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**Design, Manufacture and
Engineering Management**

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Outline

- VP Context
 - Department, degrees and infrastructure
- Product Development Partnership (PDP)
- Current VPs
 - Qualities and roles
- Critique and student reaction



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Faculty of Engineering

- Largest Engineering Faculty in Scotland
 - Approx. 2325 undergraduates
 - Approx. 500 postgraduates
- MEng centred degrees

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Faculty of Engineering

Architecture & Building Science

Bioengineering

Chemical and Process Engineering

Civil Engineering

Design, Manufacture and Engineering Management

Electronic and Electrical Engineering

Mechanical Engineering

Ship and Marine Technology

National Centre for Training & Education in
Prosthetics and Orthotics

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Discipline

The realisation of engineering products from design through manufacture to operation within a business and environmental context

CREATE

MAKE

MANAGE

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UG degree programmes

- BEng/MEng/MEngDiplMan/MEngDiplEnt
 - Product Design Engineering
 - Manufacturing Engineering and Technology
 - Engineering and Enterprise Management

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UG degree programmes

- New from 2002/03
 - BEng/MEng
 - Design Computing
 - BEng
 - Sports Engineering
 - BSc
 - Product Design and Innovation
 - Enterprise and Technology Management

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Infrastructure

- Investment since 1997
 - Redecoration
 - Advanced CAD/CAM (SDRC I-DEAS)
 - Design & make laboratory
 - Rapid design and manufacture facility
 - Design studio and project space
- New lecturer in product design
 - Glasgow School of Art

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Corridor



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Corridor



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Design & make laboratory



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Design & make laboratory



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Studio space



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Project space



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Product Development Partnership (PDP)

- Design project with industrial client
 - runs November-April
- Multi-disciplinary teams:
 - 4 students
 - 4th and 5th year student teams
 - Worth 1/6 of year credits



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PDP

- Project managed by students
- Meet with clients as appropriate
- Final presentation to clients
- Expected to produce a prototype
- Product should be costed



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PDP projects 2001/02

- Roof anchors
- Salmon storage station
- Synthetic bagpipe reed
- Household data logger
- Roller cleaning device



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Roof safety product

- Redesign of a roof anchor point for the construction industry



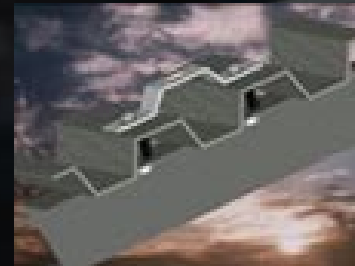
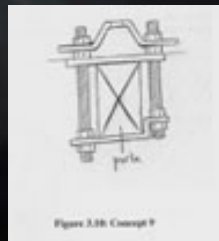
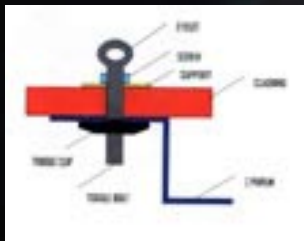
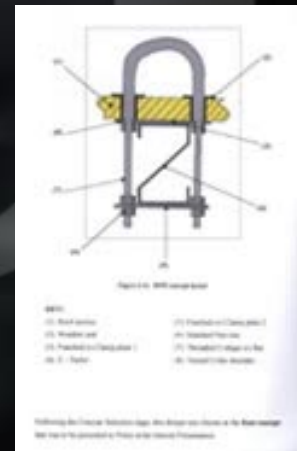
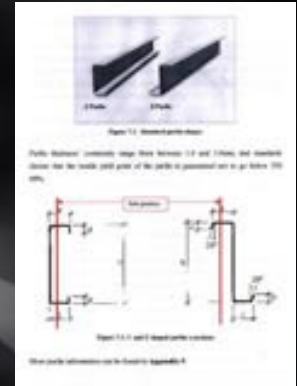
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Roof safety product

- Sketch concepts
- Concept detailing
- Detail design
- Solid models
- Mechanical validation



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Roof safety product

- Students looked at complete system
 - Design
 - Manufacture
 - Install
 - **Maintain**
 - **Sales & Marketing**

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Roof safety product

- Publicity material
 - Printed
Publicity
material
 - Multimedia
CDs



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Current visiting professors

- Martin Bell – RAE since 1997
 - Ex Engineering Director and CEO
 - Design, manufacture and marketing experience
 - Independent consultant
 - Works with Scottish Enterprise Glasgow
- Arthur Slight – RAE since 1997
 - Ex Director
 - Innovation, commercialisation and product design
 - Consultant – Targeting Technology



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RAE VP roles

- Help with PDP project
 - Contact with potential companies
 - Meet weekly with teams
 - Provide tuition in project/team management
- Assist with individual projects
- Member of Industrial Advisory Panel
- ‘Market’ departmental research
 - network

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Project session



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Project session



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Student reaction

- See VPs as 'external' and 'real' input
 - Positive
- Contact with companies can be frustrating
 - Must 'manage' the company
 - Positive experience (after 2/3 years)
- Appreciate 'reality' of project
 - Pitch to client
 - Need for a solution



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Student reaction

- Increases confidence
 - Teamwork
 - Oral presentations
 - Communication with senior managers
 - Management of expectations



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VP qualities

- Second batch of RAE professors
- Should:
 - have ‘been there - done that’
 - still be active in design related activity
 - have good network of contacts
 - live near University
 - be able to engage with students
 - be able to devote regular time



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Department responsibility

- Must give VPs time to gain knowledge of system
 - Flexibility
 - More than one way to do things
 - Education and assessment
 - Takes over 12 months
- Make VPs an integral part of teaching team
- Best results from focussed job
- Balance between cash and suitable project
 - VPs do not like to talk money

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