Faculty of Computing Engineering and Technology

AWARD HANDBOOK 2010-11

BSc Network Computing
BEng Network Computing
BSc Network and Security

Author: **Dr. Justin Champion**
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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

2. Welcome to your Award

Welcome to the Networking awards at Staffordshire University. We are here to help you as much as we can do during your time with us. The award you are a part of is very practical based and we want all of our students to not only understand the underlying principles but be able to demonstrate this as well. We have a number of labs which are made available for you and we hope that you feel confident enough to go and use the equipment in times outside of the normal tutorials. I am always about in the building if I am not sitting in one of the current networking labs then please do feel free to email me to discuss any issues that you may have.

Each of the years at the university is made up of eight modules which you need to pass to get onto the following year. In the first year you will not be doing very much networking or security this is simply about getting you that good understand of what computing is all about. This is good for your understanding and is also what employers require with people who really do understand about the devices as well as how to deal with the traffic that flows from them. After the first year you will be doing a lot more work within your specific field of expertise network/security. If you do have any issues though please do come along and chat about them with myself.

Dr. Justin Champion
Award Leader Network and Mobile Communications

3. Useful Contacts and Resources

3.1 Academic Contacts

Award leader — Dr. Justin Champion
Room C203, Beacon Building, Stafford Campus
Telephone 01785 35 (3292)
Email: JJC1@staffs.ac.uk

Although the main contact within the award is Justin Champion our structure within the awards mean you will see the same tutors in a number of modules. Please do feel free to chat to any of the tutors who will probably be able to help you in a number of areas.

Technical Support for Networking Awards — Mr Dave Rowley
Room 104, Octagon Building
Telephone 01785 35 (3504)

Placement Tutor — Mr Ian Sunley; room: K340 Octagon. Phone: 01785 35 (3418);
g.i.sunley@staffs.ac.uk

Final Year Project Co-ordinator Mr Rob Kinmond.

A full list of staff contacts can be found at http://www.staffs.ac.uk/faculties/comp_eng_tech/current_students_and_staff/fcetwhoswho.jsp

3.2 Administrative Contacts

Award Administrator(s) — Julie Thomas, Room K266, Octagon Building, 01785 353432
J.A.Thomas@staffs.ac.uk

Student Guidance Advisors — Janice Kalisz Room K232, Octagon, 01785 353345
j.c.kalisz@staffs.ac.uk

Rose Arnold Room K228, Octagon, 01785 353625
and Room B164, Brindley, 01782 294047
r.e.arnold@staffs.ac.uk

3.3 Useful Internet Resources

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

The Faculty uses 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 or award administrator 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/

Cisco Netacad website http://www.cisco.com/web/learning/netacad/index.html
Netlab Virtual equipment access http://netlab.staffs.ac.uk/

3.4 The Faculty Office

Faculty Reception is on the 2nd Floor of the Octagon, Room K266 and first floor of Brindley building in Stoke (B161) and should be your first port of call if you have any queries or problems relating to the Faculty or if you are unsure of how to deal with other queries. The contact details of the University Services for students are listed in Section 3. The Faculty Office comprises a team of staff who are responsible for managing the wide range of activities and processes necessary to support students and academic colleagues within the Faculty. You'll get to know some of the staff quite well as it is here you'll hand in your module registration forms and assignments.

All enquiries should be made via the Reception desk in the first instance. The Receptionist will assess whether they are able to help you immediately or whether you need to talk to another member of the team. Hence they may call on colleagues who can advise on queries concerning:
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All enquiries should be made via the Reception desk in the first instance. The Receptionist will assess whether they are able to help you immediately or whether you need to talk to another member of the team. Hence they may call on colleagues who can advise on queries concerning:

- Modules
- University regulations
- Your credit and progression status
- Referral opportunities
- Claims for extenuating circumstances you may have made in relation to assessment
- Information about your study here: award and module records, local and home address information, etc
- Any changes to your award or programme of study
- Registration events for level 2 and level 3 study

It is important that you get to know staff in the Faculty Office as they are responsible for keeping all the information on your period of study accurate and up-to-date.

In particular, make sure that you:-

- Check your e-mail account regularly for any information or queries sent to you by Faculty/School administrators or by academic staff. This means your university e-mail account – not your personal one!

- Always let the Faculty Office know of any changes in your contact details. This includes mobile numbers as well as home and term addresses and any landline telephone numbers. It really is important that we know how to get in touch with you.

- Always ensure that the Faculty Office is aware of any changes you make to your academic profile (modules/award) by completing the appropriate module amendment/award transfer forms.

Opening Times

Monday - Thursday	8.45 am – 5.00 pm
Friday only	8.45 am – 4.00 pm

Please feel free to call into the Faculty Office between these times. All queries, no matter how small or large, are welcome as they ensure that your records are always correct – and this does prevent delays or difficulties in confirming results at the end of each Academic Year. And if you have a problem which the Faculty/School Office can't help you with, it usually knows somebody who can.

3.5 The Faculty Management Team

The Dean of Faculty

At the head of the Faculty is the Dean, Mike Goodwin (K260 Octagon, 01785 353295, E-mail m.j.goodwin@staffs.ac.uk)

In this role, Mike has responsibility for the strategic development, operation and management of the faculty. Should you need to speak with him, you should normally make an appointment with his secretary, Heather West. Heather can be found in Room K260, Octagon Building and her telephone number is 01782 353295 (E-mail h.n.west@staffs.ac.uk)

Faculty Academic Directors

Mike Goodwin is supported in running the faculty by 2 Faculty Academic Directors:

Dr Mike Hamlyn, Teaching and Learning (C236, Beacon, 01785 353220, m.g.hamlyn@staffs.ac.uk)

Professor Adrian Low, Research and Enterprise (K252 Octagon, 01785 353307. a.a.low@staffs.ac.uk),

Programme Areas

The Faculty is divided into four Programme Areas, each managed by a Programme Area Manager:

Applied Technology	Gordon Bancroft (C238 01785 353422 g.a.bancroft@staffs.ac.uk)
Computing	Tracy Lewis (K238 01785 353360 t.a.lewis@staffs.ac.uk)
Entertainment Technology	Peter Hoornaert (C246 01785 353451 p.hoornaert@staffs.ac.uk)

The award which you enrol for will belong to one of the Programme Areas – and this programme area will therefore be responsible for managing issues relating to your academic progression and welfare during your time with the Faculty as a student with us.

