

# SPICE CONFERENCE 2011

Software **P**rocess **I**mprovement and **C**apability **dE**termination

30 May - 1 June 2011, Dublin City University, Ireland



## The 11th International Conference Software **P**rocess **I**mprovement and **C**apability **dE**termination

Dublin, Ireland  
30 May - 1 June 2011

# Conference Program

[www.spiceconference.com](http://www.spiceconference.com)



# CONFERENCE



# SPICE 2011

Over the last eleven years the SPICE conference has become the number one source of choice for thousands of experts, speakers, visitors and exhibitors who are interested in ISO/IEC 15504 and the subject of process improvement and capability determination.

Participants from more than 30 countries, a program committee from five continents and the best experts in the field make the perfect setting for exhibiting and reaching the international SPICE community.

SPICE 2011 features tutorials, keynotes and presentations of speakers from research as well as from practice.

A special focus will be given to key domains including Automotive, Medical Devices, Testing, IT Service Management and Safety

It will bring presentations from financial institutions and banks, the automotive, aerospace, nuclear and medical industry as well as process improvement in small and very small enterprises and in agile environments.

SPICE 2011 will answer questions and explain the current and new developments of Enterprise SPICE, Automotive SPICE, Banking SPICE and Medi SPICE.

## Conference Committee:

### Program Chair

Terry Rout, Griffith University, Australia

### Local Organizing Chair

Rory V. O'Connor, DCU & Lero, Ireland

### Industry Chair

Fergal McCaffery, Dundalk IT & Lero, Ireland

### Tutorial Chair

Timo Varkoi, Tampere University of Technology, Finland

### General Chair

Alec Dorling, InterSPICE, UK

## Program Committee:

Beatrix Barafort, Luxembourg

Luigi Buglione, Italy

Aileen Cater-Steel, Australia

Melanie Cheong, Australia

Gerhard Chroust, Austria

Francois Coallier, Canada

Antonio Coletta, Italy

Carol Dekkers, USA

Fabrizio Fabbrini, Italy

Mario Fusani, Italy

Dennis Goldenson, USA

Christiane Gresse von Wangenheim, Brazil

Victoria Hailey, Canada

John Horch, USA

Linda Ibrahim, USA

Ravindra Joshi, India

Ho-Won Jung, South Korea

Giuseppe Lami, Italy

Jean Pierre Legras, France

Marion Lepmets, Luxembourg

Catriona Mackie, UK

Tom McBride, Australia

Takehige Miyoshi, Japan

Risto Nevalainen, Finland

Hanna Oktaba, Mexico

Mark Paulk, USA

Alain Renault, Luxembourg

Patricia Rodriguez Dapena, Spain

Clenio Salviano, Brazil

Marty Sanders, Ireland

Jean-Martin Simon, France

Fritz Stallinger, Austria

Robert Treffny, Germany

Angela Tuffley, Australia

Tanin Uthanayaka, Thailand

Han van Loon, Switzerland

# KEYNOTE SPEAKERS

# CONFERENCE SPICE 2011

## Keynote 1 Michael J Wild



Michael Wild is a Functional Safety Specialist in MIRA's Advanced Engineering department, with 40 years' experience in the development of mission-critical and safety-related systems gained in the automotive, defence and telecommunications industries. The role at MIRA supports vehicle manufacturers and their system suppliers in safety case development and in the application of ISO 26262. The MIRA functional safety team acts as advisers, analysts, assessors and educators. Prior to joining MIRA in 2010, Mr Wild was lead Safety Assessor for steering and suspension systems at TRW, with direct responsibility to the Chief Engineer for Safety. His principal responsibilities at TRW were to assess compliance with TRW's systems safety policy, to align future practices with and manage transition to ISO 26262, and to oversee safety cases for various projects. Previously at QinetiQ, DERA and MOD supporting defence procurement projects through safety analyses and development of policy for systems and software reliability. Author of articles called SWARF (Software and Reliability Focus) for the newsletter of the Committee for Defence Equipment Reliability and Maintainability (in the 1990s when CMM and SPICE were just emerging). Earlier career was in telecommunications and automation, developing a wide variety of real-time electronic systems utilizing a range of programmable technologies.

