UCD
Engineering Programmes

BSc, BE, ME

Stage 3
Mechanical Engineering
Students

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24th February 2025

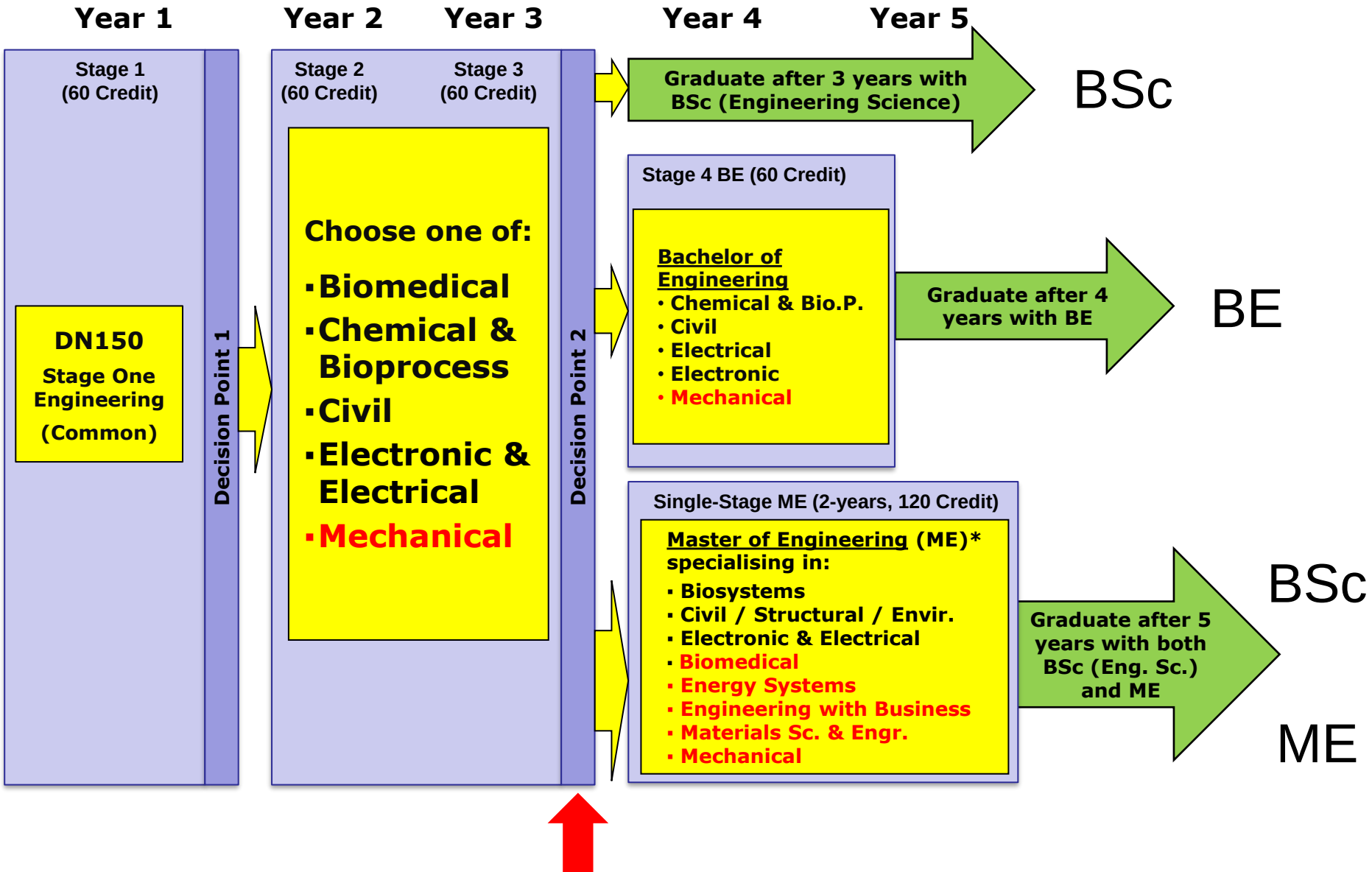
UCD School of
Mechanical and Materials Engineering

