Programme Details - H6T9

M.Eng Electrical / Electronic Engineering with a Modern Language

For the first two years, these courses are similar to many of the other courses in the Electronic and Electrical Engineering suite listed below. The main difference is that one module of language must be studied in years 1, 2 and 4 and year three is studied abroad in France, Germany or Spain. The courses are designed to give you as much opportunity as possible to find out about the various specialisations within EEE so that you can make an informed choice at the appropriate time.

H610 / H613	Electronic Engineering	B.Eng / M.Eng
H620 / H621	Electrical Engineering	B.Eng / M.Eng
H628 / H629	Electrical and Electronic Engineering	B.Eng / M.Eng
H647 / H645	Electronic and Communications Engineering	B.Eng / M.Eng
H651	Digital Electronics	M.Eng only
H614	Microelectronics	M.Eng only

Note 1 Transfer between the "with Modern Language" programmes and any programme listed above is possible up to the end of year 2.

The structure of H6T9 over the four years is shown in table 1.

Table 1: M.Eng Electrical / Electronic Engineering with a Modern Language programme structure

<table>
<tr><td></td><td colspan="2">Year 1</td><td colspan="2">Year 2</td><td colspan="2">Year 3</td><td colspan="2">Year 4</td></tr>
<tr><td>Module</td><td>S1</td><td>S2</td><td>S1</td><td>S2</td><td>S1</td><td>S2</td><td>S1</td><td>S2</td></tr>
<tr><td>1</td><td colspan="2" rowspan="4">core topics</td><td colspan="2" rowspan="4">core topics</td><td colspan="2" rowspan="5">year of study abroad</td><td colspan="2" rowspan="3">wide choice available to complement what was studied abroad</td></tr>
<tr><td>2</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td colspan="2" rowspan="2">coursework</td></tr>
<tr><td>5</td><td colspan="2">coursework</td></tr>
<tr><td>6</td><td colspan="2">languages</td><td colspan="2">languages</td><td colspan="2">language project</td><td colspan="2">languages</td></tr>
</table>

The structure of the B.Eng programmes is not directly relevant to this programme so is not included here. If you would like to look at it, it is included in the details of the other programmes that are associated with B.Eng degrees in the list on page 1.

Each of the first two year is split into two semesters and each year is composed of 6 modules or 12 half modules that are usually evenly split between the semesters. Each module is worth 20 credits and most of our taught units are 20 credit modules; one or two are taught as 10 credit half modules.

The fourth year is split into two semesters. However, the basic size of most modules at this level is 15 credits and these modules generally run across both semesters.

Year 1

The first four modules provide a core of material which is common to all the programmes mentioned on the first page. They provide a broad knowledge base on which the later specialisations can be built. The fourth module, MAS156 is a mathematics unit that provides a foundation in the engineering mathematics that is used in first and second year EEE modules. The fifth module is further language study which includes a special third year placement cultural orientation component. In addition we run a 10 credit additional mathematics module, EEE112, that concentrates on how to apply mathematical ideas to electrical or electronic problems. EEE112 is designed for those of you who do not have "A" level mathematics grade A or B (or equivalent), ie, those of you with other maths qualifications such as a BTEC mathematics qualification. As a "with a modern language student" you would not be able to register for this module but if your maths was not not strong we might recommend that you attend the classes. Module 6 is a 20 credit coursework module involving laboratory sessions, computing and personal skill development activities. Details of the first year structure are shown in table 2.

Table 2 First year structure

Module	Semester 1	Semester 2
1	EEE117 20 credits (Electric Circuits and Signals)	
2	EEE118 20 credits (Electronic Devices in Circuits)	
3	EEE119 20 credits (Digital System Engineering)	
4	MAS156 20 credits (Mathematics (Electrical))	
5	MLTXXX (Modern Language (French, German or Spanish))	
6	EEE160 (Coursework)	

Year 2

The second year structure is shown in table 3. Module 5 is the language module; you must continue to study the same language in year 2 that you studied in year 1. As a "with a Modern Language" student, you will not have to attend MGT389, the alternative to languages for other students, on non-Language degrees but you will be required to take part in the Industrial Project which forms part of EEE262.

