BE Degree Programme
Electronic & Electrical Engineering

Information for Stage 3 Students
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Scoil na hInnealtóireachta Leictrí agus Leictreonaí UCD

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Welcome to Stage 3

- Some important decisions this year:
- Decision now – start to specialise
  - electrical engineering or electronic engineering?
  - you need to choose the relevant option modules
    - details on slide 4
  - ask for advice if you are still not sure…
- Decision in March 2024 – type of degree
  - exit with BSc (Engineering Science) after stage 3
  - continue to the BE degree (1 more year)
  - switch to an ME programme (2 more years)
    - if eligible: BSc degree complete, GPA at least 2.8

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Stage 3 Core Modules

- Autumn Trimester
  - Maths: Multivariable Calculus 2
  - Circuit Theory
  - Signals & Systems
  - Computer Science for Engineers 2
- Spring Trimester
  - Modelling & Simulation
    - computer techniques for maths in engineering problems
  - Analogue Electronics
    - integrated circuit techniques, power electronics, etc.
  - Electromagnetic Waves
    - radio waves, microwaves, optical systems
  - Signal Processing
    - techniques for processing signals in digital form

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Stage 3 Option Modules

- Choose 2 of 4 option modules

Electrical Engineering
  - Electrical Machines
    - transformers, electric motors, generators, etc.
  - Power System Engineering
    - analysis of 3-phase AC power systems

Electronic Engineering
  - Digital System Design
    - design skills, hardware description language
  - Communication Theory
    - signals, modulation, demodulation, noise, etc.

- This choice decides your future path!
  - you must choose a matching pair of modules if you want to progress to BE or ME
  - you could use your elective choices to take all four modules (not normally recommended)

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Stage 3 Elective Modules

- Choose 2 electives – one in each trimester
  - subject to prerequisites and timetable
- Some modules that should fit your timetable:
  - COMP20180 Introduction to Operating Systems
    - only with the electronic option
  - COMP20200 Unix Programming
  - COMP30040 Networks and Internet Systems
    - only with the electronic option
  - MEEN30100 Engineering Thermodynamics 2
    - mainly for electrical engineering
  - MEEN30140 Professional Engineering Finance
    - recommended for ME Engineering with Business…
  - EEEN30160 Biomedical Signal Processing
  - SCI20020 Introduction to Project Management
    - autumn only

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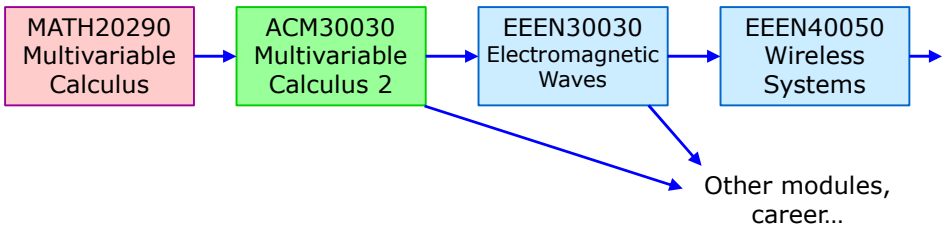
Module Details - Autumn



- ACM30030 Multivariable Calculus for Engineers 2
  - further multi-variable calculus
  - taken by all engineering majors, but with different applications in mind

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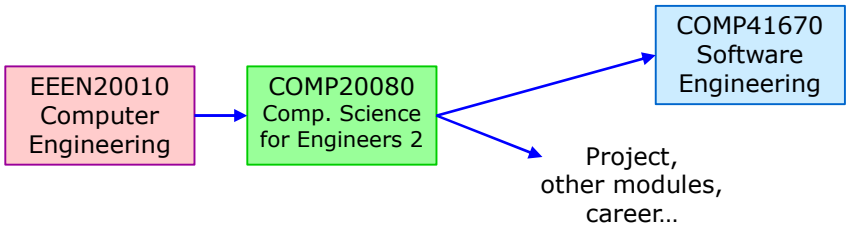
Module Details - Autumn



- COMP20080 Computer Science for Engineers 2
  - mostly object-oriented programming, C++

