



MSc in Systems Engineering

Course Introduction and Overview

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MSc in Systems Engineering

Course Introduction and Overview:

- Course Description,
- Course Overview,
- Course Modules and Structure,
- Types of Assessment.



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Course Description

- The course addresses the increasingly complex challenges and problems which we face in engineering and management today.
- Identifies and explores the root causes of problems.
- Views issues and requirements from multiple perspectives.
- Structures problem thinking, solution development and application across the lifetime of a system or procurement, from concept to retirement.
- Help you to understand how systems engineers, domain engineers and project managers come together as multi-disciplinary teams to develop solutions to real world problems.



Course Overview

- Start date: September
- Duration: MSc: up to three years part-time;
PgDip: up to two years part-time;
PgCert exit route: one year
- Delivery: Blended learning
- Qualification: MSc, PgDip, PgCert
- Study type: Part-time
- Campus: Cranfield campus



Course Modules – PGCert (60 credits)

| Acronym | Name |
|---------|---|
| ISSE | Introduction to Systems and Systems Engineering |
| PASD | Problem Analysis and Systems Definition |
| SDR | Systems Design and Realisation |
| EM | Enterprise Management |

+2 PGDip or Elective modules



Course Modules - PGDip (120 credits)

| Acronym | Name |
|---------|--|
| ISSE | Introduction to Systems and Systems Engineering |
| PASD | Problem Analysis and Systems Definition |
| SDR | Systems Design and Realisation |
| EM | Enterprise Management |
| PASDW | Problem Analysis and Systems Definition Workshop |
| SDRW | Systems Design and Realisation Workshop |
| RM | Research Methods |