4. What are the aims of the award?

Each named award within the Computer Networks Scheme provides you with opportunities to develop and demonstrate knowledge, understanding, cognitive and practical skills, within the area of computer networks, the security of networks and computer systems and the management of

large distributed systems. The aim of the awards is to produce a student who is able to leave the university and work for the industry in a professional expert manner.

4.1 Guiding philosophy

The guiding philosophy of the Networking Scheme of awards offered by the Faculty of Computing, Engineering and Technology is that of fostering excellence in practical scholarship. In particular, this means the fostering of the achievement of academic potential focused on the development of techniques that maximise our graduates' ability to solve professional problems relating to computer networks, the security of networks and computer systems and the management of large distributed installations of such systems.

4.2 Educational aims of the programme

The guiding philosophy is realised by a programme of study with the following educational aims.

1. Provide a sound general education in computer networks and computer security
2. Enable the student to achieve the highest award within his or her overall ability
3. Enable the student to specialise in depth in computer networks and security
4. Whenever possible, give a practical emphasis to the student's studies
5. Provide a programme in which the student's general education is enhanced, including transferable skills
6. When appropriate, to enable the student, by means of a one-year period of supervised work in an industrial, commercial or public service setting, to gain relevant experience in the computing profession, and as far as possible gainfully to exploit that experience during the student's final year
7. Produce graduates who are fitted to undertake employment in industry, commerce or public service as computer network and security professionals, or (for those with suitable degree classification) to undertake programmes of further study or research in appropriate institutions

Network Computing

It is the explicit aim of the Network Computing award to enable specialisation in the area of technical network design and implementation. In addition, this award aims to produce graduates fit for industry as computer network professionals, systems architects or network consultants. It is the university's aim to facilitate student success in the workplace by embedding learning content within the course which is mapped to industry recognised CISCO certifications. Students are encouraged to pursue their CCNA and CCNP as well as security, wireless and voice certifications in addition to their university studies.

Computer Networks and Security

The main aim of the Computer Networks and Security award is to foster specialist skills and academic knowledge in the area of network and computer security. This award aims to produce graduates fit for industry as computer security or network security professionals, IT security consultants or network analysts. It is the university's aim to facilitate student success in the workplace by embedding learning content within the course which is mapped to industry recognised CISCO certifications. Students are encouraged to pursue their CCNA and CCNP as well as security and voice certifications as an additional element to their university studies.

5. How is the award structured?

The structure of the award is given in the following tables

Level C = Certificate level of study
Level I = Intermediate year of study
Level H = Honours year of study

LEVEL C

Code	Modules	Assessment weighting cw/ex	Credits	Network Computing* 7*C, G	Network Computing (joint half)* 3*C	Computer Networks and Security* 7*C, G	Computer Networks and Systems Management* 7*C, G	1 Knowledge & Understanding	2 Learning	3 Enquiry	4 Analysis	5 Problem Solving	6 Communication	7 Application	8 Reflection
Teaching Block 1								**Learning Outcomes**							
CE0037 1-1	Introduction to Software Development	100 /0	15	C	C	C	C	●				●		●	
CE0084 2-1	Hardware, Software Systems and Graphics	100 /0	15	C	C	C	C	●	●	●					
CE6101 4-1	Mathematics and Statistics for Computing	100 /0	15	C		C	C	●			●	●		●	
CE0039 8-1	Introduction to Security Technologies	100 /0	15		OO	C		●		●				●	
CE0012 6-1	Introduction to Networking with LANs and WANs	100 /0	15	C	C		C	●	●	●	●	●		●	●
CE0030 1-1	Web Design and Development	100 /0	15		OO			●	●			●		●	
Teaching Block 2															
CE0085 3-1	Systems and Database Analysis	50/ 50	15	C		C	C				●		●	●	●
CE0086 9-1	Algorithms & Data Structures in C	50/ 50	15	C	OO	C	C	●		●		●		●	
CE0012 6-1	Introduction to Networking with LANs and WANs	100 /0	15			C		●	●	●	●	●		●	●
CE0088 2-1	Object Oriented & Event Driven Programming	50/ 50	15	C	OO		C		●	●		●		●	

C = Core, AOn = Award Option N, G = General Option
CO = Computing Option (any module at the current level from the list in Appendix 3, and from any semester at that level, subject to meeting admissions requirements and to requirement that 60 credits are the normal maximum number of credits taken by a full-time student in a given semester).
OO = Overlap option – for joint awards, if the same core module(s) are specified for both halves of the award, choose a module from this list as an alternative.
*The **Ordinary degree** of this title has the same structure at level C as the Honours award.