## Keynote 2 Bashar Nuseibeh



Prof. Nuseibeh is Professor of Software Engineering and Chief Scientist at Lero - the Irish Software Engineering Research Centre. He is also a Professor of Computing at the Open University, UK, where he served as Director of Research (2002-2008), and a Visiting Professor at Imperial College London and the National Institute of Informatics, Japan. Previously he was a Reader at Imperial College London and Head of its Software Engineering Laboratory. His research interests are in software requirements engineering and design, software process modelling and technology, security and privacy, and technology transfer. He has published over 130 refereed papers and consulted widely with industry, working with organisations such as the UK National Air Traffic Services (NATS), Texas Instruments, Praxis Critical Systems, Philips Research Labs, and NASA. Bashar is Editor-in-Chief of IEEE Transactions on Software Engineering, Editor Emeritus of the Automated Software Engineering Journal, and a member of the Editorial Board of several other international journals. He has served as programme chair of ASE'98, RE'01, and ICSE'05, was Chair of the Steering Committee of ICSE, and is Chair IFIP Working Group 2.9 (Requirements Engineering). He received a 2002 Philip Leverhulme Prize, an ICSE'2003 Most Influential Paper award, and a Senior Research Fellowship of the Royal Academy of Engineering and Leverhulme Trust (2005-2007). He was elected a Fellow of Automated Software Engineering, and is a Fellow of the BCS and IET, and a Chartered Engineer.

## Keynote 3 Carol Dekkers



Carol Dekkers is an internationally recognized expert on the importance of communication and measurement in software development. She works with clients who want to maximize project success through measurement, effective communication, and scope management. She has consulted and presented to business leaders in over 25 countries regarding software metrics, functional size measurement, project scope management, and IT globalization. She works with corporations to ensure that their IT investments exceed business expectations. Ms. Dekkers holds a designation as a Project Management Professional (PMP) and offers PMBOK(R) and PMP preparation class training. She is also a Certified Management Consultant (CMC), Certified Function Point Specialist (CFPS), Certified Scope Manager (CSM, EU Certificates Association), and a Professional Engineer (P.Eng.-Canada). Carol has been a visiting scientist with the Software Engineering Institute (SEI), and in 2000 was named one of the 21 New Voices of Quality for the 21st Century by ASQ's Quality Progress journal. She is Project Co-Editor of the ISO/IEC 29155 suite of standards on project performance benchmarking as well as a project editor for the ISO/IEC 14143 series of functional size measurement standards. coolTECH May 2010 She is the author of the book "Function Points: Tools for Project Management Metrics", and co-author of "Program Management Toolkit for Software and Systems Development" and "The IT Measurement Compendium: Estimating and benchmarking success with functional size measurement". She is a contributing author on 4 other books including "Fundamental Concepts for the Certified Software Quality Engineer", "IT Measurement: Advice from the Experts" and "Practical Project Estimation, 2nd edition". Carol Dekkers is president of Quality Plus Technologies, Inc.

# TUTORIAL PROGRAM

# CONFERENCE SPICE 2011

## EFFECTIVE TEST PROCESS IMPROVEMENT - FRAN O'HARA

Given that testing typically accounts for 30-40% of the overall development effort, it is a key area to leverage in support of your business goals such as time or cost reduction or quality improvement. To give explicit support for this, test process improvement models have been developed to complement software process assessment / improvement frameworks. This tutorial will provide an overview and comparative analysis of the main test process improvement models, TPI Next and TMMi, as well as a preview of the proposed test standard ISO/IEC 29119. The analysis will cover characteristics such as: Scope; Applicability and suitability; Assessment approach; Business driver alignment support; Integration with SPI assessment approaches; Industry experience and support; Application to differing contexts such as Agile; Future trends with the model. The tutorial will then present lessons learnt with test process improvement based on numerous test process assessments and improvement programmes in Ireland. The top findings from test assessments will be presented. Proven solutions to address the typical pitfalls in test process improvement will be presented with examples and practical suggestions.

