

26th Annual Cork Mechanical, Manufacturing & Biomedical Engineering Exhibition

Ireland's Largest Educational Engineering and Innovation Event

190 Stands in Total in 2012 Event

Thursday April 26th 2012

Student Centre Nexus (Hall), Cork Institute of Technology



***Munster Rugby / CIT Mechanical Engineering
Student Developmental Projects Centrepiece
Advanced Scrum Machine, Lineout Training Aid and
Gym Motion Tracking System Design/Development***

2012 Exhibition Theme : "Chemical Engineering - Universal Engineering"

Thursday April 26th 2.00 p.m. to 9.00 p.m. Admission Free

Venue: Student Centre Nexus (Hall), Cork Institute of Technology

For more details, please contact Exhibition Organiser:

Sean F. O'Leary (Senior Lecturer), School of Mechanical & Process Engineering, Cork Institute of Technology

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No.	Title of Stand	<i>Industrial Partner</i>
Stand 1	<i>Clean Technology Centre CIT</i>	Centrepiece Exhibit 1
Stand 2	<i>Bachelor of Engineering (Honours) in Chemical and Biopharmaceutical Engineering</i>	Centrepiece Exhibit 2
3.	Thermal Energy Saving in a Milk Processing Plant	Clean Technology Centre CIT
4.	Simulation of Pyrolysis Gasification of Municipal Solid Waste in Aspen	Research and Development
5.	Optimisation of Solvent Recovery	Pfizer Ireland Pharmaceuticals
6.	Rheological Analysis of Xanthan Gum Fermentation Broth	Research and Development
7.	Feasibility Study into Recovery of Solvent from Three Different Pipeline Products	Eli Lilly SA
8.	Pervaporation - Making and Testing Membranes	Research and Development
9.	NIR Monitoring of Drying Progression	Novartis Ringaskiddy
10.	Waste Treatment in the Dairy Industry	Research and Development
11.	Centrifuge Optimisation	Pfizer Ireland Pharmaceuticals
12.	Organic Solvent Nanofiltration	Research and Development
13.	Pocket Filter Trials	MSD
14.	Pilot Scale Studies in Desalination using Reverse Osmosis	Research and Development
15.	Characterisation of Powder and Comparison of Instrumentation	Astellas Ireland
16.	Design and Construction of Plug Flow Reactor	Research and Development
17.	Particle Suspension Investigation	Research and Development
18.	Desalination Using Reverse Osmosis Bench Scale Studies	Research and Development
19.	Aspen Dynamics Case Studies for Industrial Control Systems	Research and Development
20.	Small-Scale Power Generation Case Studies	Research and Development
21.	Risk Assessment of the Chemical Engineering Laboratories	Research and Development
22.	Groundwater Heat Pump Systems Case Studies	Research and Development
23.	Continuous Distillation Investigation	Research and Development
24.	Combined Cycle Gas Turbine and Low Grade Heat Recovery Case Studies	Research and Development
Stand 25	<i>Centre for Advanced Manufacturing and Management Systems (CAMMS)</i>	Centrepiece Exhibit 3
26.	Laser Rapid Manufacturing Sieve Design and Development	Stryker Orthopaedics
27.	Bottled Biogas for Domestic Use	Research and Development
28.	Zip Tip Capillary Process Optimisation	Millipore Ireland
29.	Wind Tunnel Laboratory Development	Research and Development
30.	Heat Transfer Enhancement using Nano and MicroTextured Surfaces	Energy Engineering Group
31.	Automated Sausage Cutting Machine Design and Development	Research and Development
32.	Automatic Splicer Design and Development	GE Healthcare Ireland
33.	Bale Handler Design and Development	Research and Development
34.	Smart Water Monitoring and Shut Off System Development	Innovative Product Development / Nimbus
35.	Fire Safety Engineering Computational Fluid Dynamic Analysis	Research and Development
36.	Cross Flow Hydro Turbine Design and Analysis	WWS
37.	Hurling Helmet Visor Material High Speed Fracture Energy Analysis and Testing	Research and Development
38.	Gun Barrel Materials Investigation	The Naval Service
39.	Portable Cluster Self Clean Device Design and Development	Research and Development
40.	The Effect of Manufacturing Setup on Food Packaging Structural Performance	Holfeld Plastics
41.	Food Packaging Applications Sustainable Redesign	Holfeld Plastics
42.	Simulation of Pharmaceutical Blister-Pack Thermoforming	Holfeld Plastics
43.	Optimised Design of Glass Fibre Reinforced Beams	Research and Development
44.	Micro vs Macro Material Characterisation	Research and Development
45.	Codesys Platform for Automation	Festo
46.	Networked Service Drives for Soft Motion Control in PLC	Festo