LEVEL I

Code	Modules	Assessment weighting cw /ex	Credits	Network Computing* 6* C, A O, G	Network Computing (joint half)* 2* C, AO	Computer Networks and Security* 6* C, A O, G	Computer Networks and Systems Management* 6* C, A O, G	1 Knowledge & Understanding	2 Learning	3 Enquiry	4 Analysis	5 Problem Solving	6 Communication	7 Application	8 Reflection
	Teaching Block 3							**Learning Outcomes**							
CE00315-2	Professional and Enterprise Development	50/50	15	C		C	C	●					●	●	●
CE00881-2	LAN Switching and WAN Networks	50/50	15	C	C	C	C	●	●			●	●		
CE00125-2	Introduction to IP Telephony	50/50	15	C		AO	AO	●	●	●	●		●		●
CE01098-2	Forensic Data Recovery	10 0/0	15			AO		●	●		●	●			
CE01099-2	Ethical Hacking	10 0/0	15			☞		●		●			●		
CE00843-2	Web Database Programming	10 0/0	15	AO	AO	AO	AO		●	●				●	●
CE00856-2	Database Systems	10 0/0	15	AO			AO		●	●	●	●			
CE00375-2	Fundamentals of Mobile Computing	50/50	15	AO	AO			●			●	●		●	
CE00399-2	Biometrics 1	10 0/0	15			AO		●	●				●	●	
CE00321-2	System Development Methods	50/50	15				AO	●			●	●		●	
	Teaching Block 4														
CE00861-2	Advanced Routing	50/50	15	C	AO	C		●		●		●		●	
CE01121-2	Quality of Service of Converged Networks			C		C		●	●		●	●			
CE00863-2	Converged Networks	50/50	15		AO			●	●	●				●	
CE00854-2	Network and Grid Computing	50/50	15	C		AO	C	●	●			●		●	
CE00409-2	Practical Systems Management	50/50	15		AO		C	●			●	●		●	
CE00917-2	Router Security Technologies	50/50	15	AO	C	C	C	●		●	●				●
CE00379-2	IT Systems for Business	50/50	15	AO			C				●	●	●		●
CE00343-2	Software Development for Mobile Computing Applications	50/50	15	AO					●		●	●		●	
CE00804-2	Hardware, Software Systems and Networks	30/70	15		AO					●			●	●	●

CE00883-2	Principles and Practices of Software Production	10 0/0	1 5		AO				●				●	●	●
CE00374-2	Graphical User Interfaces: Design and Implementation	10 0/0	1 5				AO				●	●		●	
CE00866-2	Database Security	10 0/0	1 5			AO		●	●			●			

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CO = Computing Option (any module at the current level from the list in Appendix 3, and from any semester at that level, subject to meeting admissions requirements and to requirement that 60 credits are the normal maximum number of credits taken by a full-time student in a given semester).
OO = Overlap option – for joint awards, if the same core module(s) are specified for both halves of the award, choose a module from the list of award options (AO) as an alternative.

*The **Ordinary degree** of this title has the same structure at level I as the Honours award.

MEng structure table

LEVEL M

Code	Modules	Assessment weighting	Credits	Network Computing	Computer Networks and Security	Computer Networks and Systems Management	1 Knowledge & Understanding	2 Learning	3 Enquiry	4 Analysis	5 Problem Solving	6 Communication	7 Application	8 Reflection
		cw/ ex		8*C	8*C	8*C								
	Teaching Block 7			**Awards & structure**			**Learning Outcomes**							
CE00827 -M	MEng Project in Computing	100/ 0	30/6 0	C	C	C	●	●	●	●	●	●	●	●
CE00542 -M	Personal Development and Research Methods	100/ 0	15	C	C	C	●	●	●	●	●	●	●	●
CE00287 -M	Negotiated Study for MEng Computing - 1	100/ 0	15	C	C	C	●		●	●				
	Teaching Block 8													
CE00827 -M	MEng Project in Computing	100/ 0	30/6 0	C	C	C	●	●	●	●	●	●	●	●
CE00288 -M	Negotiated Study for MEng Computing - 2	100/ 0	15	C	C	C	●		●	●				
CE00289 -M	Negotiated Study for MEng Computing - 3	100/ 0	15	C	C	C	●		●	●				

C = Core

LEVEL H

Code	Modules	Assessment weighting	Credits	Network Computing*	Network Computing (joint half)*	Computer Networks and Security*	Computer Networks and Systems Management*	1 Knowledge & Understanding	2 Learning	3 Enquiry	4 Analysis	5 Problem Solving	6 Communication	7 Application	8 Reflection
		cw/ex		6*C, CO, G [7CG]**	C, AO	7*C, G [8C]**	5*C, AO, CO, G [6C, AO, G]**								
Teaching Block 5								**Learning Outcomes**							
CE00835-3	Project: Planning, Management, Communication & Appraisal	100/0	15	C		C	C	●	●	●	●	●	●		●
CE00879-3	Information System Engineering in Industry	100/0	15	[C]**		[C]**	[C]**	●		●	●		●		●
CE00360-3	Computer Systems Security	50/50	15		AO	C	AO	●	●		●	●			
CE00860-3	Advanced Wireless Networking	50/50	15	C	C		AO	●						●	
CE00303-3	Critical Issues in Managing Information Systems	50/50	15				C	●			●	●			●
CE00862-3	Advanced Switching	50/50	15	C	AO	C		●			●	●	●		
CE00874-3	Enterprise Applications with Java Enterprise Edition		15				C	●	●			●		●	
CE00313-3	Ubiquitous Computing	50/50	15		AO			●	●		●	●			
CE00722-3	Further Web Applications	100/0	15		AO						●	●	●	●	

Teaching Block 6															
CE00836-3	Project: Research, Analysis & Artefact Design	100/0	15	C		C	C	●	●	●	●	●		●	●
CE00837-3	Project: Artefact Realisation, Testing & Evaluation	100/0	15	C		C	C	●			●	●	●	●	●
CE00865-3	Network Service Quality	50/50	15		AO			●			●	●			
CE01122-3	Troubleshooting A Converged IP Based Network		15	C		C		●			●	●		●	

CE00404-3	Malicious Software and Security Programming	50/50	15			C		●			●	●		●	
CE00348-3	Project Management	50/50	15				AO		●		●		●	●	
CE00845-3	Web Services	50/50	15		AO		AO			●	●			●	●
CE00339-3	Information Systems Development Trends	50/50	15				AO	●	●			●			

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OO = Overlap option – for joint awards, if the same core module(s) are specified for both halves of the award, choose a module from the list of award options (AO) as an alternative.