## TEST PROCESS ASSESSMENT - TOMAS SCHWEIGERT

This tutorial will outline the current state of the art of test process assessment. Based on the test spice PRM and PAM as published on the TestSPICE website ([www.testspice.info](http://www.testspice.info)), the tutorial addresses principal questions of the modern testing business including the involvement of managed testing services. It will also outline the measurement framework based on current ISO/IEC 15504 Part 2 and the Assessment process as outlined in ISO15504 Part 2. The tutorial will also show the link to the ISTQB syllabus and the new ISO 29119 standard for software testing. The tutorial also discusses the differences between TestSPICE and other test process assessment models and it discusses the experience with 2 years and app 50 Assessments.

## GETTING STARTED WITH ENTERPRISE SPICE - LINDA IBRAHIM, WINIFRED MENEZES, ERNEST WALLMUELLER

This tutorial will introduce the participants to the structure and content of the Enterprise SPICE model and illustrate how selected Enterprise SPICE processes can be used to start enterprise-wide improvements in your organization. The tutorial will start with background information on the project, the model itself, benefits from using Enterprise SPICE, and its relationship to other standards and models. Ways of using Enterprise SPICE for assessment and process improvement will be discussed. Thereafter group exercises, self-assessment and discussions will be used to enable participants to consider the application of Enterprise SPICE processes in their various organizational contexts .

## THE ROLE AND APPLICATION OF ISO/IEC 15504 – PROCESS ASSESSMENT - TERRY ROUT

his tutorial provides a detailed analysis of the framework for process assessment in ISO/IEC 15504, placing it in the context of international developments in the area, and emphasizing the role of the framework in harmonizing existing assessment approaches such as those based upon the Capability Maturity Model. It stresses the practical issues of performing and using the results of assessment. Because of the presenter's close involvement with the standards development effort, the information presented will be the most current available, being based upon the approved and published version of ISO/IEC 15504. The tutorial will include a detailed discussion of the relationship of the SPICE Framework to existing assessment approaches such as the Capability Maturity Model, as well as to other International Standards including ISO 9001, ISO 12207, ISO 15288 and ISO 20000 (ITIL). It also discusses the continuing evolution of the Standard, and the forthcoming development of the ISO 330xx series as successor to ISO 15504. The tutorial will address the issues of assessment of organizational maturity and the certification of assessment results; included in this will be an overview of the emergence of new approaches to process assessment based on ISO 15504, including Automotive SPICE and Pathfinder.

# Program Overview

# CONFERENCE SPICE 2011

## Monday 30 May - Tutorial Day

08.00 - 09.00	Registration	
09.00 - 12.30	Effective Test Process Improvement (Fran O'Hara)	Getting Started with Enterprise SPICE (Linda Ibrahim & Ernest Wallmueller)
12.30 - 14.00	Lunch	
14.00 - 17.30	Test Process Assessment (Tomas Schweigert)	The Role and Application of ISO/IEC 15504 (Terry Rout)

## Tuesday 31 May - Conference Day 1

08.00 - 09.00	Registration	
09.00 - 09.30	Opening and Welcome Address	
09.30 - 10.30	Keynote 1 - Michael J Wild, Functional Safety Specialist, MIRA	
10.30 - 11.00	Coffee Break	
11.00 - 12.30	Parallel Sessions	
12.30 - 14.00	Lunch	
14.00 - 15.00	Keynote 2 - Bashar Nuseibeh, Chief Scientist, Lero	
15.00 - 15.30	Coffee Break	
15.30 - 17.00	Parallel Sessions	
18.10 - 23.45	Conference Banquet	

## Wednesday 1 June - Conference Day 2

08.30 - 09.30	Registration	
09.30 - 10.30	Keynote 3 - Carol Dekkers, President of Quality Plus Technologies Inc.	
10.30 - 11.00	Coffee Break	
11.00 - 12.30	Parallel Sessions	
12.30 - 14.00	Lunch	
14.00 - 15.30	Parallel Sessions	
15.30 - 16.00	Coffee Break	
16.00 - 17.00	Panel Session - "SPICE Update" Alec Dorling and Terry Rout	
17.00	Conference Close	

