University of Sheffield Summer School, 3-14 August 2015

The Summer School will be made up of a mix of English Language tuition (delivered by our English Language Teaching Centre) with the addition of academic lectures. There will be two 'tracks', one for Arts/Social Sciences and one for Science/Engineering and students will be required to choose from one or the other.

Science and Engineering lectures

Dr Sam Clarke, Department of Civil & Structural Engineering

Lessons Learned from Past Failures
As engineers we are challenged with designing structures to resist the forces exerted on them by their surroundings. In this lecture we will look at some of the most famous engineering failures, including the Tacoma narrows bridge 'Galloping Gertie' and the Ronan Point tower collapse. We will look at the original design decisions and how each type of structure works, then at what caused the failure in each case, and how engineers have used these failures to further their knowledge.

Sam Clarke is Lecturer in Geotechnical Engineering in the Department of Civil & Structural Engineering at the University of Sheffield. He has won many awards for the quality of his teaching at both University and Faculty levels and is currently researching the effects of high strain rates on soil mechanics.

Professor Richard Hogg, Department of Electronic and Electrical Engineering

Semiconductor Laser Science and Technology
Current applications for semiconductor lasers are wide ranging and pervade every aspect of life. The internet age of instant data everywhere is enabled by the laser diodes, as are many printing, data storage, and display applications. Future applications of lasers will also significantly impact our lives, in particular in healthcare monitoring, imaging and therapy. This seminar will describe semiconductor laser manufacturing technologies, and possible future healthcare applications. A tour of the EPSRC National Centre for III-V Technologies will also be included. This is a national facility which manufactures a range of semiconductor devices. This includes epitaxy, where the device can be configure with mono-layer precision, and device fabrication where this piece of semiconductor is transformed into a working electronic device.

Richard Hogg is Professor of Semiconductor Devices at the Department of Electronic and Electrical Engineering at the University of Sheffield. He has worked in corporate R&D, semiconductor manufacturing, and has established a research group in Sheffield, which develops semiconductor lasers for a range of applications, in particular, new devices for 3D imaging of skin tissue.

Professor Alistair Warren, Department of Biomedical Science

Human Anatomy
There is a natural fascination with our body; what it looks like, how it works and why it goes wrong. Human Anatomy became prominent in Europe around the1500s when the phrase ‘Know thyself’, as the Latin variant “noscet e ipsum” was reported in the Anatomical Fugitive Sheets. These were a series of anonymous anatomical illustrations of stages of human dissection, printed in Venice. The fascination with the human body has continued and Anatomical Investigation in modern Science,
Medicine, Arts and Humanities is as important and intriguing today as it ever was. This presentation will give a brief background to Anatomical Investigation, consider its place in Society and provide some illustrations of the importance of knowing more about our own body.

Alistair Warren is Professor and Director of Learning and Teaching in the Faculty of Science at the University of Sheffield, UK. He has been a member of the Council of the Anatomical Society of Great Britain and Ireland, Associate Editor of the Journal of Anatomy and a Home Office Licensed Teacher of Anatomy.

Professor Elena Rodriguez-Falcon,  
**Making ideas happen**

As we go through life we will all have encountered problems that prevent us from doing mundane to life changing activities. Often we will come up with ideas which may solve the problem or deal with the challenge successfully. How do we ensure that these ideas are firstly, feasible and viable? How do we turn them into functional solutions? And, how do we actually take them into the market for the people with the problems to use them?

This session will focus on the process of making ideas happen in the context of engineering.

Elena Rodriguez-Falcon is Professor of Enterprise and Engineering Education and also Director of Enterprise Education at the University. She is also the founder of the Ibberson Centre for Enterprise, better known as the E-lab, which has become the first enterprise satellite for the White Rose Centre for Excellence in Teaching and Learning in Enterprise (WRCETLE), now known as University of Sheffield Enterprise (USE). Professor Rodriguez-Falcon has been awarded the status of Principal Fellow at the Higher Education Academy - one of the first ten in the UK. She lectures on enterprise and business planning, using innovative teaching techniques which have been awarded by the Higher Education Academy, the Royal Academy of Engineering, Enterprise Educators UK (EEUK) and the National Centre for Graduate Entrepreneurship (NCGE).

Dr Plato Kapranos, Department of Materials Science and Engineering  
**Thixoforming – the Early Promise; the Long March; Where Next?**

Thixoforming or shaping alloys and composites in the semi-solid state has been around since the early 1970s. The early promise of manufacturing near net-shape products of quality superior to castings was the driver for industrial and academic research around the world over the past forty years. The process has had a number of successes in the automotive and consumer product industries using aluminium and magnesium alloys but it has never fulfilled its original promise to become a main stream manufacturing route due to a combination of economic and technological factors.

Repositioning the process to a new market using high melting point alloys offers a possibility of the way forward as also does the more focused approach of market driven applications.

This talk gives a brief historical review of the thixoforming process from its early days to the present and outlines possibilities for its future.

