

Experience Led Engineering

Industry Sponsorship of Degree Programs



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Outline

- Civil and Building Engineering
 - Background
 - Changes
 - Impact
- Systems Engineering
- Manufacturing Engineering
- Summary

Civil & Building Engineering – Industry Background

- Started in 1990
- Industry identified a shortage of high quality graduates in quantity surveying and construction management
- Few of these programmes were running at traditional universities
- Construction industry talked to several universities about developing industry relevant courses



University Context

- High demand for Loughborough University civil engineering students both as graduates and on placements
- Loughborough wished to increase and diversify the portfolio of accredited programmes
- Aimed to expand student numbers
- A consortium of 15 companies sponsored the two new programmes (now 25 companies)



How does it work?

- Input into curriculum design, through regular consortia meetings
- Part of the recruitment process
- Funding to the department
- Bursary to the student
- Placement, vacation and graduate employment
- Contact with students through mentoring & industry contact days
- Annual sponsors fair to showcase to students

Civil & Building Engineering – Outcomes

- Extended to Civil Engineering MEng in 2001
 - Civil Engineering - Thick Sandwich (optional)
 - Commercial Management and Quantity Surveying (CMQS) - Thick sandwich
 - Construction Engineering Management (CEM) - Thin Sandwich
- Number and type of sponsor increased
- Approx 100 new students sponsored each year (£1500 bursary, £400 to the department per student)
- Funding enables additional activities



SYSTEMS ENGINEERING – Industry Background

- British Aerospace (BAe) contacted several institutions in the early 1990's about offering a systems engineering degree
- Director of Engineering, David Gardner, recognised a BAe change from a provider of product to a provider of capability
- He aimed to recruit a significant number of high quality systems engineering graduates and help change the culture
- Systems graduates needed to be competent in systems thinking and take a holistic approach
- A bespoke course was required
- Funding was available to develop the right course

University Context

- Electronic and Electrical Engineering (EEE) students were very well regarded but the department did not offer a systems course
- Wanted to develop high calibre graduates and increase student numbers
- Facilities, resources and technical expertise existed on campus, across several departments
- Senior staff negotiated a programme which matched BAe requirements
- Input to the programme from 5 departments, led by EEE, with significant input from Computer Science and Human Sciences
- Pleased to adopt a more problem based approach and integrate industry input into curriculum development
- Substantial redevelopment and support for the modules was costly and was funded by BAe

How does it work?

- Introduced as a sponsored programme 15 years ago, with 32 MEng students
- Industry participates in the development of the programme and contributes funding
- Funding goes towards, liaison, admin, facilities, technical support and teaching
- Student projects involve working with a complex system, the companies propose and fund projects (up to £4k)
- Students receive a bursary (£1500 pa), placement, optional vacation employment and a conditional job offer at the start of their final year



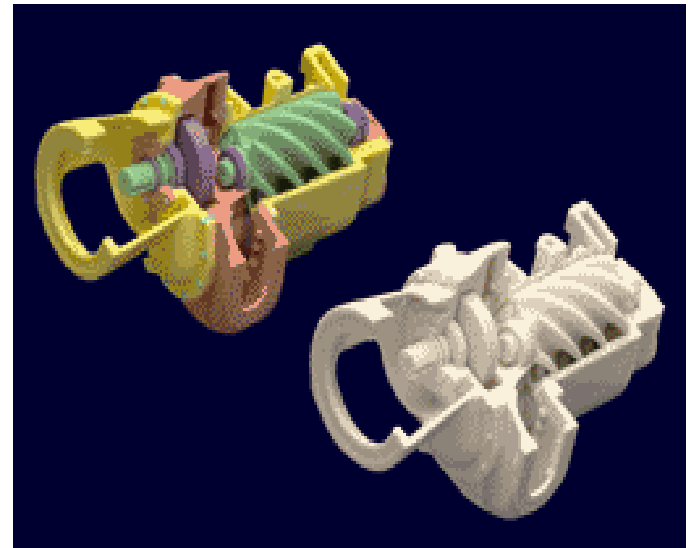
Outcomes

- Over 200 Loughborough systems students started careers at BAE Systems
- Good retention on courses (>90%), high calibre graduates, excellent projects
- Many of the original graduates (1997) are now in senior positions in the company
- There is now a collaborative group of companies supporting the MEng and BEng Systems Engineering programmes (BAE Systems, SELEX & Frazer-Nash Consultancy)
- Approximately 75% of students work with the company after sponsorship



Innovative Manufacturing Engineering - Background

- Declining student numbers on manufacturing degree courses in recent years
- Only 770 new students started a UK undergraduate degree in Production and Manufacturing Engineering in 2007
- Difficulty across the UK in recruiting Manufacturing students to degree courses
- Loughborough wanted to bring in more high calibre students onto manufacturing engineering programmes
- Desire by companies to recruit high calibre, capable graduates into manufacturing engineering