**Tutorial Day**  
**Monday 30 May**

**CONFERENCE**  
**SPICE 2011**

<b>Morning Tutorials</b>		
08.00 - 09.00	<b>Registration</b>	
09.00 - 10.30	<b>Effective Test Process Improvement</b> <i>Fran O'Hara</i>	<b>Getting Started with Enterprise SPICE</b> <i>Linda Ibrahim, Wallmueller, &amp; Winifred Menezes</i>
10.30 - 11.00	<b>Coffee Break</b>	
11.00 - 12.30	<b>Effective Test Process Improvement</b> <i>continued</i>	<b>Getting Started with Enterprise SPICE</b> <i>continued</i>
12.30 - 14.00	<b>Lunch</b>	
14.00 - 15.30	<b>Test Process Assessment</b> <i>Tomas Schweigert</i>	<b>The Role &amp; Application of ISO/IEC 15504</b> <i>Terry Rout</i>
15.30 - 16.00	<b>Coffee Break</b>	
16.00 - 17.30	<b>Test Process Assessment</b> <i>continued</i>	<b>The Role &amp; Application of ISO/IEC 15504</b> <i>continued</i>
17.30	<b>Close</b>	

The tutorials will be held in the **School of Nursing / Health Sciences Building**, which is located just inside of the main university entrance (off Collins Avenue), to the left hand side, as you enter from Collins Avenue. The venue will be well signposted. The tutorial rooms are all located on the ground floor in lecture rooms HG06 and HG07.



## Conference Day 1 - Tuesday 31 May

08.00 - 09.00	<b>Registration</b>	
09.00 - 09.15	<b>Conference Opening: Rory O'Connor and Fergal McCaffery</b> Room: HG22	
09.15 - 09.30	<b>Welcome Address: Alec Dorling and Terry Rout</b> Room: HG22	
09.30 - 10.30	<b>Keynote 1: SPICE, Functional Safety and ISO 26262: An Engineer's View — Michael J Wild</b> Room: HG22 Chair: Alec Dorling	
10.30 - 11.00	<b>Coffee Break</b>	
11.00 - 12.30	<b>Technical session 1</b> Room: HG22 Chair: Val Casey	<b>Technical session 2</b> Room: HG18 Chair: Alec Dorling
12.30 - 14.00	<b>Lunch</b>	<b>Industry session 1</b> Room: HG17 Chair: Carol Dekkers
14.00 - 15.00	<b>Keynote 2: Process Arguments: Meeting security compliance half way — Bashar Nuseibeh</b> Room: HG22 Chair: Terry Rout	
15.00 - 15.30	<b>Coffee Break</b>	
15.30 - 17.00	<b>Technical session 3</b> Room: HG22 Chair: Risto Nevalainen	<b>Industry session 3</b> Room: HG17 Chair: Linda Ibrahim
18.15 - 23.30	<b>Conference Banquet and Social Event: The "Johnnie Fox's Hooley Experience" - an evening of traditional Irish music and dancing</b>	

## Conference Day 2 - Wednesday 1 June

08.30 - 09.30	<b>Registration</b>	
09.30 - 10.30	<b>Keynote 3: Complex problems, simple solutions: the beauty of Lean/Kanban for systems — Carol Dekkers</b> Room: HG22 Chair: Fergal McCaffery	
10.30 - 11.00	<b>Coffee Break</b>	
11.00 - 12.30	<b>Technical session 4</b> Room: HG22 Chair: Risto Nevalainen	<b>Industry session 4</b> Room: HG18 Chair: Tomas Schweigert
12.30 - 14.00	<b>Lunch</b>	
14.00 - 15.30	<b>Technical session 5</b> Room: HG22 Chair: Marion Lepmets	<b>Industry session 5</b> Room: HG18 Chair: Ravindra Joshi
15.30 - 16.00	<b>Coffee Break</b>	
16.00 - 17.00	<b>Panel Session: SPICE Update — Alec Dorling and Terry Rout</b> Room: HG22 Chair: François Coallier	
17.00	<b>Conference Close</b>	