*The **Ordinary degree** of this title at level H consists of 60 level 3 credits, the structure of which is defined to be those 60 credits that remain from the structure of the Honours degree at level H, after the 45 credit project and the 15 credit general option have been excluded.
****BEng** level 3 structure in [] and additional core in []

6. How will I learn on this award?

The University and the Faculty of Computing, Engineering and Technology, as a whole are mindful of the demands being made by a large number of students and increasingly diverse cohorts.

The University has a policy aimed at ensuring that you have opportunities to develop the study skills and outlook necessary to support your currency with the subject studied throughout a future career. The University teaching and learning strategy aims to create a resource based learning environment, with an emphasis on student opportunity for learning rather than simple directed teaching. Each student is a partner in the learning experience, and is expected to take responsibility for his/her study. As a result the Faculty sees the role of lecturer as a learning facilitator.

The resource based approach to facilitating your learning is enhanced by the availability of on-line learning facilities such as VLEs or websites. Both of these are already used extensively across the Faculty. However, it is the policy of the Faculty to make the use of some form of VLE universal.

You are encouraged to undertake independent learning to extend the material presented. The value of self-gained knowledge and understanding is emphasised, both as an essential skill/practice for life (lifelong learning) and as an expectation on computing professionals (continuing professional development).

The following are points to be considered by you:

- always remember - learning is about you doing things, not having them done to you
- manage your time - get yourself to the right session at the right time
- use and look after learning materials and bring them to the appropriate sessions - replacements are not always available
- get used to using the library and other learning resources, independently

- if you don't understand something - ask
- please respect staff privacy - they may operate an appointment system
- be flexible in your thinking

Throughout all your studies, you will be introduced to differing study skills. Special care has been taken in the design, particularly of the Level C modules, to ensure you are provided with the right foundation for you to take advantage of all methods of delivery, assessment and study.
Embedded skills development in the CISCO Networking Academy

One of the main drivers behind the success of the networking scheme is the Faculty's participation in the CISCO Networking Academy programme, a global e-learning initiative aimed at delivering networking and ICT skills based on materials provided by CISCO Systems Inc. The Faculty values this participation because it provided an education option that (although vendor supported) is non-vendor specific and future oriented.

Many of the network specific modules in this scheme incorporate learning materials which additionally prepare students to take CISCO certifications. These materials are available on-line and should be used as supplementary texts to the formal lectures. As part of the agreement, CISCO provide the Faculty with constantly updated materials, which gives students the guarantee that content will always map to the latest certification exams.

In addition to University enrolment, students enrol with the CISCO Networking Academy Programme (http://cisco.netacad.net) and follow a sequence of on-line courses with embedded interactive on-line assessments that provides accountability for student learning. Completion of these on-line courses is not linked to studies for university modules, but success in these CISCO classes may be rewarded with a Course Completion Certificate issued by CISCO systems.

In order to address embedding of practical networking skills, the materials are further supplemented by extensive workbooks which students complete during the tutorial and lab sessions. These workbooks support the academic learning by contextualising networking concepts with real-world scenarios. Students learn practical networking skills on industry-standard equipment provided by CISCO Systems Inc.

To this end, the Faculty benefits from two purpose-built networking labs, which can accommodate 20 students each. These labs are an essential resource to support teaching and learning of networking concepts up to CCNP level. Each lab provides sufficient hardware for students to be able to manage and configure their own networking device during the course of a tutorial.

Participation in the Networking Academy Programme ensures that only CISCO trained academics teach on those modules which incorporate CISCO content and academics undertake a number of CDP activities every year to ensure that their training remains current.

The intention of this award is to produce graduates are able to work within the industry if they decide to do so. An important part of your course is the placement opportunity in a real world company. This give you chance to hone your skills in an environment which can simply not be simulated inside the university. When you start level I you will have a number of talks on placements and the companies which are available. Do use these faculties and make the most of them, by asking and looking at the information. Their chances to work with large and small companies during your placement and all of them help you learn and enhance you skills and knowledge. A lot of the placements students are able to feed a lot of information into the lectures at level H based on their experience with particular types of equipment.

7. How do I hand in assignments?

You will always be required to hand in written assignments relating to Faculty of Computing Engineering and Technology modules to the Faculty Office, either in the Octagon, Stafford, or Brindley, Stoke. Instructions for the submission of practical assignments will be included in the relevant module handbooks.

It is your responsibility to ensure that you submit assignments on time and at the appropriate place.

The Faculty Office is open to take your assignments at the following times:

Monday to Thursday	8.45 am – 3.30 pm
Friday only	8.45 am – 3.30 pm

ASSIGNMENTS WILL <u>ONLY</u> BE ACCEPTED DURING THESE HOURS.

Written assignments to be submitted to the Faculty Office should have stapled to them an *assignment receipt form*, available from the Office.

Please ensure that you fill in *all* sections, particularly the module title and tutor's name before coming into the Office to have it stamped; space is at a premium and the Office is very busy on assignment submission days, so do plan to submit your work in plenty of time.
Note that some assignments are marked anonymously, and that you are asked to fold and stick down the right hand flap of the assignment receipt form to conceal your name before handing in your work to the Faculty Office. This is an important tool in helping to safeguard the integrity of the assessment process. Anonymous marking, however, is usually confined to conventional essay type assessments, as with other kinds of assessment (for example, an artefact or presentation report or dissertation) the tutor would normally be aware of the author's identity.

