
E-mail: d.g.cheshire@staffs.ac.uk
Role: management of the Mechanical, Automotive and autosport Engineering Masters award

Telecommunications Engineering
Dr Mohamad Patwary
Location: C336
Telephone: 01785 353546
E-mail: m.n.patwary@staffs.ac.uk
Role: management of the Telecommunications Engineering Masters award

Project Coordinator
Dr Ian Taylor
Loaction: C201
Telephone: 01785 353210
E-mail i.taylor@staffs.ac.uk
The role of the project Co-ordinator is:

- Managing and overseeing the administration of all the projects

- Collaborating with project supervisors in determining, for each project, detailed objectives and performance and assessment criteria

- Organising an examination panel for the project assessments

Liaison with the examination panel to produce the project interview report to be forwarded, together with the thesis, to the External Examiner for approval.

Placements Academic
Dr David Link, K334, 01785353284, d.link@staffs.ac.uk

The role of the Placements Academic Coordinator is:

- To advise on all academic issues regarding the placement.
- To oversee and coordinate the optional Work Placement (WP) module.
- To organise assessments (which may be part of the optional WP module).
- To assess the potential placement and to liaise with the company to ensure a sound process.
- To assist the student in finding a placement (in conjunction with the Placements office).

Administrative Contacts
Postgraduate Award Administrator
Mr Chris Hanks
Location: K243
Telephone: 01785 3533462
E-mail: C.l.Hanks@staffs.ac.uk

Student Advisor
Janice Kalisz
Location: K232
Telephone: 01785 353345
E-mail: j.c.kalisz@staffs.ac.uk

Placements Manager
Ms Maria Feenan
Location: C012
Telephone: 01785353460
placements@staffs.ac.uk

A full list of staff contacts can be found at http://www..staffs.ac.uk/fcet

Useful Internet Resources

The Faculty website can be found at: http://www.staffs.ac.uk/fcet.   Here you will find details of timetables, contacts and news regarding the Faculty.

The Faculty aims to use Blackboard as an online learning environment, and information on modules on which you are enrolled can be accessed from this. Note: you can only get access to those modules that you are studying – if you cannot gain access to material, it may be that you are not correctly enrolled on the module – make sure you let your module tutor know.

Blackboard can be found at: http://blackboard.staffs.ac.uk

The library can be accessed from: http://www.staffs.ac.uk/uniservices/infoservices/library/

Add other websites as appropriate

3   Glossary of Useful Terms

Module	A unit of study with a defined learning outcomes, curriculum and assessment. The module definition is to found in the module specification for the module. Each module has a number of Credits, associated with it. A single module is worth 15 Credits and notionally requires 150 hours of learning activity to complete. This learning activity being divided between time for class contact hours with staff, independent study and assessment. The number of allocated learning hours rises in proportion to the number of Credits attributed to a module at the rate of 10 hour per credit. All modules are multiples of the basic unit of 15 Credits. So for example, a double module will be worth 30 Credits and will have a learning time of 300 hours.
Core module	This is a module that you must take and pass to qualify for a given award title or range of titles.
Award Option	This is a module chosen from a list of Award Option modules. Award Option modules are studied in conjunction with the core modules and form the prescribed set of modules for a particular named award
General Option	This is a module which you can choose from a set of modules which have been designed to complement your Award. This is to allow you to broaden your knowledge and skills base if you wish by taking some supplementary studies in addition to your main subject area.
Co-requisites	Co-requisites are those modules that you must take as a package. All the core modules can be considered to be co-requisites. We have defined co-requisites to make sure that there is sufficient shape and coherence in your programme of study to make it a rewarding and interesting experience. A co-requisite is therefore a module which must be studied in addition to and normally at the same time as a particular module.
Pre-requisites	A pre-requisite is defined as a specific requirement that you must meet before you can take a module..
Disqualified Combinations	Although rare, disqualified combinations are those modules which you cannot study together. This is normally because the content of the modules overlaps in some way, such that by taking both you would not cover the equivalent of two-modules learning.
Grade (Point)	On completion of the assessment of a module, you will be assigned a grade for that module in the range 0 to 15. In considering your performance at the end of a stage, grades will be averaged to produce a grade point average for the stage (weighted by the size of the module). Grade points run form 0 to 15, with 0-6

	being fail grades.
Stage	This indicates the academic stage at which study is to be undertaken – Certificate Stage, Diploma Stage and MSc Stage.
Teaching block	A period of study into which the year is divided, that may include induction, learning, assessment and academic counselling. There are currently two teaching blocks in each academic year.