UCD Engineering Degree Programme Pathways

Agenda

- Context
- BSc
- BE
- ME (5 options)
- Q & A

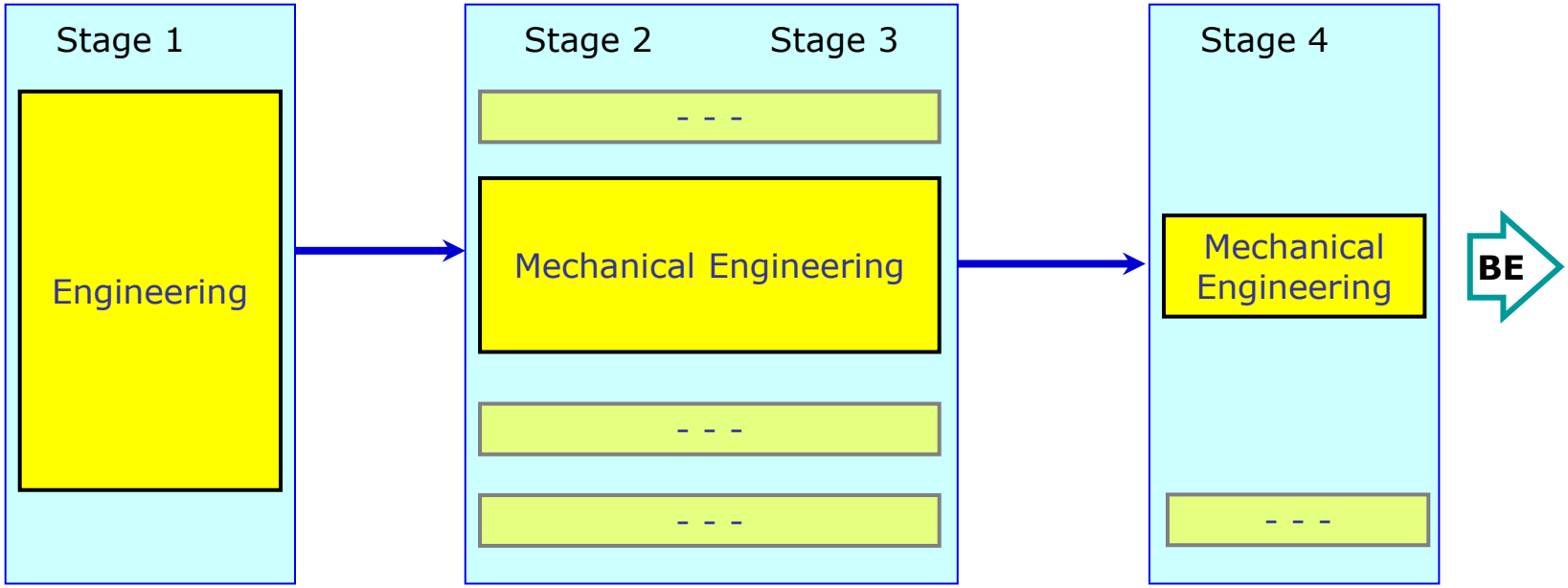
UCD Engineering Degree Programme Pathways
DN150



BSc (Engineering Science) Degree

- Bachelor of Science degree Level 8
  - 3 years, 180 credits
  - not a professional engineering qualification
  - GPA basis: 30% based on Stage 2, 70% on Stage 3
- To be compatible with European system:
  - *first cycle* = Bachelor degree (usually 3 years)
  - *second cycle* = Master degree (typically 2 years)
  - *third cycle* = PhD (minimum 3 years, typically 4)
  - could choose now if want ME programme in Europe…
- To provide exit from Engineering
  - provides strong technical foundation
  - to pursue career in another field
  - to continue studies in another area

The BE Degree Programme



- You entered the BE degree programme
  - you can continue with Mechanical
  - you graduate with BE degree: 240 credits

Bachelor of Engineering (BE) Degree

- Traditional qualification in Engineering
  - still respected in the workplace
  - accredited for MIEI
    - membership of Engineers Ireland, professional body
  - generally not sufficient for Chartered Engineer
    - further study or additional experience is needed
- Four years study in total
  - stage 4 mostly core modules, two options
  - project module – 15 credits
  - no formal work placement
- No additional barriers to progression to Stage 4
  - normal progression rules apply
  - you need 50 credits in stage 3 to progress & register for project module in stage 4

BE - Mechanical Engineering (Stage 4)

- **Core Modules**
  - BE Project

  Trimester 1 (T1)
  - Mechanics of Fluids II
  - Manufacturing Engineering II
  - Computational Continuum Mech. I
  - Engr. Thermodynamics III

  Trimester 2 (T2)
  - Advanced Metals Processing
  - Professional Engineering (Mgmt.)

