SKILLS AND INNOVATION SUPPORTS WEBINAR



Manufacturing NI in association with Northern Ireland's
Further & Higher Education Colleges invites you to a
webinar on Thursday 19th November at 2.30pm – 3.30pm.
A range of speakers from the colleges will showcase their
supports for upskilling and reskilling your current workforce
with an emphasis on innovation supports. Case-studies of how the supports have
been used to impact and improve skills throughout the manufacturing sector will be
presented and there will be an opportunity for a live Q&A session.

















ALASTAIR BOOTH
ENGINEERING HUB MANAGER

let's do business













ENGINEERING HUB CENTRAL ROLE

The collaborative partnership

between the **Engineering &**

Advanced Manufacturing Sector and the

Local FE Sector



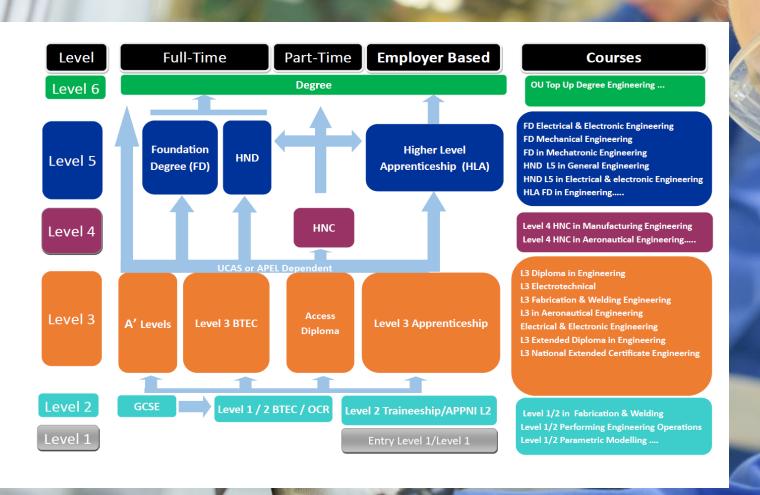




MAXIMIZE THE EDUCATION, SKILLS & EMPLOYABILITY PIPELINE

- Employer Networks
- Skill Gap Analysis
- Sectoral Partnership
- Apprenticeship reviews
- Future Scoping
- Curriculum Development