4. Aims of the Award

4.1 General Aims

The general aims of the courses are as follows:

- To further develop the student's intellectual and creative powers, their judgement and problem solving ability together with an ability to communicate in a professional manner and to see opportunities beyond a particular programme of study.

- To provide specific skills and knowledge in the use of technological tools for the solution of engineering design and analysis problems.

- To develop research skills by expecting students to search for, and understand, original solutions.

- To contribute to the matching section leading to chartered engineer status.

4.2 Named Award Specific Aims

PgC/PgD/MSc Electronic Engineering

This is an award for the graduate Electronic Engineer who wishes to broaden his or her knowledge base and become skilled in modern design techniques and be aware of new technological advances. The course provides coherent and up to date coverage of Electronic Engineering with modules in Analogue and Digital Systems, VLSI, Digital Signal Processing, Real Time Embedded Software and Telecommunications. The approach spans specification and design to realisation with particular emphasis on the application of industry standard CAD tools and DSP devices to develop solutions to practical engineering problems.

PgC/PgD/MSc Electrical Engineering

The advent of the Flexible AC Transmission Systems (FACTS) resulting from the application of power electronics to power systems is revolutionising the electrical power supply industry and there is a need for engineers skilled in Power Electronics and Power systems. The proposed MSc in Electrical Engineering is designed to fill this requirement and is unique in that at present no such course is offered by other higher education institution in UK. Staffordshire University is able to produce such a course due to the long history of research in this field with the support of the companies such as National Grid, Electricity boards, and Areva T&D.

PgC/PgD/MSc Mechanical Engineering

This is an award for the graduate Mechanical Engineer who wishes to enhance their knowledge of modern engineering simulation techniques and be aware of new technological advances. The course covers a broad range of areas related to Mechanical Engineering with modules in CAD, Reverse Engineering, Materials, Engineering Design Methodologies, FEA of Static and Dynamic mechanical systems, Thermodynamics, Energy conservation and Control Systems Design.

PgC/PgD/MSc Automotive/Autosport Engineering

This is an award for the graduate Mechanical Engineer who wishes to focus or Automotive related topics. This specialisation is understandable as automotive products have a very high profile in everyday life and we are all exposed to them through travelling by motorcycle, car, bus or coach. The course covers a broad range of areas related to Automotive Engineering with a choice of module in CAD, Reverse Engineering, Materials, Engineering Design Methodologies, FEA of Static and Dynamic mechanical systems, Vehicle Styling, Vehicle Aerodynamics, Vehicle Dynamics and Engine Design. The type of project undertaken for the MSc dissertation will determine the final award title.

PgC/PgD/MSc Mechatronics

The Mechatronics award has been designed to offer students a selected range of modules covering current practice in Electronic Engineering, Mechanical Engineering Robotics, Automation and Control Engineering. Areas available include Real Time Embedded Systems Programming, Robotics, Power Semiconductor Devices, Motors and Drives. Students will have a flexible choice of modules allowing them to specialise in their particular areas of interest.

PgC/PgD/MSc Telecommunication Engineering

Telecommunication engineering award encompasses the design and optimisation of communication networks for voice, data and multimedia applications. This award will provide students with an in-depth knowledge telecommunication networks, project management and research methods. The modules covering in this award includes Voice-over IP telephony, wireless networks, Digital Signal Processing, Telecommunications, Wireless navigation systems, Optical fibre communications, along with Research Methods & Project Management and Management of Technology & Innovation.

This award aims to produce postgraduates with the knowledge and skills to enable them to enhance their career opportunities, which is relevant to the fast paced changing needs of the telecommunications and related industries. Graduates may continue their studies onto postgraduate research for a PhD degree.

5. Learning Outcomes of the Award

The awards in this programme are designed to develop in the student and assess attainment against Staffordshire University's interpretation of the Framework for Higher Education Qualifications. The University defines 8 generic outcomes:

1. Knowledge and Understanding,
2. Learning,
3. Enquiry,
4. Analysis,
5. Problem Solving,
6. Application,
7. Reflection,
8. Communication.