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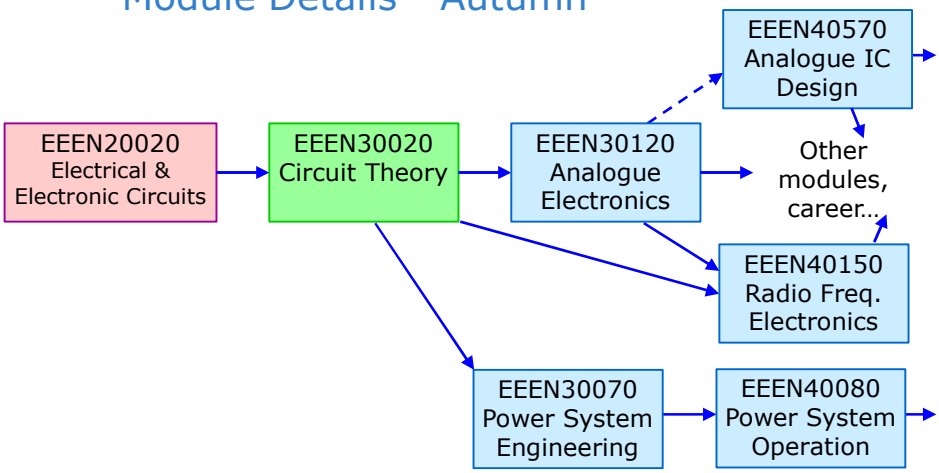
Module Details - Autumn



- EEEN30020 Circuit Theory
  - two-port networks, circuit simulation techniques, Laplace transform, analogue filters

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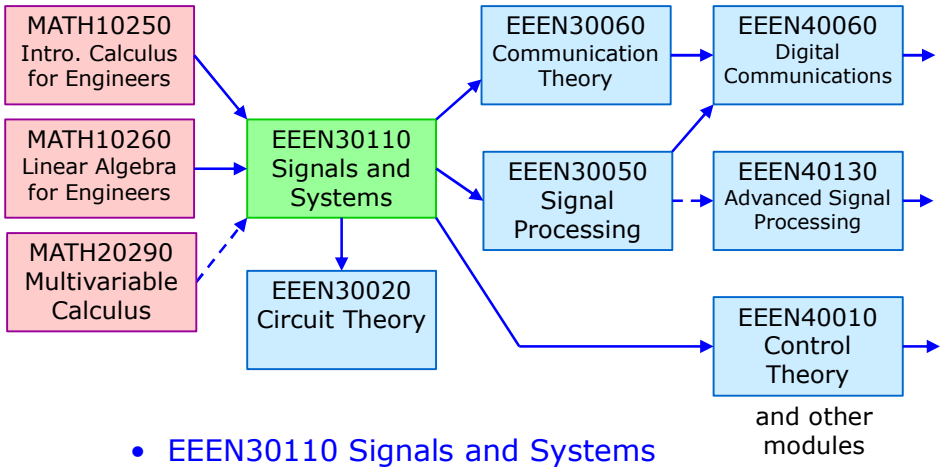
Module Details - Autumn



- EEEN30110 Signals and Systems
  - techniques for analysing signals and the systems that process signals, frequency spectrum, etc.
  - Fourier, Laplace, *z* transforms

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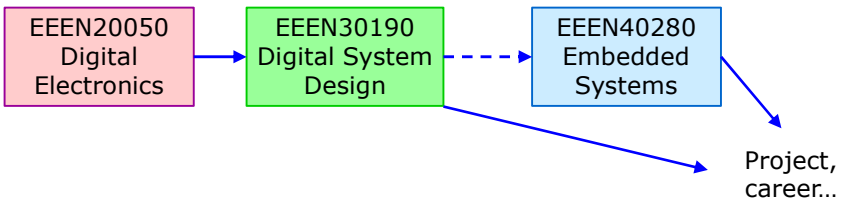
Module Details – Autumn Option



- EEEN30190 Digital System Design
  - digital design at register transfer level
  - hardware description language