ENGINEERING QUALIFICATION PATHWAYS

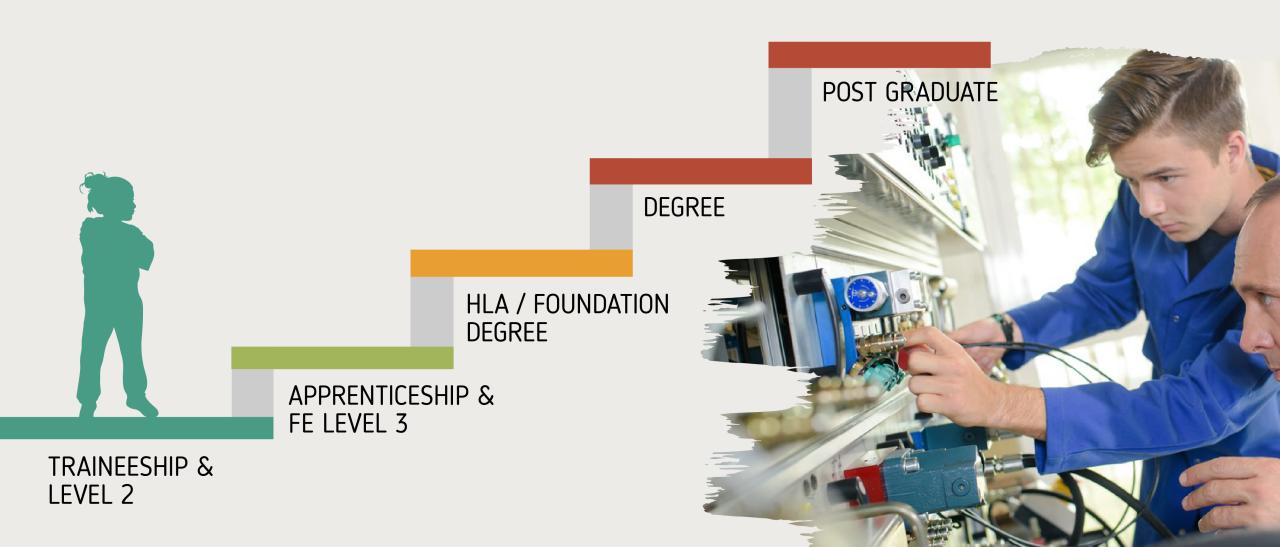




Further Education College Course provision - Advanced Manufacturing		Mode of Attendance	SERC	SRC	NWRC	NRC	ВМЕТ	swc	
Level 6	HE HE	BEng Hons Engineering (Top Up)	PT/FT						
11 5	· · · · ·	PATECUNIA E							
Level 5	6 HE	BTEC HND Engineering	FT						
		HND Electrical & Electronic Engineering	FT			1			
		Foundation Degree Manufacturing Engineering	FT						
		Foundation Degree Mechatronic Engineering	FT						
		Foundation Degree Mechanical Engineering	FT						
		Foundation Degree Electrical & Electronic Engineering	FT FT						
	Higher Level Apprenticeshing	Foundation Degree Mechanical & Manufacturing Engineering	PT						
	Higher Level Apprenticeships	HND Electrical & Electronic Engineering	PT						
		Foundation Degree Mechatronic Engineering Foundation Degree Electrical & Electronic Engineering	PT						
		Foundation Degree Mechanical & Manufacturing Engineering	PT						
		Foundation Degree Machanical & Manufacturing Engineering Foundation Degree Manufacturing Engineering	PT						
		Advanced Manufacturing	PT			+			
		Advanced ividifulacturing	FI						
Level 4	I HE	Pearson BTEC HNC Engineering	PT						
200014		HNC Electrical & Electronic Engineering	PT						
		Pearson BTEC HNC Engineering	FT						
		HNC Aeronautical Engineering	FT			+			
_		The Actoriautical Engineering	''						
Level 3	B FE	National Diploma/Extended Diploma Engineering	FT						
		National Diploma/Extended Diploma in Advanced Manufacturing Engineering	FT						
		National Diploma/Extended Diploma Mechatronics	FT						
		National Diploma/Extended Diploma in Advanced Electronics	FT						
		Aeronautical Engineering	FT			<u> </u>			
		Manufacturing Engineering	FT						
		Electrical & Electronic Engineering	FT						
	Apprenticeships	Fabrication & Welding	PT						
	T. Approximation and the second secon	Technical Support	PT						
		Mechanical Manufacturing Engineering	PT						
		Maintenance Engineering	PT						
		Mechanical Engineering	PT						
		Engineering	PT						
		Polymers	PT						
		Automotive Engineering	PT						
		Technician Apprenticeship Level 3 (Level 2 en route)	PT						
Level 2	P FE	Fabrication & Welding	FT		T T				
LCVC1 Z		Electrical & Mechanical Engineering	FT						
		Engineering	FT						
	Training	Fabrication & Welding	PT						
		Mechanical Engineering	PT						
		Maintenance Engineering	PT						
		Electrical & Electronic Engineering	PT						
		Engineering	PT						
	Apprenticeships	Fabrication & Welding	PT						
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Mechanical Engineering	PT						
		Maintenance Engineering	PT						
		Electrical & Electronic Engineering	PT						
		Engineering Engineering	PT						
Level 1	L FE	Certificate in Engineering	FT						
		Electrical & Mechanical Engineering	FT						
	Training	City & Guilds Welding	PT						
		Certificate in Performing Engineering Operations	PT		1		I		