Plato Kapranos is a Senior University Teacher and has been with the Department of Materials Science and Engineering department since 1988 as a Senior Research Fellow on ‘The development of the Thixoforming process’. He has also worked on the ‘Development of Materials for Ocean Thermal Energy Conversion Systems – OTECS’ as well as ‘Ultrasonic Non-Destructive Testing of Austenitic Stainless Steel Welds’. As a Chartered Environmental Engineer, he is also involved both with the local branch of Engineers without Borders, the flagship of the Faculty, a week long undergraduate ‘Global Engineering Challenge’ as well as the teaching of ‘Environmental Aspects of Materials - from Cradle to ?’
Arts and Humanities and Social Sciences Lectures

Professor Paul Knepper, School of Law

Murder Mystery: Why Crime Rates Have Fallen Throughout the World
During the last half of the twentieth century, crime rates increased in Europe and North America year after year. It was safe to assume that crime was a big problem and getting bigger. Then, beginning in 1995 or so, crime rates began to fall: in the USA and UK, across Europe, in Australia, Canada, Brazil and Japan. Has crime really decreased? What might explain a decline in crime in so many countries at the same time? Is lower crime a consequence of globalisation? In this session, we will examine the methods criminologists use to measure crime, theories of criminal activity, and the leading explanations for the recent decline in crime.

Paul Knepper is Professor of Criminology in the School of Law at the University of Sheffield and Visiting Professor of Criminology, Department of Crime Sciences, University of Lausanne. He is the editor-in-chief of the European Journal of Criminology and a senior editor of the Oxford University Press series Research Reviews in Criminology. His recent book is called Writing the History of Crime (Bloomsbury, London).

Dr David Forrest

The Art of British Television Drama

This session will draw on a series of examples of television drama made in Britain between 1960 and 1996. We will explore the ways in which writers and directors have consistently engaged with fundamental questions about British society: from issues relating to class, race, identity and the structural barriers faced by ordinary people in everyday life; to more poetic explorations of place and space, and the relationship between the country and the city; to ambitious accounts of Britain’s place within the world. The session will introduce participants to this rich tradition of socially conscious and formally experimental television plays; works which have received relatively little critical attention, and are all too readily overlooked by contemporary audiences.

David Forrest is Lecturer in Film Studies in the School of English at the University of Sheffield. David’s work explores questions of place, space and identity in British realist and working-class film, television and literature. He has published a range of articles on British television drama and film, his first book Social Realism: Art, Nationhood and Politics was published in 2013, and he is currently at work on two new book projects: Barry Hines and Working-Class, Fiction and Film, co-authored with Sue Vice (for Manchester University Press), and Filmurbia: Cinema and the Suburbs, co-edited with Graeme Harper and Jonathan Rayner (for Palgrave Macmillan).

Dr Tim Vorley, Management School

Corporate Entrepreneurship

We are repeatedly told that we live in an entrepreneurial society yet paradoxically big businesses seemingly dominate economies. This session will explore what it means to be entrepreneurial in the context of big business. The presentation highlights how big businesses have sought to incorporate entrepreneurial DNA into the fabric of the organisation and harness entrepreneurship as a form of competitive advantage. As well as drawing on case studies of intrapreneurship in practice, the presentation will explore different theorisations of corporate entrepreneurship and what they can tell us about developing more entrepreneurial big businesses.

Tim Vorley is a Senior Lecturer in Entrepreneurship at Sheffield University Management School with research interests in entrepreneurship and regional economic development. He is currently working on secondment with InnovateUK, the UK Innovation agency, and has previously been a visiting researcher at the Department for Business Innovation & Skills. Tim has several European funded
enterprise and entrepreneurship education projects, and is working with Dr Nick Williams on several entrepreneurship projects including a book on entrepreneurship and institutionalism.

Professor Mary Vincent, Department of History

**Democracy**

This lecture will examine the nature of democracy in the 20th century, its increasingly global reach (particularly after 1945) and its changing nature. Fundamental to these developments is the acceptance of universalist discourses around democracy, which coalesce in the idea of human rights. We think of these rights as a historical constant, and of democracy as a uniquely valuable system that we have inherited from ancient Athens. Citizenship is the key component of democracy. We think of it as single and egalitarian, as in the American republican tradition, which makes much play of words such as ‘liberty’ and freedom’. As a universal concept, citizenship belongs within a framework of universal values. Democracies describe civic rights and civic duties in egalitarian and equalizing terms but, historically, far more people have been excluded from citizenship and the exercise of democracy than have been included. Only over the course of the 20th century has a strong understanding of individual rights developed.

This relationship between government and the governed goes to the heart of what democracy actually is. This will form the focus for the lecture as we look, for example, at how the practice of democracy was altered by the lowering of the age of majority, mass moments of protest such as 1968, and international points of reference, such as the United Declaration of Human Rights. Democracy is now the most common form of government and is found on every continent in the world. But it is still complex and often problematic, as we will explore.

Mary Vincent is Professor of Modern European History at the University of Sheffield. She has been teaching at Sheffield since 1988. Her main research interests lie in the history of modern Spain, particularly in the period of the Civil War and the Franco dictatorship (1931-75). Mary is also currently Head of Department.

**Dr Sara Whiteley, School of English,**

**The Language of Literature**

This lecture will examine the way literary texts use language to create particular meanings and effects for readers. You will be introduced to some ideas and methods from the field of literary linguistics, and we will consider how they can be used to illuminate our understanding of how these texts work.

Sara Whiteley is Lecturer in the Language and Literature department in the School of English. Her research falls at the interface between language and literature and examines issues of textual effect and interpretation in relation to contemporary prose and poetry. She has published several articles on the stylistics of contemporary literature, and recently co-edited with Peter Stockwell the *Cambridge Handbook of Stylistics* (Cambridge University Press, 2014).

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