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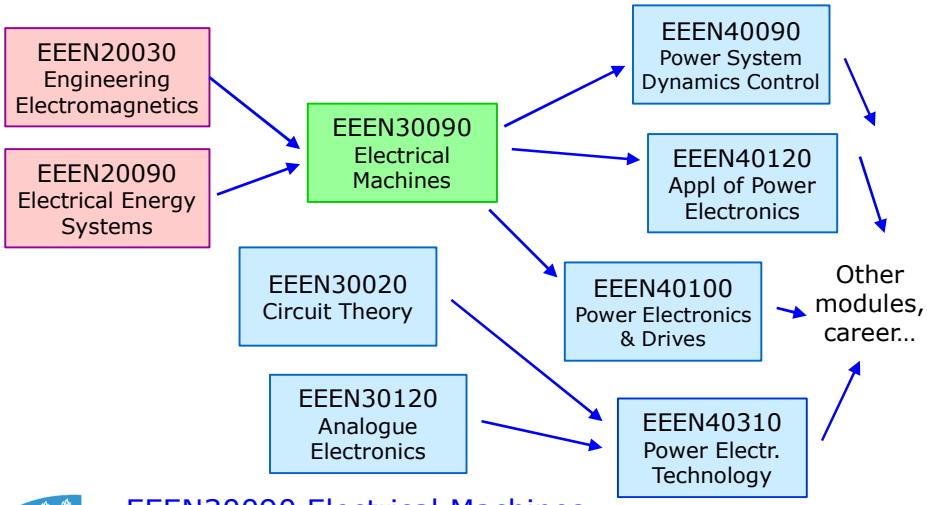
Module Details – Autumn Option



- EEEN30090 Electrical Machines
  - magnetic circuits, transformers
  - motors and generators: DC, induction, synchronous

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Assessment - Autumn

Module	Exam at end	Quiz or Test	Lab, Assignment or Homework
ACM30030	60% *	2 tests, 30%	Homework 10%
COMP20080		Tests, 100%	
EEEN30020	50%		Lab reports 20%, homework, in-class tests, and tutorials total 30%
EEEN30110			3 assignments, 100%
EEEN30090	50%	week 9 10%	3 labs, 30% 2 assignments, 10%
EEEN30190	60% *		3 design assignments 40%

* open book exam

- Assignment details usually on Brightspace
  - instructions, report deadlines, etc.

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Academic Integrity

- Basic rules apply – no cheating!
  - want to keep assessments fair for all students
- Most submissions start with a declaration
  - this is all my own work, except where I state that it was done by someone else – citation, referencing
  - or, for a team, this is all our own work, except…
- If that declaration is not true, you get penalised
  - grade reduced, maybe to zero (NM), record kept
  - serious or repeated cases go to Registrar…
- See the detailed information
  - Student Conduct: https://www.ucd.ie/secca/studentconduct/
  - UCD Library: https://libguides.ucd.ie/academicintegrity

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Things to Watch in Stage 3!

- Modules in stage 4 have prerequisites
  - failing one module in stage 3 can delay graduation…
    - particularly on the BE track – less time to catch up
- The BE programme has a major project in stage 4
  - only available if you have progressed to stage 4
    - so you need at least 50 credits in stage 3
    - and all previous stages complete
  - project allocation is based on stage 3 GPA
- Stage 3 GPA contributes to BE degree honours
  - see next slide
- Stage 3 GPA contributes to eligibility for an ME
  - see later

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Degree Honours

- Degree GPA
  - BSc: based on module grades in Stages 2 and 3
    - weighting factor 3 for Stage 2 modules, 7 for Stage 3
  - BE: based on module grades in Stages 3 and 4
    - weighting factor 3 for Stage 3 modules, 7 for Stage 4
  - ME: based on modules in 2-year ME programme
    - weighted only by credit value
    - work placement is pass/fail, grade-point neutral
- Honours classification
  - first class honours — degree GPA ≥3.68
  - second class, grade 1 — degree GPA ≥3.08
  - second class, grade 2 — degree GPA ≥2.48
  - pass — degree GPA ≥2.0

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Part 2 – Decision in March…

- Continue in the BE programme (default)
  - choose BE electrical or BE electronic
  - you could graduate in 2025
  - you could work as a professional Engineer
  - but not qualified for Chartered Engineer…
    - further study would be needed (later in career?)
- Transfer to an ME path in UCD (if eligible)
  - you could graduate in 2026
  - different modules next year, as part of the ME
- Transfer to the 3-year BSc and graduate
  - you could graduate in 2024, if you have 180 credits
  - for work or for further study
    - e.g. ME in Europe, qualification in a different field
    - but not work as a professional Engineer