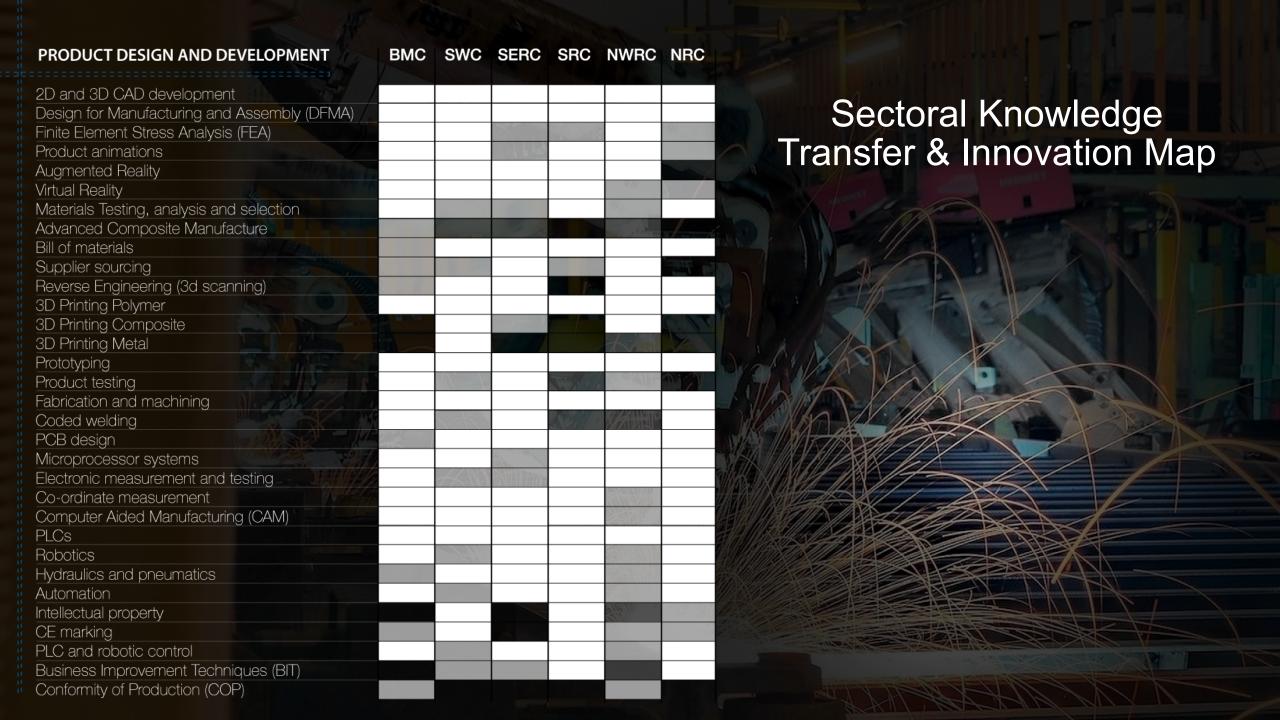
STRATEGIES IN ACTION





- Recruitment of New Apprenticeships: www.nibusinessinfo.co.uk/content/coronavirus-recruitment-new-apprenticeships
- This incentive is available to all employers to support the recruitment of new apprentices. As an employer, you will be eligible for **up to £3,000** for each new apprenticeship opportunity created from **1** April **2020 to 31** March **2021**.
- This bonus will apply to all new apprenticeship opportunities and includes apprentices who have been made redundant:
- Payment 1 £2,000 after 90 days retention following start* of new paid apprenticeship
- Payment 2 £1,000 after 200 days retention following start* of new paid apprenticeship
- Apprenticeship Return, Retain and Result Scheme: www.nibusinessinfo.co.uk/content/coronavirus-apprenticeship-return-retain-result-scheme
- The total amount payable under the scheme will be a maximum of £3,700 per apprentice, distribution as follows:
- Return £500 per returned furloughed apprentice payable for the first full month of paid apprenticeship from 1 November 2020.
- Retain maximum of £2,000 available: £500 per month for up to 4 months of paid apprenticeship between 1 December 2020 and 31 March 2021.
- Result £1,200 for successful full framework achievement of a returned furloughed apprentice







Skills, knowledge transfer and Innovation

30-60 Hours Fully Funded Innovation Support

Under 50 employees

100% Funded by DFE

Focus

New Product or Service

1:1 Mentoring









The Employer Support Programme is financed by the Department for The Economy through its Further Education Sector Employer Support Programme".



Software Development

Product Design Techniques

3D & 2D CAD

3D Scanning

3D Printing

CNC Machining

Laser Cutting

Material research & Calculations

FEA Analysis &

Mechanical Calculations

Patents & Design Rights

CE Marking

Basic Cyber Security Essentials
Cloud Computing Solutions
Design and development of Content Management System (CMS)
Virtual Learning environments
Customer Relationship Management (CRM) system
Search Engine Optimisation (SEO) and Analytics





Department For The Economy - Supporting industry

- Training leading to Accredited Qualification
- Level 2 or Above
- Under 250 employees
- 100% Funded by DFE

Delivery in STEM & Priority Skill areas

- Solid works
- Lean Manufacturing
- BIM/Revit

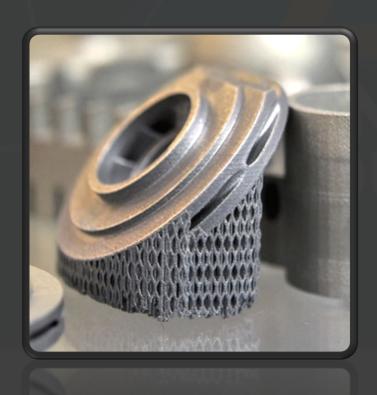
- Passive House
- Welding
- Management & Leadership











INVEST NI - INNOVATION VOUCHER SCHEME

- Development of products/services
- □ Voucher is worth up to £5,000
- Open to all small businesses
- Medium-sized businesses may apply as long as they haven't received any Invest NI R&D related support in the past 5 years.
- □ No need to be an Invest NI client to apply.
- Available through all public sector Knowledge Providers

WHAT TYPE OF PROJECT CAN AN INNOVATION VOUCHER BE USED FOR?