The programme also provides opportunities to develop the benchmark's *knowledge and understanding*, *intellectual abilities*, *practical skills* and *general transferable skills*. In addition to confirming the above, outcomes can also be explicitly linked to the UK Standard for Professional Engineering Competence (UK-SPEC) 2004 statements included within Engineering benchmark statement under the headings of:

a. Underpinning Science and Mathematics and Associate Engineering Discipline.
b. Engineering Analysis
c. Design,
d. Economic Social and Environmental Context,
e. Engineering Practice

6.   Award Structure and Content

The named routes comprise of three distinct components;
- A taught component consisting of 8 modules, each comprising 150 hours of learning time and allocated 15 credit points for each module.

- A major individual project of 20 weeks or 600 hours duration which is allocated 60 credit points.

- Optional industrial placement allocated 15 credits

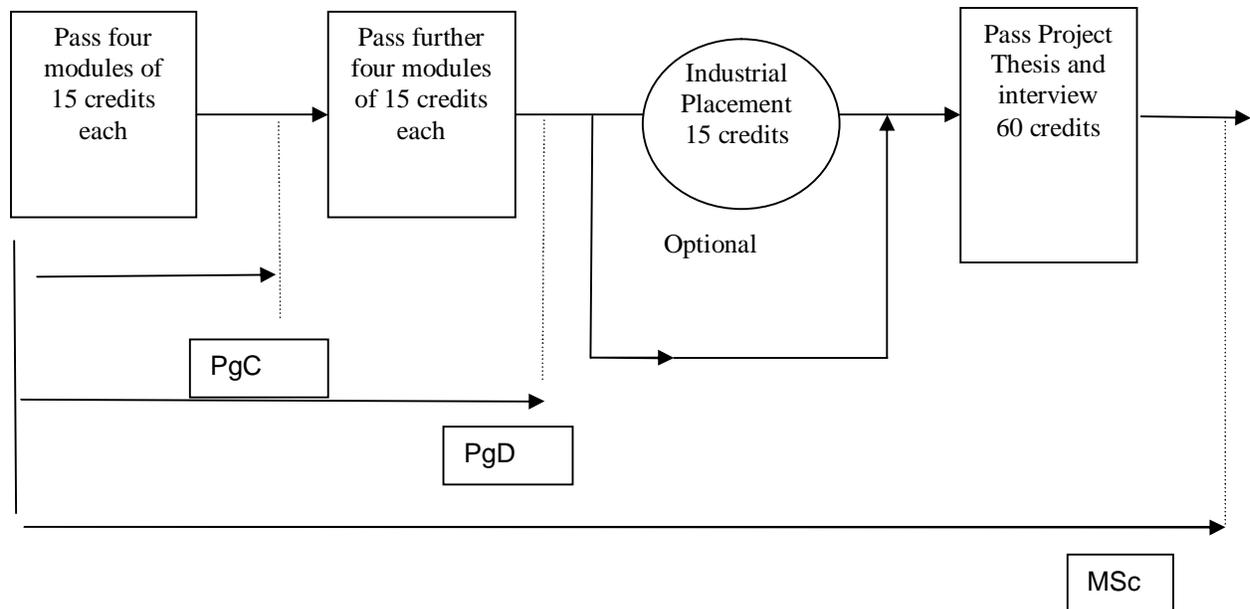Staged awards within a named route are illustrated in Figure.1.

Figure 1 : Illustration of Staged Awards within a Named Route.

6.1 Taught Programme

For full-time students the first element of the taught programme is four 150 hour modules each attracting 15 credit points delivered over a 12 week semester. Examinations for the first semester are normally held in January. After the examination period the second element of the programme will begin and consist of four, 150 hour modules each attracting 15 credit points and delivered over a second 12 week semester. Examinations for the second semester are normally held in May.

6.2 Industrial Placement

There is an opportunity for a student to take an optional 15 credit work placement before studying the project module. This is taken after completing the 8 taught modules before proceeding to the project. The placement office will help the student to secure a placement in many ways including help in CV writing and putting the student in contact with the companies. However the final responsibility in securing a placement lies with the student.
Key Contacts:

Ms Maria Feenan   Dr David Link
Placements Manager   Placements Academic
K216   K215
01785353460   01785353284
placements@staffs.ac.uk   d.link@staffs.ac.uk

6.3 Project

This is the largest single component of the MSc scheme. It is a major undertaking of 20 - 25 weeks or 600 hours duration and is credited with 60 credit points. A candidate will not normally be allowed to proceed to the project until he or she has passed the taught part of the programme. Under exceptional circumstances, at the discretion of the award leader variations to this condition may be allowed.

