

Programme Details - H6T9 / H6TX

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
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 and H6TX over their four years is shown in table 1.

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

Module	Year 1		Year 2		Year 3		Year 4	
	S1	S2	S1	S2	S1	S2	S1	S2
1	core topics		core topics		year of study abroad		wide choice available to complement what was studied abroad	
2								
3								
4								
5	coursework		coursework				coursework	
6	languages		languages		language project		languages	

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 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.

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 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)	

We are currently in the process of reviewing and reorganising the material in the second, third and fourth year of our programmes. The aim of the reorganisation is to change from 10 to 20 credit units in year 2 and to remove the common core from year 3. These changes will maintain a common core of material across all programmes up to the end of year 2 thus allowing you to make an informed choice of specialism at the end of year 2 by which time you will know more about the areas of specialisation within electronics.

The reorganisation will leave the material covered largely the same but it will be packaged differently. The existing structure and module details of years 2, 3 and 4 have been left in this document to give you a flavour of the topics covered in the later years.

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 EEE221 and EEE222, the alternative to languages for other students in module 5, but you will be required to take part in the Industrial Project which forms part of [EEE221](#).

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	EEE201 (Signals and Systems)	EEE206 (Communication Systems)
2	EEE220 (Electric & Magnetic Fields)	EEE202 (Electromechanical Energy Conversion)
3	EEE204 (Electronic Devices in Circuits)	EEE207 (Semiconductor Electronics and Devices)
4	MAS242 (Mathematics 3)	MAS243 (Mathematics 4)
5	MLYYYY (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),
Ruhr-Universität Bochum (Germany),
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 you can choose from a wide range of options according to your interests and bearing in mind the modules that you studied in your year abroad. You can opt to acquire a breadth of knowledge or you can concentrate on a specialised area. The M.Eng project for “with a Modern Language” students is an individual investigative project. Some of the optional topics are in semester 1 and some in semester 2 and you should ensure that your choices leave you with a similar load in each semester. The year 4 structure is shown in table 4.

Table 4: Fourth year M.Eng Electrical / Electronic Engineering with a Modern Language structure

EEE461	(Individual Investigative Project) 30 credits
MLTZZZ	(Modern Languages; French, German or Spanish) 20 credits
and one of	
MEC408	(Marketing Management) 10 credits
MEC414	(Tech. Strategy & Business Planning) 10 credits
options	
you must choose <i>sixty</i> credits from the following modules. All are 10 credits unless stated otherwise.	
MAS445	(Mathematics (Numerical Methods))
EEE401	(Electromagnetic Compatibility)
EEE402	(Integrated Circuit Technology)
EEE403	(High Speed Circuit Design)
EEE406 [†]	(Antennas & Propagation)
EEE407	(Energy Utilisation)
EEE408*	(Motion Control & Servo Drives)
EEE409*	(Modelling of Machines)
EEE411	(Advanced Computer Architectures)
EEE412	(System Architectures)
EEE414	(Computer Communications)
EEE416 [†]	(High Speed Electronic Devices)
EEE417 [†]	(Optical Communications Devices and Systems)
EEE421	(Visual Information Engineering)
EEE422	(Computational Vision)
EEE442 [†]	(RF & Optical Communications)
EEE443 [†]	(Mobile Nets. & Low Level Protocols)
EEE6012	(Antennas, Radar and Navigation)
EEE6023	(Power Electronics)
EEE6033	(Digital Signal Processing)
EEE6034 [†]	(Internetworking)
EEE6036	(VLSI Design)
EEE6037	(Analogue Electronics)
EEE6084	(Applied Electromagnetics)
EEE6140*	(Machine Design)
EEE6400	(Communication Principles)
EEE6491	(Syst. Architecture Design) 20 credits

* not available to Electronic Engineering with a Modern Language

† not available to Electrical Engineering with a Modern Language