DEVELOPMENT OF PRODUCTS/SERVICES

USE OF NEW TECHNOLOGIES OR DIGITISATION to assist with remote working or interfacing with suppliers/customers

USE OF AUTOMATION OR DIGITAL TECHNOLOGIES e.g. 3d printing to solve supply chain issues

HOW TO ADAPT PRODUCTION LINES to solve bottlenecks due to supply chain issues

that are no longer accessible due to supply chain issues

EXPLORING INDUSTRY 4.0 MANUFACTURING to achieve efficiencies

EXPLORING NEW PRODUCT IDEAS during this time of downturn – help to explore, develop and refine concept designs for new products / prototype development / testing of new materials / formalising production techniques



KTP

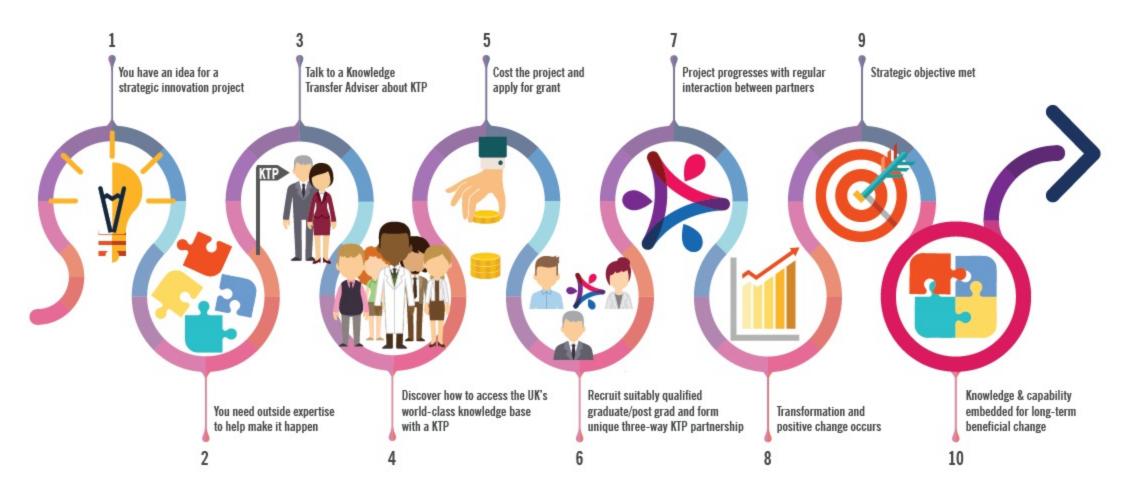
Business-college-associate partnership facilitating transfer of knowledge & spread of technical & business skills through innovative & strategically important projects

- Improve product design or develop new products
- Improve manufacturing processes
- Reduce costs and find new markets
- Project length 12-36 months
- Academic assistance from college
- Up to 60% costs covered;
 company covers remaining 40% (~£17k/year)



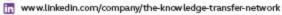


KNOWLEDGE TRANSFER PARTNERSHIPS (KTPs) - Step changes to help transform your business



FIND OUT MORE

www.ktn-uk.co.uk/programmes/knowledge-transfer-partnerships







SKILLS INTERVENTION PROGRAMME



Available to those effected by Covid 19
Training leading to Accredited Qualification
Level 1 or 6

https://www.nidirect.gov.uk/articles/free-short-term-courses-improve-skills

Engineering & Manufacturing

Green Technologies

Digital Skills

Healthcare & Life Sciences

Leadership & Management

Graduate Placement & Women Returners















FUTURE LEADERS

- Recruiting for Graduates affected by Covid
- Opportunity to gain ILM Level 5 Certificate
- Placement with Employer to work on a Business Improvement Project
- £150 per week training allowance
- Places Available