# Technical Papers

# CONFERENCE SPICE 2011

## Technical Session 1 - Process Modelling and Assessment

Using Composition Trees to Model and Compare Software Process  
*Lian Wen, David Tuffley and Terry Rout*

A Modeling View of Process Improvement  
*Clenio F. Salviano*

An approach to evaluating software process adaptation  
*Paul Clarke and Rory V. O'Connor*

## Technical Session 2 - Safety, Security and Assessment

Functional Safety Extensions to Automotive SPICE according to ISO 26262  
*Per Johannessen, Öjvind Halonen and Ola Örsmark*

An ISO/IEC 15504 Security Extension  
*Antoni Lluís Mesquida, Antònia Mas and Esperança Amengual*

Evaluation of Software Process Assessment Methods –Case Study  
*Mohammad Zarour, Alain Abran and Jean-Marc Desharnais*

## Technical Session 3 - Medi SPICE

Verification & Validation in Medi SPICE  
*M S Sivakumar, Valentine Casey, Fergal McCaffery and Gerry Coleman*

Medical Device Software Development -A Perspective from a Lean Manufacturing Plant  
*Oisín Cawley, Ita Richardson and Xiaofeng Wang*

Standalone Software as an Active Medical Device  
*Martin McHugh, Fergal McCaffery and Valentine Casey*

## Technical Session 4 - High Maturity and Implementation

Assessment of Software Process and Metrics to Support Quantitative Understanding: Experience from an Undefined Task Management Process  
*Ayca Tarhan and Onur Demirors*

Methodical Enhancement of Maturity Level: "SPICE" and "SixSigma" Intertwine  
*Timo Karasch, Jens Peter Benthous*

Organizational Support for Process Improvement – Results of an International Survey  
*Marion Lepmets, Eric Ras and Alain Renault*

## Technical Session 5 - Implementation and Improvement

Towards a Systemic Maturity Model for Public Software Ecosystems  
*Angela M. Alves, Marcelo Pessoa and , Clênio F. Salviano*

Linking Software Life Cycle Activities with Product Strategy and Economics: Extending ISO/IEC 12207 with Product Management Best Practices  
*Fritz Stallinger, Robert Neumann, Robert Schossleitner and Rene Zeilinger*

Applying ISO/IEC 12207:2008 with SCRUM and agile methods  
*Emanuel Irrazabal, Felipe Vásquez, Rafael Díaz and Javier Garzás*



# Industry Papers

# CONFERENCE SPICE 2011

## Industry Session 1

Agile and SPICE Capability Levels  
*Celestina Bianco*

Application of Lean Principles in Automotive Software Projects  
*Smitha Bhandary and Shah Quadri*

Challenges for Requirements Development: An Industry Perspective  
*Sandra Kelly, Frank Keenan and Fergal McCaffery*

## Industry Session 2

Software Engineering Strategies: Aligning Software Process Improvement with Strategic Goals  
*Reinhold Plösch, Gustav Pomberger and Fritz Stallinger*

Deploying Lifecycle Profiles for Very Small Entities: An Early Stage Industry View  
*Rory V. O'Connor and Claude Y. Laporte*

Past, present and future of process improvement in Ireland – an industry view  
*Fran O'Hara*

## Industry Session 3

High Levels of Process Capability in CMMI and ISO/IEC 15504  
*Terry Rout*

Process Innovation reaping Customer Satisfaction  
*B.Sridhar and G.Rajesh*

Process Improvement in an R&D&I Center using Enterprise SPICE and SPICE for Research Models  
*Clenio F. Salviano*

## Industry Session 4

Experiences developing TMMi as a public model  
*Matthias Rasking*

Experiences from informal test process assessments in Ireland - top 10 findings  
*Fran O'Hara*