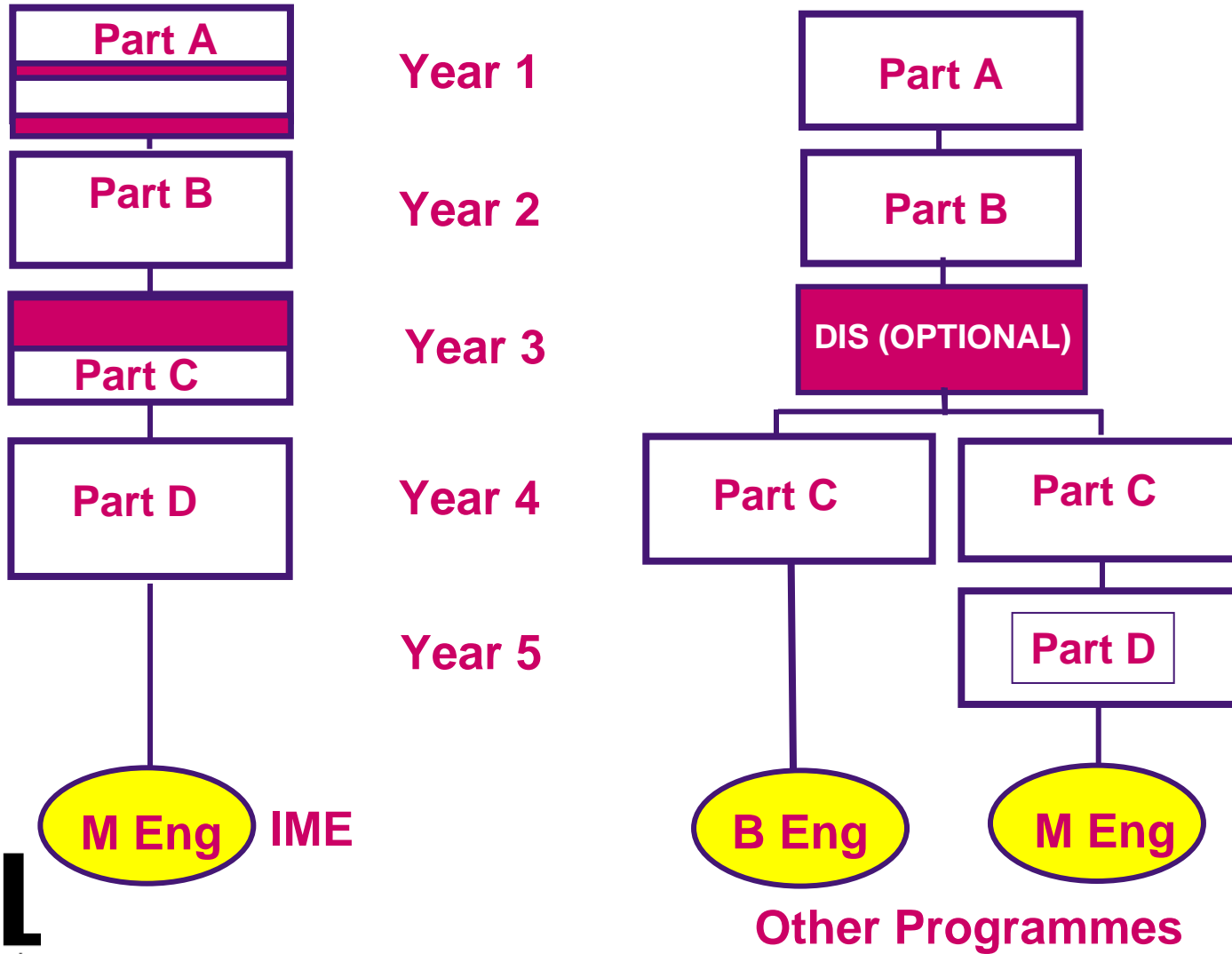
Innovative Manufacturing Engineering

- Strong links in place with manufacturing companies through placements and projects
- Discussion with existing contacts in leading companies led to a sponsorship consortium
- MEng programme in Innovative Manufacturing Engineering started in 2003
- Students need high grades to gain entry to the programme
- Selection dependent on both grades and an interview, with the university and a consortium member
- Consortium members contribute jointly to sponsorship over the first two years
- Companies sponsor individuals in the last two years, after the major placement

Innovative Manufacturing Engineering - Consortium



IME - Programme Structure



Innovative Manufacturing Engineering - Outcomes

- **4 year MEng Programme**

Gain an engineering MEng degree programme with integrated industrial experience in just 4 years. (excellent course feedback from undergraduates).



- **Salaried Employment**

All longer term industrial placements (10 weeks and 26 weeks) are fully salaried, leading to an average gross income of £10,000 during the degree programme



- **Job Prospects**

The degree programme leads to dedicated routes for employment within the consortium



Summary - Benefits

Industry

- Capable graduates with the right knowledge and skills
- Extended recruitment process
- High retention

University

- Attract high calibre students onto programmes
- Diverse programmes and increased student numbers
- Funding for high quality and innovative teaching
- Up to date courses that meet the needs of industry

Students

- Engaged with the programme
- Funding through bursaries, placements and vacation work
- Excellent employment prospects

Summary

Requirements for successful partnership

- Clear strategy, developed by all involved and not imposed.
- Regular contact and communication
- Clear benefits

Costs

- Course development and ongoing maintenance
- Student bursaries (£1k - £1.5K per annum) and placements