No.	Munster Rugby CIT Student Developmental Projects Centrepiece	Munster Rugby / CIT Mechanical Engineering
47.	Advanced Scrum Machine Design and Development	Munster Rugby
48.	Single Scrum Machine Design and Development	Munster Rugby
49.	Gym Motion Tracking System Design and Development	Munster Rugby
50.	Static Scrum Machine Design and Development	Munster Rugby
51.	Scrum Sled Design and Development	Munster Rugby
52.	Lineout Training Aid Design and Development	Munster Rugby
53.	Road Bowling Practice Device Design and Development	Bol Chumann na hEireann
54.	Equine Innovative Product Assembly - Manufacturing Line Design and Implementation	Dalmar Ireland
55.	Rally Application -Optimisation of a 5 Cylinder 4 Stroke Engine	CIT Engine Development Centre
56.	6 Stroke Engine Water Injection Design and Development	CIT Engine Development Centre
57.	Gearbox Gear Selection and Alternatives Investigation	CIT Engine Development Centre
58.	Automotive Engine Gear Design and Development	CIT Engine Development Centre
59.	Rigid Hulled Inflatable Boat Hoisting Design and Analysis	The Naval Service
60.	Personnel Vibration Monitoring Programme Development	The Naval Service
61.	Bovine Teat Disinfectant Applicator Design and Development	Dairymaster
62.	Development of a Control System for a Robotic Manipulator to Interface with a 3D Teat Sensing System for Teat Disinfectant Application Purposes	Dairymaster
63.	Analysis of the Optimisation of Mechanical HRV Systems	Mark Eire
64.	Valve Monitoring with PAT Probes	SchuF Valve Technology GmbH
65.	Valve Modelling with different Flow Media	SchuF Valve Technology GmbH
66.	Utilisation and Capacity Management of a Manufacturing Process Bottleneck	Zimmer
Stand 67	<i>Medical Engineering Design and Innovation Centre (MEDIC) - Cork Institute of Technology Enterprise Ireland Applied Research Enhancement Centre</i>	Centrepiece Exhibit 4
68.	Human-Machine-Interface Design and Development - Time of Flight Camera to the Human Brain via a non Visual Modality	MEDIC
69.	Carbon Dioxide Absorption in Closed Circuit Rebreathers	MEDIC
70.	Diabetic Patients with Low-Moderate Risk Feet - Cross Sectional Study of Risk Factors, Foot Assessments and Biomechanics	MEDIC
71.	Inner Ear Testing Apparatus Development	MEDIC
72.	Infant Sucking Bottle Analysis	MEDIC
73.	Dysphagia Cup Redesign	MEDIC
74.	End-Tidal Dioxide Monitoring System in High-frequency Oscillatory Ventilated Neonates	Cork University Hospital
75.	Infant Incubator Redesign	Cork University Hospital
76.	Enteral Feeding System Design for Manufacture	Abbott Ireland
77.	Micro-catheter Coil Pitch Measurement	Stryker Ireland
78.	Hospital Bed Adaptation Design and Development	Research and Development
79.	Interactive Wobble Board Design and Development	Research and Development
80.	Blood Oxygenator Laboratory Design and Development	Research and Development
81.	Blood Transport and Temperature Control Container Development	Research and Development
82.	Ring Remover Device Design and Development	Research and Development
Stand 83.	<i>The Rubicon Centre – Cork Institute of Technology Enterprise Ireland Innovation Incubation Centre</i>	Centrepiece Exhibit 5
84.	SOSair™ Emergency Underwater Breathing Apparatus Design and Development	Start-Up Innovation Product Development
85.	Cool Counter™ Innovative Drink Cooler System	Multi-Discipline Start-Up Innovation Team
86.	Safety 4B Solutions™ Deceleration Notification System	Multi-Discipline Start-Up Innovation Team
87.	GripToStick™ Innovative Hurley Grip	Multi-Discipline Start-Up Innovation Team
88.	Scrumtech™ Scrum Engagement Training Device	Multi-Discipline Start-Up Innovation Team
89.	Quick Tyre Fix™ Innovative Rapid Bicycle Tyre Repair	Multi-Discipline Start-Up Innovation Team