Students can propose their own project provided that supervision expertise and appropriate equipment to complete the work is available within the faculty or at a sponsoring company. Project selection and approval of a project are by the mutual consent of the Project Supervisor and the student. The proposed project must be capable of being pursued at an adequate academic and intellectual level to justify the MSc Award. Alternatively projects can be selected from lists provided by the Faculty at the start of Semester Two.

The student must fill a project registration form and submit to the MSc award administrator. At the time of registration the student must state the expected date of completion. The project registration form is attached to this document

The proposal, which is written under the guidance of the supervisor should clearly describe the project aims and objectives and demonstrate that progress has been planned in such a way that the objectives can be met. The proposal length should be approximately four to five A4 pages. Any students who extend their project submission beyond the normal time scale will be charged a re-enrolment fee.
The project proposal will be prepared by the student in consultation with the Project Supervisor. It should:

- Identify the project aims and objectives

- Include a project time schedule with milestones.

- Identify the resources needed for successful completion of the project

- Identify project outcomes

- Include the signatures of the student, the supervisor, and the employer wherever appropriate, to confirm the acceptance and commitment of all parties.

The signed project proposal should be lodged with the project coordinator who will appoint a moderator for the project.

The actual timing of the project depends on your start date and whether you take the optional industrial placement module or not.

6.4 Time Scales

The timing of the completion of the four elements of the Awards, depend on your start date and the industrial placement which can be 6 months to one year. Guidance to the time scales are given in a table appended to this document.

7.   Teaching Learning and Assessment

7.1 Teaching and Learning Strategies

The taught part of named MSc awards consists of eight modules. Each module comprises 150 hours of student learning time. Typically, this would comprise 36 or 48 hours of timetabled class contact including formal lectures, tutorials, and laboratory based work. The remaining time is defined as student centred learning time and will normally be comprised of:

- Open learning approaches using commercial computer packages, commercial systems, and education material developed in house.

- Participation in broad-based design activities, involving both individual contributions and teamwork.

- Self managed study.

- Industrial visits

- Field trips

A typical weekly timetable for full-time students on the named awards will be typically 12 hours. We suggest that you work for a further 28 hours per week on self-study, assignments and report preparations. It is expected that part-time students will enrol for at least two modules in each year.

The award structure allows a 6 -12 month industrial placement which can be taken after the completion of 8 taught modules. Immediately after completing 4 modules you should start applying for placements. Express your interest to the placement office and your award leader. The placement office offers support in many ways including help in CV preparation and putting you in touch with companies. However you should take the initiative and look for opportunities. Internet, newspapers and technical magazines are good sources. If you do well and demonstrate your potential it is not difficult to secure a placement.

7.2 Module Assessment

Each module of the taught part of the MSc named award is assessed either entirely by In-Course Assessment (ICA) or by a combination of in-course assessments and a written examination. The ICA can take many forms; typical examples of ICA are laboratory and simulation based assignments, class test(s), group projects, assignments containing sample tutorial questions, and case studies. In all cases any physical documentation, written work, or computer based work must be handed in through the Faculty Office. The weightings of different assessment methods for each module are given on the appropriate module descriptors which can be downloaded from the university website. Each written examination paper is normally up to 2 hours duration and is designed to assess the module outcomes and provide the candidates with a choice of questions to answer.

7.3 Project Assessment

A project assessment interview will take place at the end of the project period, following submission of the dissertation. The membership of the project assessment panel will normally consist of:

- The Project Supervisor(s)

- The moderator who shall be the Chairperson

- An external representative, such as the employer, when appropriate

If the External Examiner is not present at the interview, the thesis, together with the interview panel's comments and recommendations, will be forwarded to the External Examiner for approval.
When examining the candidate the assessment will have regard to the candidate's demonstration of the following guiding factors:

- Understanding of fundamentals and ability to write these in a logical manner.

- The ability to research previous work in the same field and place the work in the context of published material.

- Scientific and practical experimental ability.

- Ability to hypothesise and draw conclusions.

- Ability to express ideas in a logical and concise form using relevant references to advantage.

The panel will jointly agree a mark which contains elements derived from the dissertations and oral presentation.

7.4. Assessment Regulations

7.4.1 General

Assignments are essential features of the assessment process and are treated with the same formality as written examinations. An assignment timetable, listing the cut off dates for all assessed assignments, will be produced by the subject lecturer and distributed to students.