Towards the end of year 2, you must choose which of the programmes mentioned on page 1 you wish to follow. **You have a wide range of choice and your choice can be different from your original UCAS choice**. The range of choice is constrained as outlined in the notes below the list of courses given on page 1. Your academic performance in engineering and your language skills will be taken into account when deciding whether you will be permitted to proceed to year 3, the year abroad, of your M.Eng with a Modern Language programme - we need to be sure that you will thrive in your year abroad. You will be able to discuss the options open to you with members of staff if you find yourself unsure about any aspect of your academic future.

Table 3: Second year structure

Module	Semester 1	Semester 2
1	EEE223 Energy Management and Conversion	
2	EEE224 Communication Electronics	
3	EEE225 Analogue and Digital Electronics	
4	MAS241 Mathematics II	EEE226 Engineering Software Design
5	MLTYYY Modern Language (French, German, Spanish or Italian)	
6	EEE260 Coursework	

Year 3

You spend year 3 abroad at an institution in the country whose language you have been studying. We have links with four European universities which, like Sheffield, are respected internationally for the quality of their provision. They are

Institut National des Sciences Appliquées de Lyon (France),
Technische Universität Dresden (Germany),
Universidad Politécnica de Valencia (Spain)

Before going abroad you must agree a programme of modules for your year abroad with the institution to which you wish to go and with Sheffield. We encourage you to get involved in as much group activity as possible during your year abroad to help you develop your interpersonal and communication skills in the language of your choice. During your year abroad, the Sheffield Modern Languages Teaching Centre will give you a 20 credit project to work on.

Year 4

In year 4 there is plenty of scope for you to choose from a wide range of options according to your interests. You can opt to acquire a breadth of knowledge or you can concentrate on a specialised area. The M.Eng project is a group project designed to help develop your team-working and communication skills as well as the technical skills you would expect to gain from project work. All of the core/optional topics run across semester 1 and semester 2. The year 4 structure is shown in table 7.

Table 7: Fourth year M.Eng Electrical / Electronic Engineering with a Modern Language structure

Semester 1	Semester 2
EEE461 Individual Year 4 Investigative Project (30 credits)	
MLT*** Modern Language Modules (20 credits)	
options you must choose *one* from (10 credits each): CPE414 Environmental Protection MEC408 Marketing Management MEC414 Tech. Strategy & Business Planning you must choose *four* from the following (15 credits each). EEE6085 Selected Topics in Computer Vision EEE6200 AC Machines EEE6201 Advanced Control of Electric Drives EEE6202 Energy Storage Management EEE6203 Motion Control and Servo Drive Systems EEE6204 Permanent Magnet Machines and Actuators EEE6205 Power Electronics Converters EEE6206 Power Semiconductor Devices EEE6207 Advanced Computer Systems EEE6208 Advanced Integrated Electronics EEE6209 Advanced Signal Processing EEE6212 Semiconductor Materials EEE6213 Principles of Semiconductor Device Technology EEE6214 Packaging and Reliability of Microsystems EEE6215 Nanoscale Electronic Devices EEE6216 Energy Efficient Semiconductor Devices	EEE6217 Optical Communication Devices and Systems EEE6218 Visual Information Processing EEE6219 Computer Vision EEE6220 Electromagnetic Communication Technologies EEE6221 Data Coding Techniques for Communications and Storage EEE6222 Principles of Communications EEE6223 Antennas, Propagation and Satellite Systems EEE6224 Mobile Networks and Physical Layer Protocols EEE6225 Systems Design EEE6431 Broadband Wireless Techniques EEE6432 Wireless Packet Data Networks and Protocols