  - Control Theory *(T1)*
    or
    Process Control *(T2)*

- **Option Modules (Choose 2)**
  - Energy Systems & Climate Change (*T1*)
  - Materials Thermo & Kinetics (*T1*)
  - Medical Device Design (*T1*)
  - Technical Ceramics (*T1*)
  - Advanced Polymer Engineering *(T2)*

- BE Project (over both trimesters) = 15 credits
- 9 taught modules: 9 x 5 credits = 45 credits
- GPA basis: 30% based on Stage 3, 70% on Stage 4

https://www.ucd.ie/eacollege/study/currentstudents/engineeringstudents/understandingyourundergraduatedegreeawardcalculation/

BE Project Module

- Project choice and allocation
  - a list of projects is proposed (Week 1, Trimester 1)
  - you choose your preferences
  - allocation according to Stage 3 GPA
  - option to propose your own project – act early (Aug)!
- Independent work through both trimesters
  - research and/or design, putting theory into practice
  - guided by supervisor – meet typically weekly
  - work in parallel with 4 or 5 taught modules
  - time management is critical
- Assessment through the year
  - milestones – literature review (Oct) & project planning (Nov)
  - interim report (Jan), final report (Apr)
  - oral presentations (end of Trimester 1 & Trimester 2)
  - interview with supervisor and second examiner

After the BE…

- Work
  - often with further training, specific to employer
  - maybe a higher degree later in career?
- Taught Master's degree
  - in engineering or another area
  - minimum 90 credits (three trimesters or full year)
  - fees payable
- Research Master's degree
  - 18 months to 2 years…
- PhD
  - typically 4 years research
  - substantial thesis, original work
  - fees payable, but usually scholarship available

Chartered Engineer – CEng

- Used in Ireland, UK, India, …
  - US, Canada: PE = professional engineer
  - Australia, NZ: CPEng = chartered prof. engineer
- Registered title, protected by law
  - required by law for certain engineering activities
  - ethos in certain companies
- Awarded by professional body
  - Engineers Ireland, must also be member!
- Requirements:
  - education to suitable standard - accredited degree
    - Master's level or equivalent
  - development of competence in practice
    - minimum 4 years responsible experience
  - continuing professional development - CPD

Master of Engineering (ME) Degree

- Professional qualification
  - level required to become Chartered Engineer
  - level expected in most of Europe
- Two years of specialised study in chosen field
  - making five years in total
  - includes work placement (6-8 months)
  - includes major project at Master's level (20 or 25 credits)
- Entry requirement
  - based on stages 2 and 3, weighted 3 and 7
  - currently, minimum GPA 2.8 (equivalent to C grade)
  - GPA of 2.8 or higher recommended!
    - no easy way back to BE - if finding ME too hard…