Written examination and class test papers are prepared by members of academic staff and moderated and approved by the Award Tutors and Postgraduate Awards Programme Manager. The assignments, the proposed papers, worked solutions and marking schemes are forwarded to the External Examiner(s) for approval. Examination scripts, project dissertations, and other in- course assessments are available for inspection by the External Examiner(s) prior to attending the meeting of the Assessment Board.

A candidate is deemed to have satisfied the assessment requirements for a module if he or she obtains at least 50% or grade point 7 of the possible aggregate marks as laid down in the assessment schedule for the module. On satisfying the Assessment Board the full allocation of credit points for a particular module will be awarded to the candidate.

In the case of borderline decisions that affect the progress of a candidate, or in cases where unforeseen circumstances have affected a candidates performance, the Assessment Board may take into account a report from the Personal Tutor and exercise its discretion to examine the candidate *viva voce* or by some other means.

At the end of the taught programme the Assessment Board may condone failure with grade point **4** and above in one module subject to overall performance.

7.4.2 Conditions for Referral

Candidates should refer to the University Regulations available on the Staffordshire University website. Normally only one referral attempt will be allowed for any module unless the candidate is able to claim extenuating circumstances.

7.4.3 Cheating and Plagiarism

All cases will be treated in accordance with the University regulations.

Cheating denotes any deliberate attempt to gain an unfair advantage in any assessment. Plagiarism is a deliberate attempt to pass off other peoples work as your own. It includes copying another student's work (and knowingly allowing another student to copy your work) but most likely will be quoting text from a book or website without properly referencing this as another authors work. The University considers plagiarism a serious misconduct and the penalties are commensurate with this view. You should refer to the University website at http://www.staffs.ac.uk/keyskills/ethics/ for more details and information as to how to avoid being a plagiarist. This site also includes details of good referencing practice.

Where it has been established that a candidate has engaged in cheating or plagiarism in an examination or other assessment, the Examination Board may deem that the candidate has failed all or part of the assessment concerned.

7.4.4 Appeals Procedure

Any appeal against results shall be dealt with according to the appeals procedures of the University

8. Personal Development Planning and Personal Tutoring

8.1 Personal Development Planning.

As with all awards within the Faculty students have the opportunity to take part on a PDP programme supported by "Pebblepad" a software tool which also allows the students to maintain a portfolio of their work which can be presented to prospective employers. PDP enables students

to become more focused in approaching tasks, developing learning skills, and evaluating achievements objectively. By taking up the PDP opportunities offered the student will learn to become an effective planner and be able to complement this skill with sound evaluation and reflection skills. PDP is a vital part of the students development not only related to education but also in shaping a suitable career path to follow.

In addition, personal development planning is integrated into the module "Project Management & Research methods. Also personal development naturally happens through the MSc project. The project supervisor ensures that interpersonal skills such as communication, time management, forward planning are developed. In addition workshops are run on topics such as time management and report writing.

9. Accreditation of Prior Learning

The Accreditation of Prior Learning is the term used when a student uses his or her previous experiences to gain admission to a programme of study; admission to a module; admission at an intermediate stage in a programme (advanced standing); or to gain exemption from part of a programme of study. These previous experiences may be work-based learning, general learning experiences (experiential) or certificated qualifications.

You should normally apply for exemptions or admission with advanced standing through the AP(E)L scheme when you apply for a place on the award, or immediately upon registration for your modules. You will not be allowed to apply for AP(E)L in a module once you have submitted any assessment for that module. If you apply for exemptions or admission with advanced standing through the AP(E)L scheme you may be required to undergo some assessment to determine the relevance of your experiences/qualifications.

The APL and AP(E)L forms can be obtained from the Faculty of Computing Engineering and Technology Office. The APL and AP(E)L Board meets in early October. It is chaired by one of the Faculty's Programme Area Managers and its purpose is to consider all the APL and AP(E)L applications received from students and uphold or reject these applications dependant on the evidence provided.

10. Award Specific Regulations

You are required to gain at least 30% in each component of assessment, and get an aggregate mark of over 50% in order to pass a module.

At the discretion of the Award Board a maximum of 20 credits can be compensated

Part Two of this handbook is available on the web
http://www.staffs.ac.uk/faculties/comp_eng_tech/current_students_and_staff/award_handbooks.jsp