If you have a problem with dyslexia, make sure that you ask for one of the yellow labels (available from your Award Leader/Personal Tutor or if at the last minute the Faculty/School Office) to attach to your work to signal to the tutor that the assignment needs to be marked on content and understanding rather than on syntactical and grammatical competence.

The form you will complete is in duplicate. It is most important that you use a biro so that both copies are marked. Having completed it go into the Office where a member of staff will date stamp and sign both copies of the form and return one copy of it to you.

KEEP THIS SAFE! IT IS A RECEIPT, WHICH YOU CAN PRODUCE TO SHOW THAT YOU HAVE SUBMITTED YOUR ASSIGNMENT.

We would normally expect you to hand in your work in person, but recognise that this may not always be possible. If you are unable to hand in your written assignments in person, you can submit them via the post, using recorded delivery. This is important as should your work not arrive, we need to be able to find out what happened to it. All work which is submitted in this way will be dated according to the postmark.

YOU SHOULD ALSO NOTE THAT <u>NO</u> WORK WILL BE ACCEPTED WHICH HAS BEEN SENT BY FAX OR E-MAIL.

Finally, it hardly needs to be said that it is always, of course, good practice to keep a hard or (backed up) electronic copy of any assignment you submit. Should the assignment you submitted get lost then you will have the receipt to prove that you handed it in and a copy to replace what has been lost.

8. Personal Development Planning and Personal Tutoring

You will be allocated a personal tutor within the first few weeks of starting at the university. This person is there for you to discuss any issues which you are having with the course. There will be a number of times when you will be emailed to attend a meeting with your tutor. Do not though consider that this is the only time you can speak to them. All of the personal tutors are usually happy to speak to people, if you just email them to get a good mutual time. You will have the same personal tutor during your entire time at the university, except for when you are on industrial placement.

Assuming you are on a sandwich degree you will be allocated a tutor who will assist you during your industrial placement. This may not be the same tutor which you have while at the university but this person will be assuming the same role if you need advice or support.

Personal Development Planning (PDP) is essential so that you can develop while you are at the university in the way you want. This is not just developments academically it also considering personal achievements. You will be introduced to the PebblePad software which is there to assist you in the first few weeks at the university. Again your personal tutor will also be able to help and to give you advice in your meetings. Within level I you will studying a module called Professional and Enterprise Development which will focus upon professional development and career goals. Your industrial placement will help quite considerably with your personal development and you will gain a lot of additional skills in this environment which simply cannot be taught in any academic environment.

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 Regulations

Your award is regulated by the Undergraduate Modular Framework or the Regulations for Postgraduate awards.

These can be accessed at : http://www.staffs.ac.uk/current/regulations/academic/index.php

An important new regulation for 2010-11 relates to referrals and resits on assessments.

You will only have a right to a second attempt at a failed assessment(s) where you have made a first attempt (unless a claim for Extenuating Circumstances has been successful) at that assessment(s). It is therefore essential that you submit all pieces of assessed work on time, and attend all of your examinations. Non submission of a piece of assessed work or non attendance at an examination may mean that you will fail that module and possibly your entire award.

11. Award Specific Regulations

Your award is regulated by the Undergraduate Modular Framework or the Regulations for Postgraduate awards.
These can be accessed at :
http://www.staffs.ac.uk/current/regulations/academic/index.php

An important new regulation relates to referrals and resits on assessments. You will only have a right to a second attempt at a failed assessment(s) where you have made a first attempt (unless a claim for Extenuating Circumstances has been successful) at that assessment(s). It is therefore essential that you submit all pieces of assessed work on time, and attend all of your examinations. Non submission of a piece of assessed work or non attendance at an examination may mean that you will fail that module and possibly your entire award.

You are required to gain at least 30% in each component of assessment, and get an aggregate mark of over 40% in order to pass a module.

Please be aware of you fail a core module and you are unable to have a second attempt at the assessment this will mean you fail the award. If you have any issues at all or worries about this please do talk to your award leader.

In the event of you failing a module and you need to do a resit this will be done at the next opportunity. This will usually though be in the August which follows that academic year.

Throughout the academic year your attendance will be monitored and recorded. This is used to not only record that you are attending but it is also used in case there are any issues. You may not be attending a particular class due to having problems. Please do attend all tutorials and lectures for all of the modules. As always if you have any issues which means you cannot attend then do contact a member of staff to discuss rather than simply not attending.

12. Placements

The placement is a opportunity to bring your skills which you have learnt in the previous two years to a commercial environment. It is important to apply for placements early within the second year as a lot of the larger companies will close the placement recruiting before Christmas. We do have dedicated staff that are able to assist you with the recruitment process from application forms through to the interview process. The Faculty Placements Office is in C012 Beacon. Staff in these offices will provide you with support in finding a placement.

In order to qualify for the award of a sandwich Honours degree the industrial placement period must be passed.
Failure in the industrial placement will require a repeat of an industrial placement as a referral. Only one referral attempt is allowed and must normally occur within 18 months.

To pass the industrial placement a student must have,

1. completed, normally, 48 weeks of relevant work experience (32 weeks for Bridging course students),
2. achieved at least 40% in the placement report
3. achieved an aggregate mark of 40% or more.
    - Where the aggregate mark achieved by a student is ≥ 40%, but either of the pass criteria 1 or 2 above are not fulfilled, then the grade point recorded will be a 3.

The industrial placement cannot be subject to compensation.