Functional Safety – SPICE for Professionals?  
*Bernhard Sechser*

## Industry Session 5

Med-Trace  
*Fergal Mc Caffery and Valentine Casey,*

Neural Network Based Effort Prediction Model for Maintenance Projects  
*Bharathi V and Udaya Shastry*

A Framework of Organizational E-Readiness Impact on E-Procurement Implementation  
*Naseebullah, Shuib Bin Basri, P.D.D. Dominic and Muhammad Jehangir Khan*

# CONFERENCE LOCATION AND VENUE

# CONFERENCE SPICE 2011

## Location

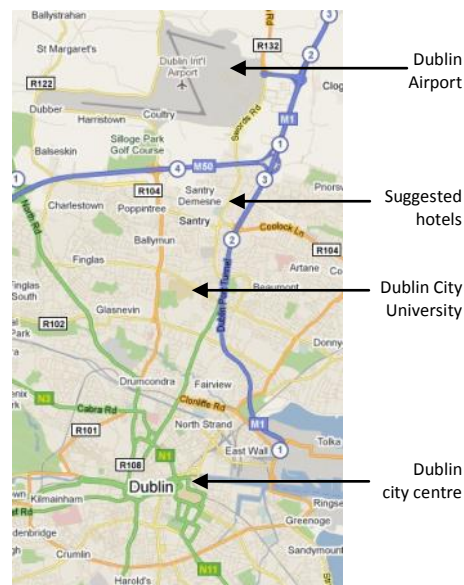
The SPICE 2011 conference will be held in Dublin City University (DCU), Ireland. Dublin City University is a young university, situated on an 85 acre campus 7km north of the River Liffey in the city centre. Dublin City University DCU is located mid way between Dublin city centre and Dublin Airport. The most convenient way to DCU from the Airport is by Taxi, a journey of about 15 minutes (8km). For anyone who wants to use public transport from the airport to DCU, the following buses are available: 16A, 41, 41A, 41B, 41C. You should have the exact fare ready.

## Venue

The conference will be held in the School of Nursing / Health Sciences Building, which is located just inside the main university entrance (off Collins Avenue), to the left hand side, as you enter from Collins Avenue. The venue will be well signposted. See the conference website [www.spiceconference.com](http://www.spiceconference.com) for maps.

## Accommodation

Conference participants can choose to either stay local to DCU (Santry, Druncondra, Glasnevin or Ballymun areas) or stay in Dublin city centre. The city centre is approximately 20 minutes by taxi. The suggested conference hotels are the Crowne Plaza and the Holiday Inn Express. Both are located in the 85 acres of the mature woodlands of Northwood Park, which is a short (10 minutes) taxi ride from Dublin City University and just 4km from Dublin Airport. For rate and booking see the conference website [www.spiceconference.com](http://www.spiceconference.com)