+ 5 Elective modules

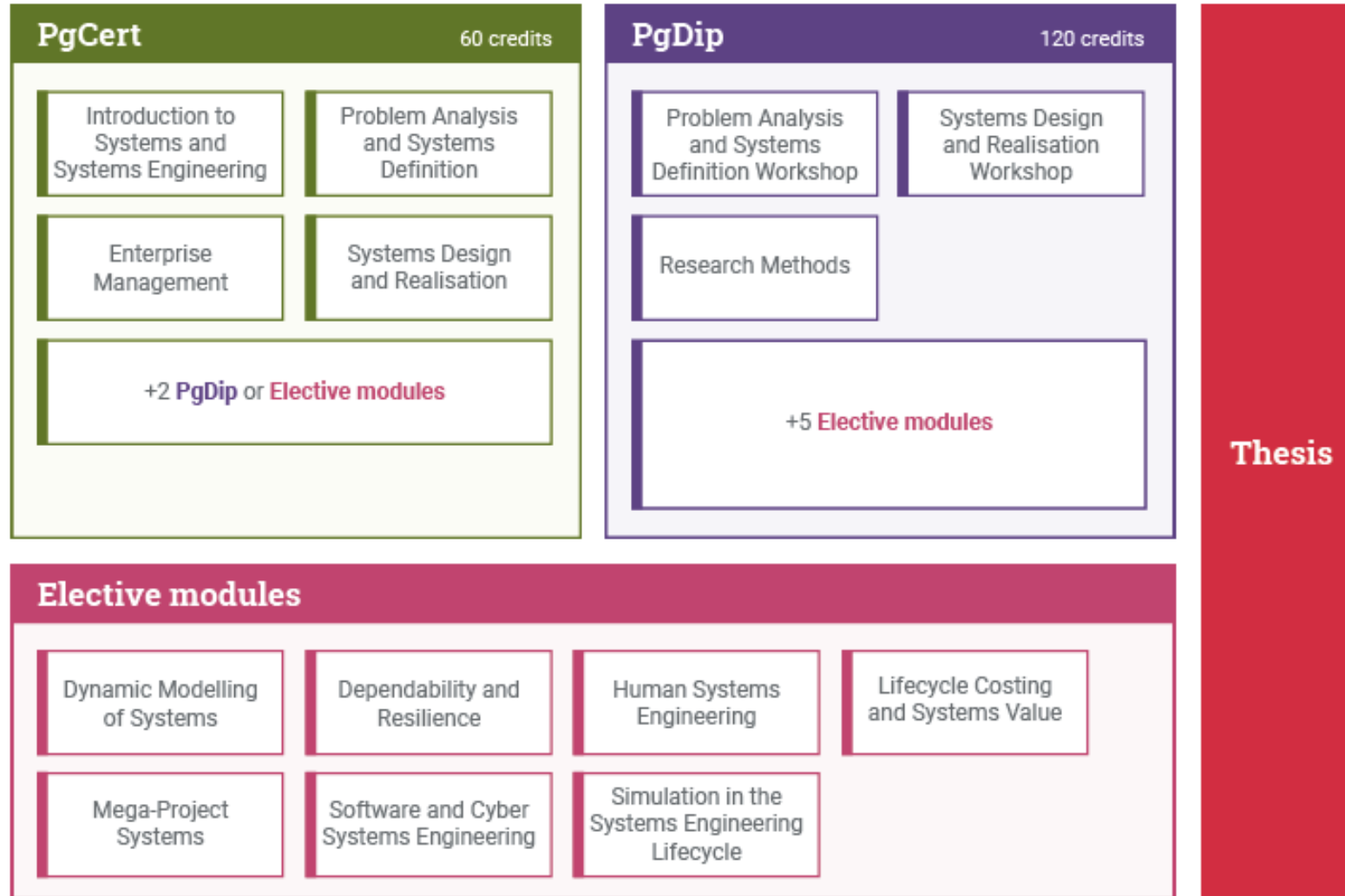


Course Modules – Elective Modules

| Acronym | Name |
|---------|---|
| DMS | Dynamic Modelling of Systems |
| DR | Dependability and Resilience |
| HSE | Human Systems Engineering |
| LCCSV | Lifecycle Costing and Systems Value |
| MPS | Mega-Project Systems |
| SCSE | Software and Cyber Systems Engineering |
| SSEL | Simulation in the Systems Engineering Lifecycle |



Course Structure





Course Assessment

The course is assessed by a variety of means to ensure that understanding and learning is comprehensive.

- Taught Modules:
 - Written coursework,
 - Portfolio,
 - Oral Presentation,
 - Informal peer-to-peer assessment.
- Thesis:
 - Written dissertation.

Cranfield University Apprenticeships

Cranfield University has over 1000 apprentices on Level 7 (postgraduate) apprenticeship programmes, on a range of courses that support leadership and engineering roles across multiple sectors.

We have achieved excellent results with 282 apprentices that have gone through End Point Assessment to date. We have a 100% pass rate with 98% passing at their first attempt.



Systems Engineer Degree Apprenticeship

Each Apprenticeship comprises a defined set of Knowledge, Skills and Behaviours to be evidenced and assessed during the End Point Assessment (EPA). The EPA is conducted by an external, independent End Point Assessment Organisation.

The typical duration of the taught course is 36 months followed by an End Point Assessment period of up to 4 months.

Eligible organisations in England will be able to use their Apprenticeship Levy.



Systems Engineer Degree Apprenticeship

Employer support is crucial to success.

Cranfield involve Line Managers from the outset to ensure that both they and their staff understand the purpose, requirements and responsibilities of undertaking an apprenticeship.

An initial assessment will be undertaken with the applicant and their employer to assess existing knowledge, skills and behaviours and to support the creation of a personal learning plan.



Systems Engineer Degree Apprenticeship

- The Standard includes a MSc Systems Engineering as a mandated qualification. This means that the MSc must be achieved before the apprenticeship can be assessed (End Point Assessment)
- Work-based application of a set of Knowledge, Skills & Behaviours,
- 20% Off the Job requirement,
- Regular reviews and progress reporting.



To be eligible for the apprenticeship, individuals need to:

- Have an identified training need with regards to your current or future role,
- have UK residency or meet the appropriate visa conditions.
- spend a minimum of 50% of working time in England,
- be able to commit for the whole duration of the apprenticeship including EPA,
- have the full support of their employer and commit to engage in all apprenticeship requirements.



On-boarding and On Programme

- Check requirements met for both Academic and Eligibility purposes.
- Initial Assessment of applicants existing knowledge, skills and behaviours with their line manager.
- Webinars to support apprenticeship aspects once on programme (e.g. recording evidence, 20% Off the Job requirements).
- Allocation of Apprenticeship Tutor to support each apprentice on their journey through the programme to End Point Assessment.
- Regular Tripartite Reviews to measure progress on an ongoing basis.
- Regular 1:1s with line manager.
- Regular 1:1s with Apprenticeship Tutor.
- Get Ready Workshop to prepare for End Point Assessment.



At Gateway

- Portfolio that supports achievement of the KSBs of the Standard signed off by line manager.
- Selection of up to 3 Work-based Projects that illustrate competencies in the required KSBs for this element.
- Evidence of the Off the Job Training which underpins the Work-based Project.
- ESFA accepted evidence of achievement of English and mathematics at level 2 or higher.
- Achievement of MSc in Systems Engineering.



End Point Assessment (EPA)

- Work-based Project Report (7500 words) with Presentation (30 minutes with 30 minutes Q&A) based on up to 3 projects with independent assessor.
- Professional Discussion underpinned by a portfolio of evidence (60 minutes), undertaken by independent assessor with employer representative.





Cranfield University Apprenticeships

**For any questions regarding the
apprenticeship process please contact:**

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www.cranfield.ac.uk



Any Questions?

www.cranfield.ac.uk



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