HOW WE CAN SUPPORT



IDENTIFICATION OF FUNDING SUPPORT



NEW/IMPROVED PRODUCT PROCESS OR SERVICE DEVELOPMENT



RESEARCH & DEVELOPMENT PROJECTS



ONE-TO-ONE MENTORING



BESPOKE & ACCREDITED TRAINING



APPRENTICESHIPS & HLA'S

RECAP OF SUPPORT PATHWAYS

INNOVATEUS

- Skills, Knowledge Transfer and Innovation
- 30-60 Hours Fully Funded Innovation Support
- Under 50 employees
- 100% Funded by DFE
- New Product or Service
- 1:1 Mentoring

SKILLS FOCUS

- Training leading to Accredited Qualification
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INNOVATION VOUCHERS

- Development of products/services
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- Open to all small Medium-sized businesses
- Available through all public sector Knowledge Provider

SKILLS INTERVENTION PROGRAMME

- Available to anyone who has been effected by Covid
 19
- Training leading to Accredited Qualification
- Level 1 or 6

KTP

- Graduate Opportunity
- Project length 12-36 months
- Academic assistance from college
- Up to 60% costs covered

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Industry Innovation Support



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Support Escalator

Technology Led Long Term Reward

Application of Knowledge

Support for companies and clusters to exploit new technologies and processes.

Developing Capacity

Assistance to develop capacity to explore how innovation and R&D solutions can help businesses drive value through innovation.

Market Led

Short Term Reward

Open Innovation

Closed Innovation

Building Innovation Awareness

Building awareness and support for companies to take the first steps in undertaking innovation solutions to technical and business challenges.

- Grant for R&D: Industrial Research
- Collaborative R&D (Invest NI)
- Knowledge Transfer Partnerships (KTP)
- FUSION (InterTradeIreland)



- Proof of concept (Invest NI)
- Skills Focus (DfE)
- Assured Skills (DfE)
- Innovation Vouchers (Invest NI)
- InnovateUs Programme (DfE & FE Colleges)
- Connected Programme (DfE & Colleges NI)
- Council LED Activity (NI Councils)









INNOVATION SUPPORT



CASE STUDY

Makon

- ☐ MAKON engineering business near Dungiven.
- InnovateUs with NWRC on 3D CAD design, rapid prototyping and manufacture of container conversions
- ☐ 60 hours 1:1 support on 3D CAD design and rapid prototyping
- ☐ Makon have secured numerous sales with Twickenham, the RDS in Dublin, Northampton Saints UK, a café in Ballinahinch
- Worked the NWRC on another innovation project through an Invest NI Innovation Voucher on another product innovation







CASE STUDY

Cinch Labs

- Based in Coleraine dental lab, developing and manufacturing devices
- □ 60-hour support from InnovateUs to develop new antisnoring device
- ☐ Skills in NPD, 3D CAD, rapid prototyping
- ☐ Product launched by Cinch Labs now being used in Dublin's Blackrock Clinic's sleep clinic
- ☐ As part of an overall snoring and sleep apnoea treatment regime



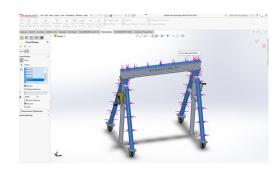




CASE STUDY

Global Tech NI

- ☐ Engineering firm based in Derry/L'Derry
- ☐ Business does a lot of subcontracting work for Seagate
- ☐ Company wished to develop new A-frame for lifting heavy loads
- ☐ Lacked skills in 3D CAD design and NPD
- £6k InnovateUs project transferring skills on design of new A-frame & rapid prototyping
- Assisted company to get an Invest NI innovation voucher for stress analysis and fabrication of an A-frame
- ☐ Product has been sold to hospitals and hire shops



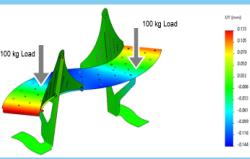


CASE STUDY

MiM NI

- ☐ Based in Derry/L'Derry
- ☐ Invest NI innovation voucher
- ☐ Design for manufacture of a peace bridge bench
- ☐ Key requirements; flat packed & water jet process
- ☐ Project involved working with MiM to get their
 Requirements
- ☐ Creating 3D CAD designs & FEA stress analysis
- ☐ Full bill of materials and files for manufacture





CASE STUDY

Coastal Core

- • •
- ☐ NPD of a new first aid training product for children
- ☐ Required skills in graphic design & animation and new product development
- ☐ InnovateUs £3K project
- NWRC delivered skills in illustration, design and new product development
- Assisted company to apply for an Invest NI IV which the NWRC has also delivered
- ☐ New product has been manufactured