The member of academic staff responsible for placements on you award is:

Mr Ian Sunley, Room k340 Octagon Building
Telephone 01785 35 (3418)
Email g.i.sunley@staffs.ac.uk

13. Final Year Project

The final year project (FYP) is an important aspect of your learning whilst on the degree. This project is done on your own and makes up three of the module grades in the final year. This project though is a chance to allow you to specialise and gain detailed knowledge within an area of networking which you are interested in. In addition though it is a good piece of work which can be shown to potential employers to show what you are capable of. The FYP is a piece of work you will do on your own with the help of a supervisor. Your supervisor may not be from the field of networking but in this case you will be able to chat to any of the networking team about issues with your project.

Mr Chris Howard
Dr. Carolin Bauer
Dr. Mohamed Sedky

You will have a brief idea of your project and then this can discussed and tailored through discussion with your supervisor. A lot of good ideas come from work which was completed during the placement year. If you do not have an idea it is always worth chatting to one of networking lecturers to discuss previous projects they have been involved with. Within the networking awards there are two types of FYP you can do

Software Artefact
The software artefact is a piece of software you will research design and create to complete a purpose. This is a similar project as you would have within any computing field. The software would be designed to have a networking or security theme to it. A few examples are given below from previous years

Computer monitoring software
Software Firewall
Intelligent port controller on a PC
Remote device configuration graphical user interface

Investigation based
The investigation based FYP is designed to allow you to carry out detailed research within a particular area of network computing. In this project your artefact will be coming from the research work you are actually doing. You will carry out a detailed investigation within the field presenting the results and analysis. The important part of this is not the amount of graphs you produce but the analysis which goes with it trying to explain the results you can see in the graphs. Below are some examples of projects which have been done in previous years

Comparison of IPv4 and IPv6 within traffic environments

Investigation of different methods to secure wireless communications within a commercial environment

Investigation into the performance of different quality of service techniques within a multimedia environment

Performance and security comparison between hardware and software based firewalls

The structure of the FYP does not change no matter which of the routes you take

Research	– Background to the project
Design and Analysis	– Design and analysis of the implementation work
Implementation and Testing	– Implementation of the artefact and testing

For more advice on the FYP as it is important it is good to chat to a network/security lecturer who can advise on the feasibility of the work. The major problem which projects have is that they are too ambitious within the small time scale you have.

14. Academic Dishonesty and Plagiarism

The University and faculty take the issues of academic dishonesty, plagiarism or cheating very seriously. If you get caught breaking the University's rules, you can expect to be punished – this might mean failing an assignment, failing a module or even failing your award and being asked to leave the University.

It is vitally important that you understand the rule regarding plagiarism. These can be found at:
http://www.staffs.ac.uk/images/academic_dishonesty_tcm68-12681.pdf

There are several resources available to help you in writing and preparing assignments so that you do not break the rules. You might want to look at the following resources.
http://www.staffs.ac.uk/uniservices/infoservices/studyskills/

If in doubt, make sure you ask your tutor before you submit work, or arrange to see someone in the Study Skills Centre (located in the library).

Appendix A – Glossary of 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 from 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 Level C 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 corequisite 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. In a similar way as entry to an Award was dependent on your achieving A-Level or BTEC passes for example, or having other prior knowledge, for some modules you will have to be 'qualified' to take them. This will normally mean studying for a module at an earlier level in the Award. Pre-requisites are specified to make sure that you have the knowledge and skills you will need to be successful in your chosen modules. Please refer to the Undergraduate Modular Framework Regulations for a more detailed description of this term in particular the distinction between the terms pre-requisites' and 'Special Admissions Requirements'.
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 Level, grades will be averaged to produce grade point average for the Level (weighted by the size of the module). Grade points run from 0 to 15, with 0-3 being fail grades for undergraduate module, and 0-6 being fail grades for postgraduate modules.

Level	This indicates the academic level at which study is to be undertaken – Certificate level (module level 1), Intermediate level (module level 2) and Honours level (module level 3). Normally it corresponds to one year of study for full-time students. However, students may take modules from different levels at the same time, provided that they meet the requirements for their award.
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.

Learning Outcomes Appendix B

On completion of each level of study, a **Computer Networks and Security** student will be able to:

Learning outcomes **CN&S**	**Level C** **[Benchmark Statement mapping]**	**Level I** **(ORDINARY DEGREE is Intermediate learning outcomes with the addition of the** *underlined italics*) **[Benchmark Statement mapping - cumulative]**	**Level H** **(additional BEng learning outcomes shown** *italicised*) **[Benchmark Statement mapping - cumulative]**
Knowledge and Understanding	Demonstrate knowledge of underlying concepts and principles of: • Computer networking fundamentals • Foundations of computer security • Basic computing algorithms and algorithmic strategies including mathematical foundations for networking and security • Techniques for computer system development, including requirements elicitation and analysis, logical and physical design, system implementation and testing [SRCA 1, 2, 3, 4, 6; ATS 2]	Demonstrate knowledge and critical understanding of networking concepts and principles that extend those covered at Certificate Level, in particular: • Network security systems and applications • Design and deployment methodologies for large and complex networking implementations • The issues, context and practices involved in working as a computer network professional. [SRCA 1, 2, 3, 4, 6, 8; ATS 2]	Demonstrate a systematic understanding of networking concepts and principles, building on those covered at Certificate and Intermediate Level, showing the acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of research and development in networking and computer security. [SRCA 1, 2, 3, 4, 6, 8; ATS 2] *In addition for the BEng:* • *Understand the organisational and administrative principles of running a business and of systems of communication and control within organisations.*
Learning	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles. [SRCA 4, 6; SRPA 2]	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles, while understanding the	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles, while understanding the