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90.	PyraAid™ Wheelchair Kerb Accessible Aid	Multi-Discipline Start-Up Innovation Team
91.	Road Network Solutions™ Vehicle Detection and Warning System	Multi-Discipline Start-Up Innovation Team
92.	MSI™ Muscle Stress Indicator Design and Development	Multi-Discipline Start-Up Innovation Team
93.	FogOff™ Spectacles Demister Device Development	Multi-Discipline Start-Up Innovation Team
Stand 94	<i>Society of Manufacturing Engineers – Premier Information Provider for Manufacturing Industry</i>	Centrepiece Exhibit 6
95.	CNC Hurley Machining	MycroSport
96.	CORY Communication Dish Modelling	Research and Development
97.	Container Seal Profile Machine Design and Development	Containment Service Providers
98.	Solar Tracking	Research and Development
99.	Automated Cattle Sorting Unit	O'Donnell Engineering
100.	Wind Turbine Modelling	Research and Development
101.	6 Cylinder Experimental Cam-Shaft Design	CIT Engine Development Centre
102.	Solar Panel Comparison	Research and Development
103.	Variable Air Inlet Design and Development	CIT Engine Development Centre
104.	Aerosol Can Shaker Design and Development	Research and Development
105.	Pavement Salt Spreader Design and Development	Research and Development
106.	Rapid Prototyper Portable Trolley Development	Research and Development
107.	Round Bale Trailer Design and Development	Research and Development
108.	Square Bale Trailer Design and Development	Research and Development
109.	Reverse Engineering Implementation	Research and Development
110.	Servo Pick and Place Rig Design and Development	Research and Development
111.	CANBUS Training Rig Design and Development	Research and Development
112.	Piping Rig Design and Development	Research and Development
113.	Hospital Patient Notes Holder Design and Development	Cork University Maternity Hospital
114.	Airfoil Cooling Hole Blockage Investigation	SR Technics
115.	Production Cell Lean Optimisation	SR Technics
116.	ABB Cell: Pencil Feeder/Sharpener/Cutter Design and Development	Research and Development
117.	Seal Failure Investigation	Janssen Pharmaceutical
118.	Remote Light Operation System Development	Research and Development
119.	Biomedical Manufacturing Line Optimisation	Boston Scientific Cork
120.	Bicycle Frame Stiffness Test Rig Development	Research and Development
121.	Lubrication Oil Varnishing Investigation	GE Maintenance Bord Gais Whitegate Power Plant
Stand 122	<i>Bachelor of Engineering in Building Services Engineering Level 8 Promotional Stand</i>	Centrepiece Exhibit 7
123.	Optimisation of Cleanspace Heat Ventilation and Air Control Systems for Energy Performance	PM Group
124.	Thermal Performance of Existing Building Stock under Climate Change Scenarios Assessment	Research and Development
125.	Hydronic Centrifugal Pumps - Installed versus Theoretical Performance Investigation	Research and Development
126.	Degree Day Analysis and Building Base Temperature Estimation for CIT Administration Building	Research and Development
127.	Energy Audit of Installed Plant Capacity in CIT 1974 Buildings	Research and Development
128.	Thermal Mass Capability in Reduction of Overheating in Lecture Rooms Assessment	Research and Development
Stand 129	<i>Energy Engineering Group / Wind Energy Group</i>	Centrepiece Exhibit 8
130.	UCC Ground Source Heat Pump Investigation	Research and Development
131.	Wind Energy Development in Ireland	Research and Development
132.	Thermography in Building Materials	Research and Development
133.	Ventilation Simulation in Buildings	Research and Development
134.	Domestic Thermal Storage Evaluation	Research and Development
135.	Efficiency Improvement of HVAC Systems	Research and Development