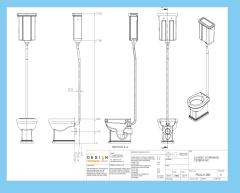


CASE STUDY

Porter Bathrooms



- ☐ Company based in Kesh
- ☐ Project to develop a new bathroom range
- ☐ 3D CAD design for manufacture
- ☐ Prototype development
- ☐ Progressed to an Innovate UK 2-year KTP
- ☐ Graduate recruited to work on a water efficient product range
- ☐ This will include fluid dynamic 3D CAD design
- ☐ Progress to manufacturing process development







KTP CASE STUDY

AE Global



- Wanted to develop a "cradle to patient' IT platform for their complete workflow
- □ DELATM Database of Engineering & Logistical Analysis
- ☐ NWRC KTP to develop a cloud-based IT system
- 2.5 year funding of £150K from InnovateUK & Invest NI
- ☐ Company feel that the system will give them 20% efficiency saving with real-time analytics information
- ☐ Collaborative work mentioned in <u>Parliamentary Review</u> publication
- Project was awarded an "Outstanding" grade by InnovateUK









Other example of areas of support

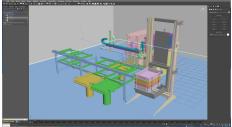


- ✓ New Product Development
- ✓ 3D CAD design
- ✓ FEA stress, flow analysis, fluid dynamics
- ✓ 3D printing/rapid prototyping
- ✓ Augmented & virtual reality
- ✓ IT & app development
- ✓ Data analytics
- ✓ Animations
- ✓ Electronics design & prototyping
- ✓ Food & drink product development
- ✓ Practical technical support manufacturing focussed

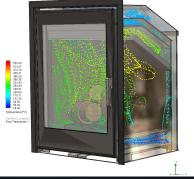
Access to state-of-the-art facilities.....and much more

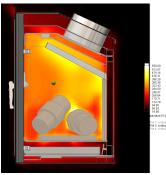


























Industry Innovation Support



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Ryan Gwilt Industrial Training Manager

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CAD / CAM / CNC Mentoring – Innovate US

 Company designs & builds custom sliding door wardrobes

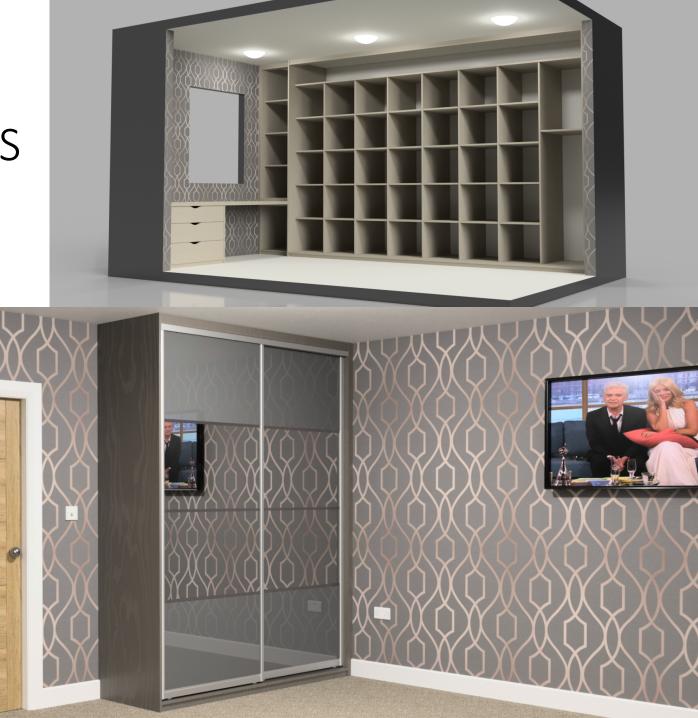
Had no prior 3D CAD experience

Parameter driven parametric models

 Moved onto CAM for CNC Routers / Mills

High quality customer renders

• Increase in high value sales



Siemens Mechatronic Systems Certification Programme (SMSCP) – Skills Focus

- This industry focused training programme has been designed to meet the increasing demand for highly skilled technicians within the manufacturing, engineering sector.
- SMSCP course combines the German dual education system with Siemens' in-house know-how. It prepares students to work their way into a new system, and by means of the troubleshooting strategies which they learn, they are able to transfer their knowledge and expertise easily to another system. Students with an SMSCP certification are employees who are flexible, autonomous, and professional in his or her dealings with such complex systems.
- The level 1 course is broken down into 4 units -
 - Electrical Components
 - Mechanical Components and Electrical Drives
 - (Electro) Pneumatic and Hydraulic Control Circuits
 - Digital Fundamentals and PLCs