		uncertainty, ambiguity and limits of the student's knowledge and the consequences this has. [SRCA 4, 6; SRPA 2]	uncertainty, ambiguity and limitations of this knowledge. [SRCA 4, 6; SRPA 2]
Enquiry	• Present, evaluate and interpret qualitative information and quantitative data. • Recognise the nature and extent of information needed, and be able to find it effectively and efficiently. [ATS 1, 2]	• Use recognised literature searching and requirements elicitation techniques to gather information about computer-based problems. • Critically evaluate and manage the information collected. • *Find, critically evaluate, manage, apply, and understand information from a range of sources, acknowledging the cultural, ethical, economic, legal, and social issues surrounding the use of information.* [SRCA 4; ATS 1, 2]	• Initiate and carry out projects related to networking and security. • Ethically gather information pertaining to networking problems, possible solutions, and the success of these solutions, from existing or potential users and/or organisations using an engineering approach. • Find, critically evaluate, manage, apply, and understand information from a range of sources, acknowledging the cultural, ethical, economic, legal, and social issues surrounding the use of information. [SRCA 4; ATS 1, 2] *In addition for the BEng:* • *Critically evaluate current good practice, the roles of financial control, costing and marketing, and the relation of costing, investment and resources to company and market environments* • *Show initiative in the identification of problems, market opportunities and techniques and solutions.*
Analysis	• Evaluate and interpret fundamental networking and security concepts and principles introduced at this level. • Evaluate the appropriateness and functional qualities of computer networks [SRCA 1; SRPA 2]	Use established investigation techniques to • analyse information pertaining to computer security and established networking problems. • test and evaluate computer network installations • *critically evaluate concepts and data (that may be incomplete) to draw conclusions* [SRCA 1; SRPA 2; ATS 1]	Critically evaluate current research in networking, including abstract concepts, arguments, assumptions and data (that may be incomplete) to draw conclusions. [SRCA 1; SRPA 2; ATS 1] *In addition for the BEng:* • *Critically analyse data relating to costing, investment, and resources*
Problem	Select and apply	• Assess critically the	• Develop appropriate

Solving	appropriate theory, practices and tools to develop computing-based solutions to problems. [SRCA 6; SRPA 1, 3, 5; ATS 3]	appropriateness of different approaches to solving problems related to networking and security and • Propose and develop solutions following analysis of such problems. [SRCA 5, 6; SRPA 1, 2, 3, 5; ATS 3]	questions and strategies to achieve a solution (or identify a range of solutions) to a problem. • Plan and carry out a large and complex project related to networking and computer security. [SRCA 5, 6; SRPA 1, 2, 3, 5; ATS 3]
Communication	• Communicate ideas and information accurately and reliably • Document the development, design and testing of networking solutions in a structured manner. [SRCA 5, 7; SRPA 4]	• Communicate information effectively in a variety of forms • Communicate information effectively to specialist audiences using appropriate documentation techniques and report formats. [SRCA 5, 7; SRPA 4]	• Communicate ideas, problems and solutions to both specialist and non-specialist audiences in a variety of forms • Write a structured formal report using appropriate referencing, and techniques for documentation. [SRCA 5, 7; SRPA 4] *In addition for the BEng:* • *Communicate effectively (and critically reflect on that communication) to develop and maintain both good teamwork and management functions.*
Application	Apply fundamental networking concepts and principles in the process of solving mathematical and application-based problems. [SRCA 6; SRPA 1, 5; ATS 2, 3]	Apply, in previously unseen contexts, appropriate concepts, principles and techniques (including quantitative techniques) in the process of solving problems related to networking and security. [SRCA 6; SRPA 1, 5; ATS 2, 3]	Apply computing concepts, principles and techniques, including those at the forefront of networking knowledge, in the process of solving complex problems related to networking and security. [SRCA 6; SRPA 1, 5; ATS 2, 3]
Reflection	Demonstrate: • the ability to take responsibility for learning • the ability to work both independently and as team member. [ATS 4, 5]	Demonstrate an understanding of professional responsibility (including quality and safety issues); the ethical, legal and social context in which computer networks are developed and operate; the need for continuing professional development and lifelong learning; the role of computing-based solutions and systems within organisations; and the opportunities and skills needed for entrepreneurship. [SRCA 8; ATS 4, 5, 6]	Building on the understanding of professional and self-development issues developed at Certificate and Intermediate Level, work in a professional manner, recognising the legal, social, ethical and professional issues involved in the exploitation of networking and security technologies, and being guided by the adoption of appropriate professional, ethical and legal practices. [SRCA 8; ATS 4, 5, 6] *In addition for the BEng:* • *Appreciate the need to take responsibility for*

			the long-term effects of the engineering processes involved in the production of a product to defined quality criteria • *Critically appraise technical and managerial contributions within an engineering project*

Learning outcomes – Network Computing award

On completion of each level of study, a **Network Computing** student will be able to:

Learning outcomes **NC**	**Level C** **[Benchmark Statement mapping]**	**Level I** **(ORDINARY DEGREE is Intermediate learning outcomes with the addition of the** *underlined italics*) **[Benchmark Statement mapping - cumulative]**	**Level H** **(additional BEng learning outcomes shown** *italicised*) **[Benchmark Statement mapping - cumulative]**
Knowledge and Understanding	Demonstrate knowledge of underlying concepts and principles of: • Networking fundamentals • Basic computing algorithms and algorithmic strategies including mathematical foundations for networking • Techniques for computer system development, including requirements elicitation and analysis, logical and physical design, system implementation and testing • Structure and operation of hardware and software systems and networks [SRCA 1, 2, 3, 4, 6; ATS 2]	Demonstrate knowledge and critical understanding of networking concepts and principles that extend those covered at Certificate Level, in particular: • Mobile networking • New application domains such as database systems • Software engineering methodologies as they relate to networked applications • The issues, context and practices involved in working as a computing professional. [SRCA 1, 2, 3, 4, 6, 8; ATS 2]	Demonstrate a systematic understanding of networking concepts and principles, building on those covered at Certificate and Intermediate Level, showing the acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of research and development in computer networking. [SRCA 1, 2, 3, 4, 6, 8; ATS 2] *In addition for the BEng:* • *Understand the organisational and administrative principles of running a business and of systems of communication and control within organisations.*
Learning	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles. [SRCA 4, 6; SRPA 2]	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles, while understanding the limits *uncertainty, ambiguity and* of the student's knowledge and the consequences this has. [SRCA 4, 6; SRPA 2]	Develop lines of argument and evaluate possible approaches, tools, techniques and solutions based on knowledge of underlying networking concepts and principles, while understanding the uncertainty, ambiguity and limitations of this knowledge. [SRCA 4, 6; SRPA 2]
Enquiry	• Present, evaluate and interpret qualitative information and quantitative data. • Recognise the nature and extent of information needed, and be able to find it	• Use recognised literature searching and requirements elicitation techniques to gather information about computer-based problems. • Critically evaluate and manage the information	• Initiate and carry out projects related to networking and distributed computing. • Ethically gather information pertaining to networking problems, possible solutions, and the

	effectively and efficiently. [ATS 1, 2]	collected. • *Find, critically evaluate, manage, apply, and understand information from a range of sources, acknowledging the cultural, ethical, economic, legal, and social issues surrounding the use of information.* [SRCA 4; ATS 1, 2]	success of these solutions, from existing or potential users and/or organisations using an engineering approach • Find, critically evaluate, manage, apply, and understand information from a range of sources, acknowledging the cultural, ethical, economic, legal, and social issues surrounding the use of information. [SRCA 4; ATS 1, 2] *In addition for the BEng:* • *Critically evaluate current good practice, the roles of financial control, costing and marketing, and the relation of costing, investment and resources to company and market environments* • *Show initiative in the identification of problems, market opportunities and techniques and solutions.*
Analysis	• Evaluate and interpret fundamental networking concepts and principles introduced at this level. • Evaluate the appropriateness and functional qualities of large distributed systems [SRCA 1; SRPA 2]	Use established investigation techniques to • analyse information pertaining to distributed computer systems and established networking problems. • test and evaluate computer network installations • *critically evaluate concepts and data (that may be incomplete) to draw conclusions* [SRCA 1; SRPA 2; ATS 1]	Critically evaluate current research in networking including abstract concepts, arguments, assumptions and data (that may be incomplete) to draw conclusions. [SRCA 1; SRPA 2; ATS 1] *In addition for the BEng:* • *Critically analyse data relating to costing, investment, and resources*
Problem Solving	Select and apply appropriate theory, practices and tools to develop computing-based solutions to problems. [SRCA 6; SRPA 1, 3, 5; ATS 3]	• Assess critically the appropriateness of different approaches to solving problems related to computer networks and • Propose and develop solutions following analysis of such problems. [SRCA 5, 6; SRPA 1, 2, 3, 5; ATS 3]	• Develop appropriate questions and strategies to achieve a solution (or identify a range of solutions) to a problem. • Plan and carry out a large and complex project related to computer networking. [SRCA 5, 6; SRPA 1, 2, 3, 5; ATS 3]
Communic	• Communicate ideas and	• Communicate information	• Communicate ideas,

ation	information accurately and reliably. • Document the development, design and testing of networking solutions in a structured manner. [SRCA 5, 7; SRPA 4]	effectively in a variety of forms. • Communicate information effectively to specialist audiences using appropriate documentation techniques and report formats [SRCA 5, 7; SRPA 4]	problems and solutions to both specialist and non-specialist audiences in a variety of forms. • Write a structured formal report using appropriate referencing, and techniques for documentation. [SRCA 5, 7; SRPA 4] *In addition for the BEng:* • *Communicate effectively (and critically reflect on that communication) to develop and maintain both good teamwork and management functions.*
Application	Apply fundamental networking concepts and principles in the process of solving mathematical and application-based problems. [SRCA 6; SRPA 1, 5; ATS 2, 3]	Apply, in previously unseen contexts, appropriate concepts, principles and techniques (including quantitative techniques) in the process of solving problems related to networking (including operational problems). [SRCA 6; SRPA 1, 5; ATS 2, 3]	Apply computing concepts, principles and techniques, including those at the forefront of networking knowledge, in the process of solving complex problems related to networking and the operation of distributed systems. [SRCA 6; SRPA 1, 5; ATS 2, 3]
Reflection	Demonstrate: • the ability to take responsibility for learning • the ability to work both independently and as team member. [ATS 4, 5]	Demonstrate an understanding of professional responsibility (including quality and safety issues); the ethical, legal and social context in which computer networks are developed and operate; the need for continuing professional development and lifelong learning; the role of computing-based solutions and systems within organisations; and the opportunities and skills needed for entrepreneurship. [SRCA 8; ATS 4, 5, 6]	Building on the understanding of professional and self-development issues developed at Certificate and Intermediate Level, work in a professional manner, recognising the legal, social, ethical and professional issues involved in the exploitation of networking technologies, and being guided by the adoption of appropriate professional, ethical and legal practices. [SRCA 8; ATS 4, 5, 6] *In addition for the BEng:* • *Appreciate the need to take responsibility for the long-term effects of the engineering processes involved in the production of a product to defined quality criteria* • *Critically appraise technical and managerial contributions within an engineering project*

Appendix C Curriculum Map