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136.	Haulbowline Tidal Flow Analysis	Research and Development
137.	The Energy Consumption of a Robotic Milking System	Research and Development
138.	Solar Refrigeration	Research and Development
139.	Curtailment of Wind Energy Generation in Ireland	Research and Development
140.	Development of Low Cost Solar Water Distillation Device for Local Drinking Water Production in Third World Countries	Research and Development
141.	Operation and Performance of Industrial-Based Chiller	Research and Development
142.	Retrofit of 100 Year Old House to Passive House Standard	Research and Development
143.	Usage Patterns of Electric Vehicles	Research and Development
144.	The Lifecycle of Paper - Potential Energy Implications and Benefits	Research and Development
145.	Assessment of Best Practice in Reduction of Urban Water Use and the Procurement of Sustainable Water Resources - a Case Study of the Dublin Water Supply Project	Research and Development
146.	Wind Energy Auto-production Feasibility Studies	Research and Development
147.	Sustainability in Beef Production in Ireland	Research and Development
148.	Wind Turbine Transmission Technology - Direct Drive versus Gearbox Systems	Research and Development
149.	Energy Performance of Under Floor Heating Systems in Irish Dwellings	Research and Development
150.	Feasibility Study of Building a Dwelling to Passive Standards versus Building to Current Building Regulations	Research and Development
151.	Efficient State of the Art Anaerobic Digestion System for use in the Irish agricultural Industry Design and Feasibility Study	Research and Development
152.	Energy Consumption Reduction in a GAA Complex	Research and Development
153.	Small Scale Hydro Turbine Disused Mill Installation Feasibility study	Research and Development
154.	Community Electricity Generation in Clonakilty	Research and Development
155.	Aquacritox Plant Energy Usage	ERAS ECO
156.	Ireland - The Potential of Anaerobic Digestion	Research and Development
157.	Sustainable Construction - A Strategy for Ireland	Research and Development
158.	Optimisation of Energy Efficiency in a 1970s Built Dwelling	Research and Development
159.	Solar Desiccant Air Conditioning Systems	Research and Development
160.	The Irish Tube Compressor.	Research and Development
161.	Solar Concentrator Development	Research and Development
162.	Energy Efficiency in Residential Housing Developments	Research and Development
163.	Evaluation of the Performance Enhancement of a Novel Reflective Device for Room Radiators	RadBoost
164.	Micropower - Development of a Containerised Solar PV/Wind unit for Developing Companies and Emergency Power Supply	Research and Development
165.	Domestic PV Array Installation to supply Internal DC Lighting System	Research and Development
166.	Pump-Hydro Storage - the Solution for Irish Wind Farms?	Research and Development
167.	Microgeneration in Ireland	Research and Development
168.	Tubercle Enhanced Wind Turbine Blades Analysis and Feasibility Study	Research and Development
169.	Solar Heating and Solar Cooling Applications for Dairy Farming in Ireland Study	Research and Development
170.	Carbon Neutral Hotel	Research and Development
171.	Feasibility Assessment of Hempcrete Buildings in Ireland	Research and Development
172.	Environmental Footprint of Retrofitting a Typical House	Research and Development
Stand 173	<i>Cork Institute of Technology Exhibiting Engineering Programmes</i>	Centrepiece Exhibit 9
174.	Bachelor of Engineering in Building Services Engineering Level 7 Promotional Stand	
175.	Bachelor of Engineering in Building Energy Systems Level 8 Promotional Stand	

176.	Bachelor of Engineering in Biomedical Engineering Level 7 Promotional Stand
177.	Bachelor of Science in Advanced Manufacturing Technology Honours Level 8 Promotional Stand
178.	Bachelor of Engineering in Biomedical Engineering Honours Level 8 Promotional Stand
179.	Bachelor of Science in Process Plant Technology Honours Level 8 Promotional Stand
180.	Bachelor of Art in Transport Management and Technology Level 7 Promotional Stand
181.	Bachelor of Engineering in Mechanical Engineering Honours Level 8 Promotional Stand
182.	Bachelor of Engineering in Mechanical Engineering Level 7 Promotional Stand
183.	Bachelor of Engineering in Sustainable Energy Honours Level 8 Promotional Stand
184.	Masters of Engineering Level 9 Promotional Stand