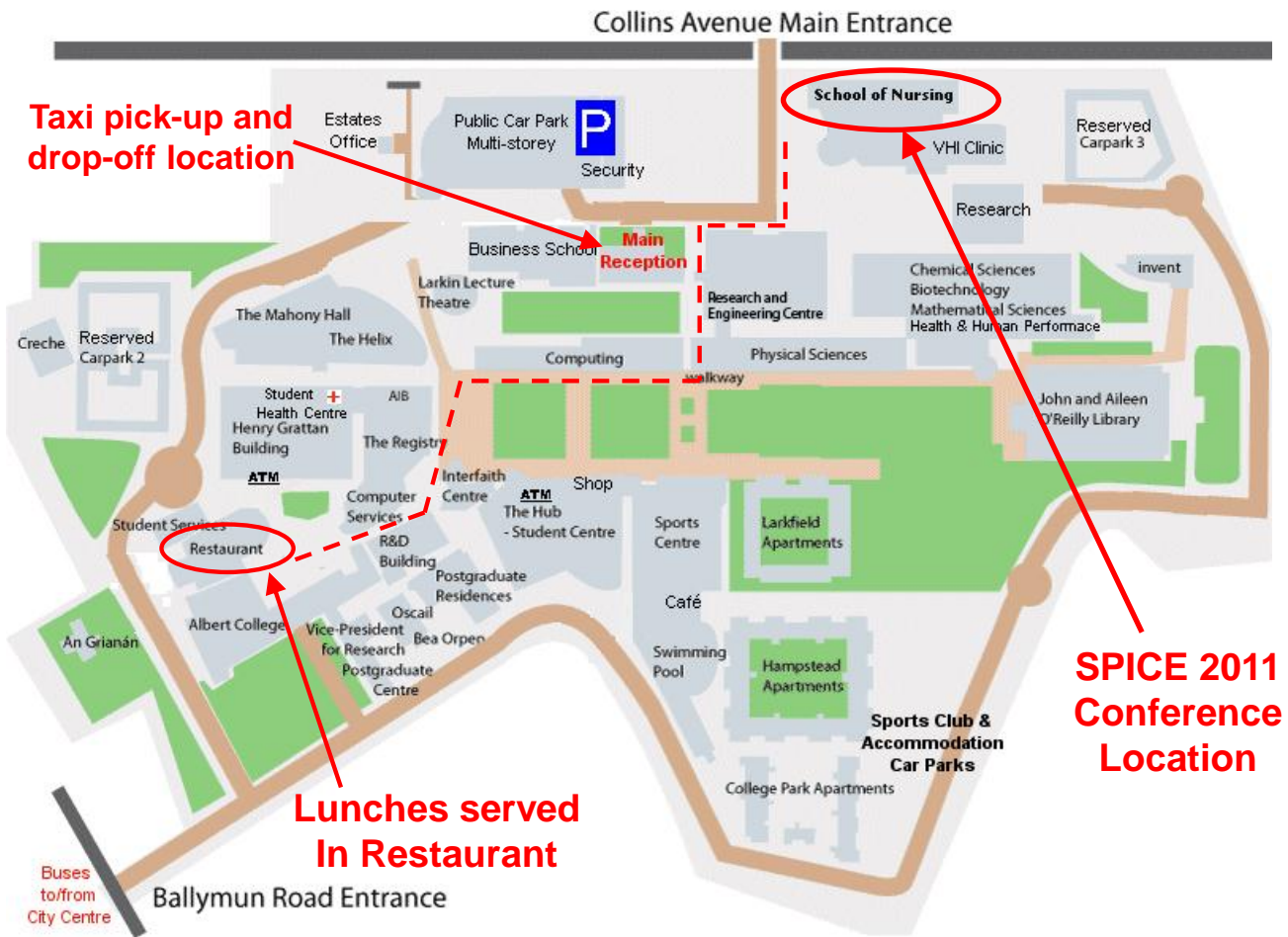
## Social Event

The social event will take place at the well known and highest pub in Ireland, Johnnie Fox's. Situated on top of the Dublin mountains, Johnnie Fox's is one of Ireland's oldest and most famous traditional Irish pubs. In the early 1950's programmes of Irish music and story telling were recorded for radio on Sunday nights in Johnnie Fox's and broadcast to the nation from this elevated site. We have organised an event full of Irish music and Irish dance with brilliant food. The meal is followed by a live traditional Irish music session and then by the Johnnie Fox's famous Irish dancers, who provide a spectacular performance, which has been described as one of the best 'Cultural Shows' in the country. An evening not to be missed.



For more information visit  
[www.spiceconference.com](http://www.spiceconference.com)





The conference will be held in the **School of Nursing / Health Sciences Building**, which is located just inside of the main university entrance (off Collins Avenue), to the left hand side, as you enter from Collins Avenue. The venue will be well signposted.

The conference rooms are all located on the ground floor of the Health Sciences Building, with the SPICE 2011 registration desk located immediately inside the main entrance to the building. Plenary sessions are held in lecture room HG22 and all parallel sessions in rooms HG17, HG18 and HG19. Tutorials and other sessions are held in rooms HG06 to HG08 respectively.