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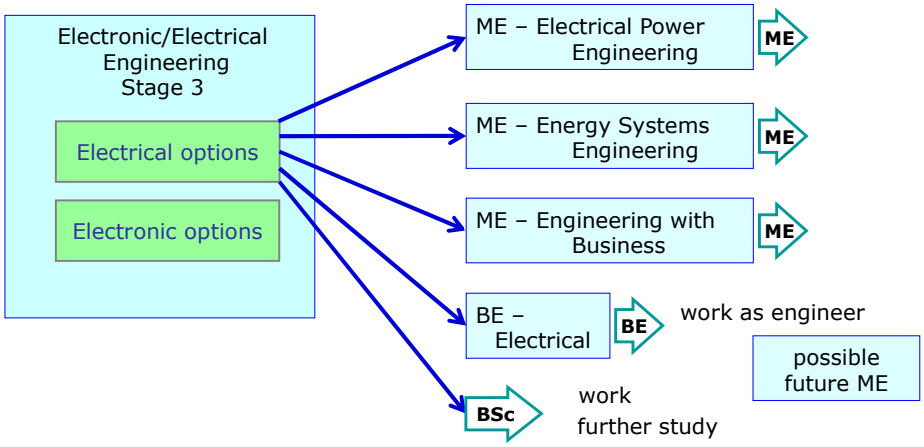
Future Choices – Electrical



- These are the main paths open to you
  - if you choose the electrical options in Stage 3
  - note entry to ME is not automatic

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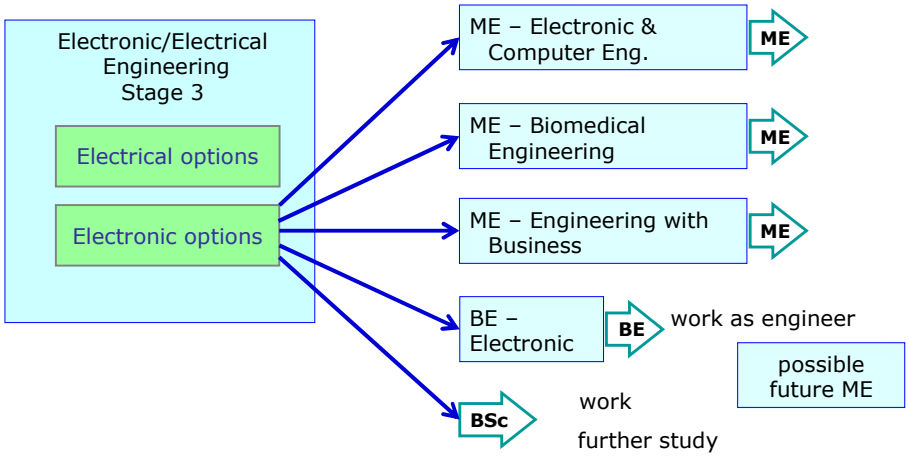
Future Choices – Electronic



- Main paths if you choose the electronic options
  - note entry to ME is not automatic

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ME Degree Programmes

BSc Engineering Science
180 credit

→

ME Programme
120 credit

- Designed as separate 2-year programmes
  - some students enter from outside UCD
  - if you are progressing within UCD, you would be awarded the BSc degree in Engineering Science
    - based on your 180 credits in stages 1 to 3
  - then enter the ME programme, if eligible
- Accredited by Engineers Ireland
  - meet the education requirements for Chartered Engineer status – something you could apply for after some years working as a professional engineer
    - the BE degrees are also accredited, so you can work as a professional engineer, but you need further learning to meet the requirements for Chartered Engineer

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ME Degree Programmes

- Entry requirements
  - if you are progressing within UCD, GPA at least 2.8
  - this is your degree GPA for the BSc degree
    - based on your grades in stages 2 and 3, weighted by factors of 3 and 7 respectively
- Fees
  - currently €8830 per year for EU students
  - €27,720 per year for non-EU students
  - not covered by the government "free fees" scheme
    - if you are progressing within UCD, we can arrange that you only have to pay that fee for the final year
    - the work placement in the previous year usually pays enough to help with this…

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Scholarships

- Industry wants you, and offers incentives!
  - www.ucd.ie/students/scholarships/prospectivepostgraduatestudents/
- Analog Devices Ireland – €2000
  - electronic engineering students, especially ME
- Arup – €2500
  - electrical engineering students continuing to ME
- Intel Ireland – €3000
  - students entering ME Electronic & Computer Eng.
- Réalta ME Scholarships – €9500
  - students for whom the ME fees would be an issue
  - see College of Engineering & Architecture web site
- Terms & Conditions – all limited numbers…
  - selected on GPA, some with interview

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