SIEMENS

Integration of hands-on learning in the classroom

Mechatronics subject areas

System-focused troubleshooting

Systems approach teaching methods



SIEMENS

Local Companies with SMSCP Certified Assistants

- ➤ Moy Park
- **≻**Montupet
- ➤ Sensata Technologies
- ➤ Finnebrouge Artisan
- **≻**AB Pneumatics
- ➤ Plastics 2000
- ➤ Norbrook Laboratories





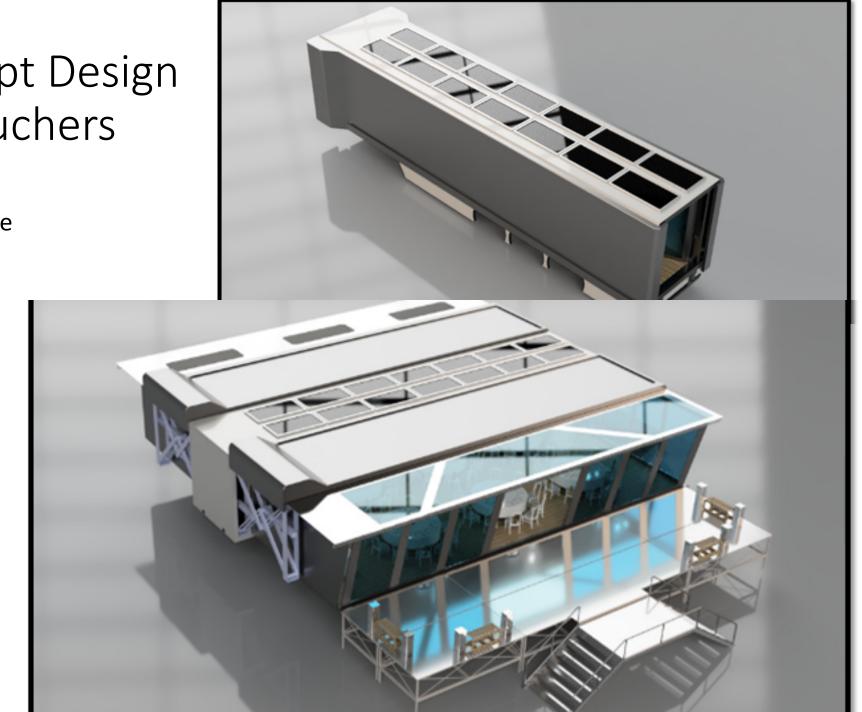




Product / Concept Design – Innovation Vouchers

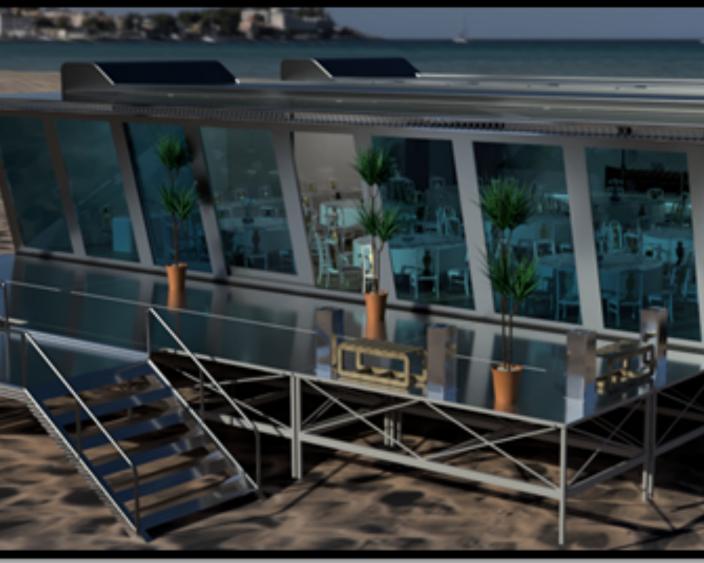
Design concept - Mobile Venue

- Technical Research
- Electrical Systems Research
- Legislative Research
- Initial Concept Design Development
- Concept Refinement
- Final CAD renders
- Handover Package







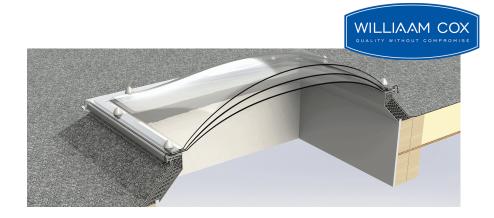


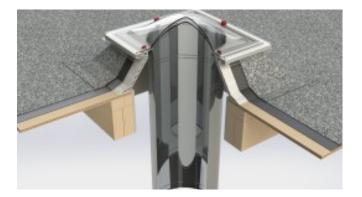
3D CAD Implementation – FUSION (Intertrade Ireland)

The FUSION programme places a graduate in a company to overcome a significant problem identified with the support of an academic in an educational institution.