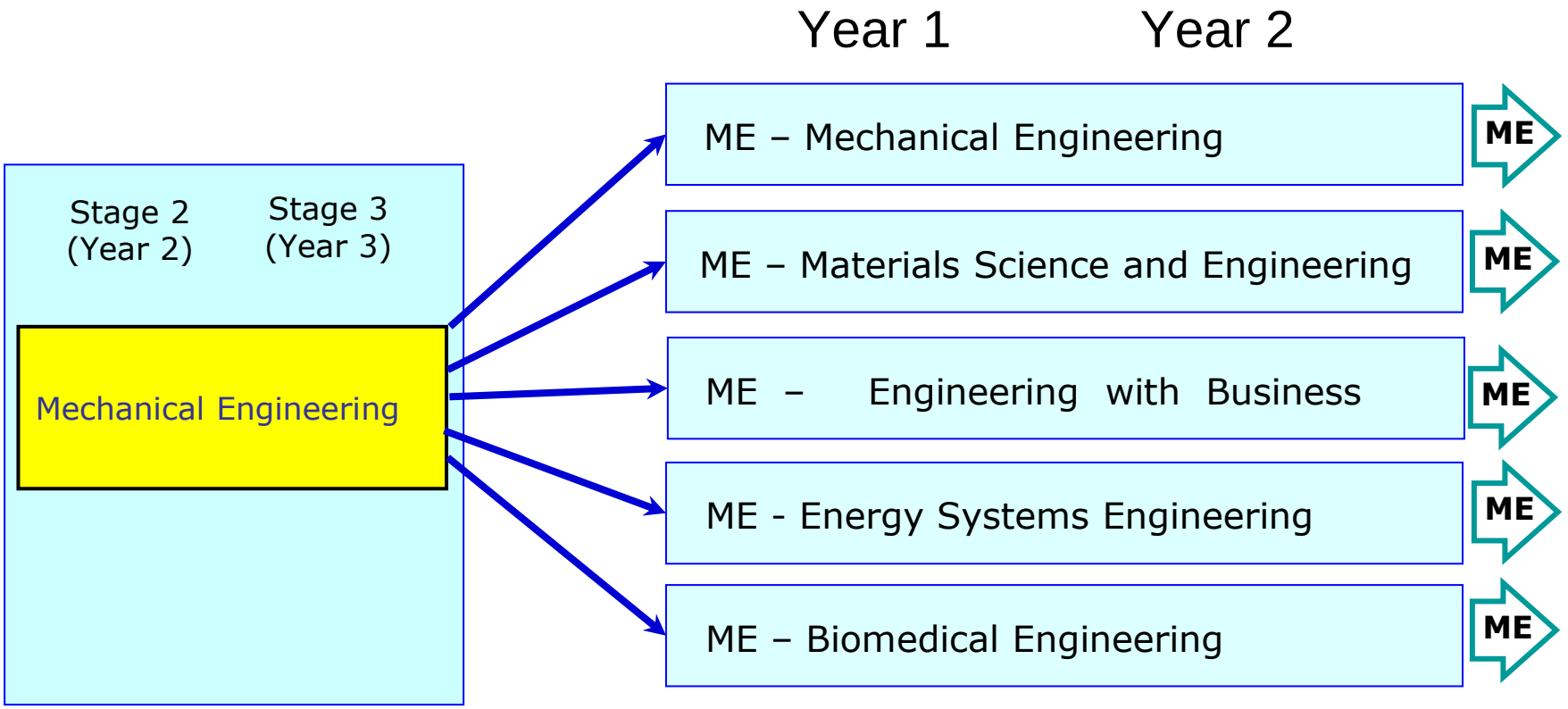
Master of Engineering (ME) Degree

- Full tuition fees payable for students registered for ME
  - 2024/25 €9,300 - EU students
  - "Student Contribution" (€2000) only applies to bachelor degree years.
- Details…
  - Register as Engineering Science undergraduate student in September 2025, until end of Year 1
    - take modules appropriate to your chosen ME pathway
    - then graduate with BSc degree at the end of Year 1
  - Enter ME programme formally in September of Year 2
    - use surplus credits from Stage 4 of BSc
    - complete ME in 1 added year
    - pay ME tuition fees for final year.

Master of Engineering (ME) Degree

- Work Placement
  - 30 credit, 6-8 months, Trimester 2, Yr 1 (Jan-July)
    - replaces entire spring trimester
    - ME Eng. with Business - May to Dec, Trimester 1, Yr 2
  - UCD helps to arrange placements
    - each student picks 3 to 4 companies from list of employers
    - CVs sent to companies, meetings/interviews in Oct. and Nov.
    - you may propose your own placement, through UCD
  - Alternative: 10 credit 2-3 months (Jun-Aug)
    - take additional 4 modules in Year 2 of ME
- ME (Mech, Materials, Energy*) Project
  - runs through two trimesters (Sept-Apr)
  - 25 credits, (*20 for ME (Energy), 20 for ME Eng. w/Bus.)
  - but expect Master's level work …

Available ME Routes



Summary - Your Options

- Graduate with BSc (Eng. Sci.) in 2025 (Aug/Sept)
  - for work or further study
    - e.g., ME in Europe or qualification in a different field
  - not a professional Engineer
- Continue in BE(Mech) programme
  - graduate in 2026 (Aug/Sept) with fully accredited degree
  - work as engineer
  - further postgraduate study is possible later
  - but further master qualification/experience needed for C.Eng
- Continue towards ME in UCD (if eligible)
  - graduate in 2027 (Aug/Sept) with fully accredited degree
- Decision required by Friday 11th April, 2025
  - Online submission to UCD College Office

Decision Time !

- Online form - to be completed by Friday 11th April, 2025
  - continue in BE **(default)**
  - transfer to stage 4 Engineering Science
    - specify which ME programme
    - conditional on GPA – automatic fall-back to BE
  - graduate with BSc (Engineering Science) now
    - needs 180 credits at appropriate levels
      - (Max credits @ Level 1 modules = 80 credits)

- More information?
  - talk to relevant programme directors

ME Programme Talks

ME Materials Science and Engineering Mert Celikin	1300 hrs, Tuesday 25.02.2025
ME Engineering with Business Kevin Roche	1300 hrs, Wednesday 26.02.2025
ME Mechanical Engineering Malachy O'Rourke	TBD, Monday 03.03.2025
ME Biomedical Engineering Eoin O'Cearbhaill Stephen Redmond	1300 hrs, Monday 03.03.2025
ME Energy Systems Engineering James O'Donnell	1300 hrs, Wednesday 05.03.2025

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Questions

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