Stand 185	<i>Engineers Ireland</i>	Centrepiece Exhibit 10
Stand 186	<i>Vintage and Classic Vehicles of Yesteryear Display CIT Mizzen to Malin Fund Raiser Drive for Suicide Aware</i>	Centrepiece Exhibit 11 
Stand 187	<i>NIMBUS/TEC Centre</i>	Centrepiece Exhibit 12
Stand 188 - 190	<i>Cork Institute of Technology International / National Awards in Engineering Innovation, Design & Entrepreneurship</i>	Centrepiece Exhibit 13





Institiúid Teicneolaíochta Chorcaí
Cork Institute of Technology

International / National Awards in Engineering Innovation, Design & Entrepreneurship

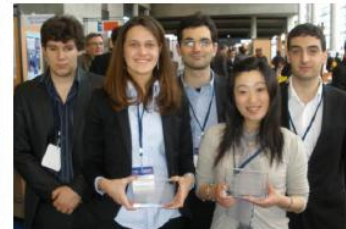
Recent International Prize-Winners in Engineering Innovation, Design & Entrepreneurship Innovative Product Development Laboratories include:

One European Science Engineering and Technology Best European Mechanical Engineering Student First Place Babcock Award - SET Finals London (2011)
One European Laureate of Innovation Award – European Student Innovation Finals - Innovact Reims (2010)
Two Gold Medals Undergraduate Awards of Ireland and Northern Ireland Engineering/Mechanical Sciences (2011, 2010)
Seven First Places and Six Runner Up Finalists in the Institution of Mechanical Engineers Best Medical Engineering and Design and Development of a Biomedical Device Competitions, London (2011, 2010, 2008, 2007, 2006, 2005)
One Global Student Entrepreneur Finalist Award sponsored by the Entrepreneurs’ Organisation in conjunction with Mercedes-Benz Financial at the GSEA Finals in Kansas City, Missouri, USA (2009)
One SOFE Paris Second Place Award - Institution of Mechanical Engineers (2009)
One First and One Second Place in the ISEA International Sports Engineering Competition, London
Two Queen’s Silver Jubilee awards for Best Mechanical Engineering Degree Project in Ireland and Britain
One Genius 2000 Award for Best New Invention at the Nuremburg Inventors’ Fair
Two Society of Manufacturing Engineering Outstanding Young Engineer Worldwide Awards
Three First Places for Best Published and Presented Paper at the International Manufacturing Conference.

Recent National Prize-Winners in Engineering Innovation, Design & Entrepreneurship Innovative Product Development Laboratories include:

Eight Siemens Engineers Ireland Innovative Engineer of the Year Awards (2011, 2009, 2008, 2007, 2006, 2005, 2004, 2003)
Two MEETA Asset Management and Maintenance National Awards (2011, 2006)
Two Abbott Ireland Intern of the Year Awards (2011, 2009)
One Engineers Ireland Excellence Awards - Inaugural “ Best in Class ” Engineering Education Award (2011)
One Engineers Ireland Excellence Awards - ESB Award for Outstanding Contribution to Engineering (2011)
One Engineers Ireland Excellence Awards - Chartered Engineer of the Year (2011)
Three Cruickshank Most Technologically Innovative Project First Place €7,500 Award (2009, 2008, 2007)
One Inaugural Enterprise Ireland / Invest Northern Ireland Young Entrepreneur of the Year Solving Problems for Industry €7,500 Award (2009)
Four Enterprise Ireland / Invest Northern Ireland Award of Merit €4,000 Award (2010, 2009, 2008, 2007)
Enterprise Ireland / Invest Northern Ireland Young Entrepreneur of the Year First Place €10,000 Award
Three Enterprise Ireland I.Mech.E Speak Out for Engineering Awards
Two HP Invent Awards for Best Science/Engineering/IT project in Ireland
Three William Eccles Institution of Production Engineers National Awards

Engineering an Innovation Eco-System



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