Programme has cross-border aspect, which sees Northern colleges as the academic providers matched with a business in ROI.

The aim of this project was to improve production processes and allow the company to more rapidly respond to increasing order levels. This involved the investigation of 3D CAD, implementation of same and linking the design and production stages to mitigate a significant bottleneck, reducing duplication and streamlining their interface between design and production. The result was more efficient design & manufacturing process and increased sales with rendered images also increasing customer satisfaction.

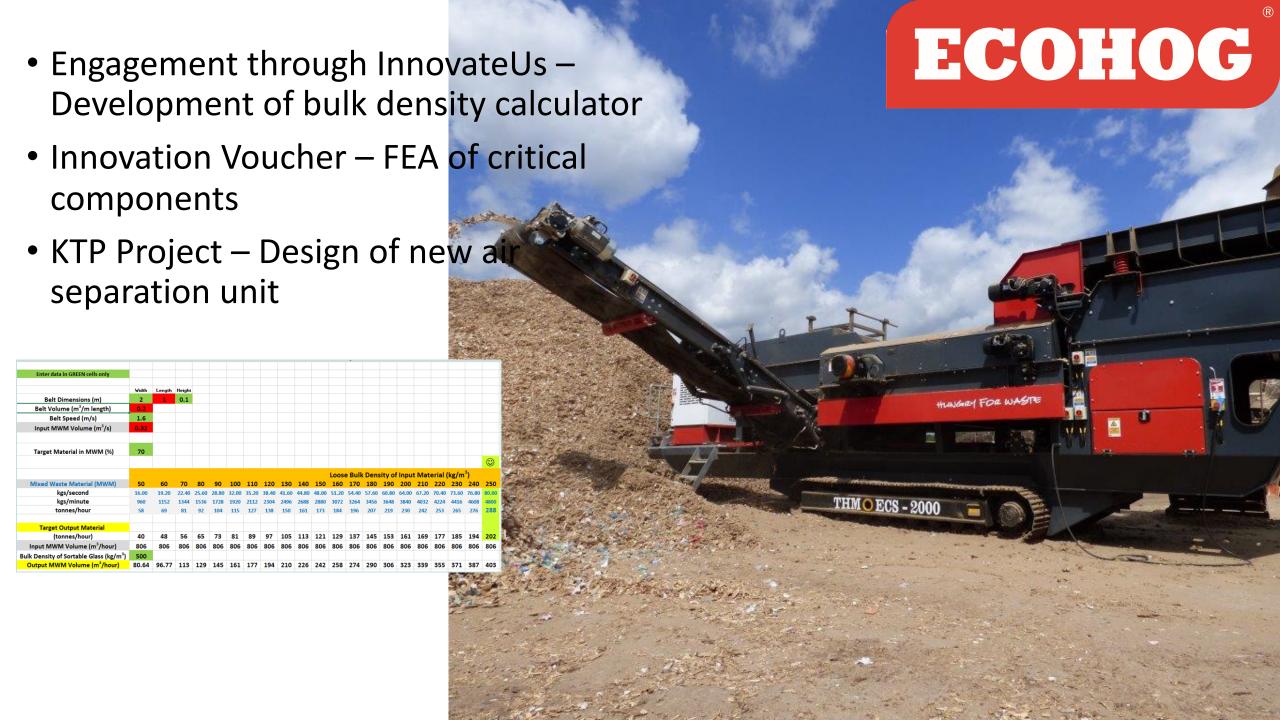








- Mentoring was provided to a graduate over the course of 12 months however companywide training was provided on the
 use of a new more advance parametric CAD package that was implemented as a result of this project.
- Onsite mentoring and consultation was provided approx. 20 hrs a month. The majority of time was split between CAD
 mentoring / integration of "lean manufacturing".
- The project began with a workflow report wherefrom each step of an order was tracked start to finish. There was a lot of process streamlining throughout the entire project, along with this "Intact IQ", an ERP (Enterprise Resource Planning) software, was implemented and a lot of customised features/templates added specifically for the company.
- On project conclusion the 3D CAD package was well embedded into the company with the project even able to expand into
 implementation of lean manufacturing methodologies and ERP systems.



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