
Introductory Address*

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I am delighted, and indeed honoured, to have the opportunity of chairing this Opening Ceremony of the 3rd Global Congress on Engineering Education and to be able to offer my brief remarks in this introductory address.

First of all, it is my great honour and privilege to welcome all the distinguished guests, colleagues and friends from 30 countries worldwide, including all those members from within the United Kingdom, who have contributed their precious time to this Congress in order to be with us today.

I am delighted to welcome a Congress Patron, Professor William M. Banks, of the University of Strathclyde, Glasgow, Scotland, United Kingdom; Chairman, the Engineering Professors' Council, United Kingdom. It is my real pleasure to welcome a Congress Patron, Mr Peter T. Hughes, Chief Executive of Scottish Engineering, Scotland, United Kingdom.

It is my honour and privilege to welcome Honorary Chairman, Dr Ian Johnston, Vice-Chancellor and Principal, Glasgow Caledonian University, Glasgow, Scotland, United Kingdom.

I cordially welcome my distinguished colleague and dear friend Professor Colin U. Chisholm, Dean, Faculty of Science and Technology, Glasgow Caledonian University, Glasgow, Scotland, United Kingdom and Chairman of the Organising Committee of the Congress.

THE HOST

We have come to Glasgow Caledonian University to consider and debate the importance and the future of engineering education in a time of global instability, changing societal needs, rapidly advancing technology, changing production processes and steadily

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increasing globalisation. Moreover, much has changed in the international arena since the last Global Congress organised in Wismar, Germany, in 2000, with the world now being preoccupied with war, the limping global economy, a shift in global priorities, the reduction of university funding, and many other global problems. How does engineering and technology education cope in this situation? It is hoped that the Congress will at least attempt to answer this prevailing question.

The 3rd Global Congress on Engineering Education, which is being held in Glasgow, Scotland, United Kingdom, is organised jointly by international engineers and educators, members and associates of the UNESCO International Centre for Engineering Education (UICEE) and the International Liaison

Group for Engineering Education (ILG-EE). It is sponsored and organised by the UICEE, with Glasgow Caledonian University, Glasgow, Scotland, United Kingdom, as the host, principal co-sponsor and co-organiser. Indeed, we are extremely lucky that the Congress is also supported strongly by the Partner Institutions of the UICEE and other members of the so-called *UICEE Global Family of Engineering Educators*.

It should be emphasised, and here I quote the Congress brochure, that Glasgow Caledonian University is one of the largest and most dynamic universities in Scotland with over 15,000 students. The University is in the top four UK universities for helping students from traditionally low participation neighbourhoods to enter higher education. Graduates of the University are in high demand by employers. Glasgow Caledonian is a University *where careers come first* with most of its graduates in employment six months after graduating, a figure well above the national average. The University earns more research income from the Scottish Higher Education Funding Council Research Assessment Exercise than any other post-1992 university in Scotland. The University has, in the past few years, invested over £50 million in the campus, creating one of the most modern and student focused in the country. Some of the most modern and state-of-the-art student accommodation in the city is available at the recently completed Caledonian Court.

The Congress is being hosted by the Faculty of Science and Technology, a Faculty that, under the leadership of Prof. Colin U. Chisholm, has been at the forefront of innovative and technological change, developing customised programmes for industry, and is recognised on an international basis for developments at the postgraduate level in work-based and workplace learning through individual learning contracts. It is my strong belief that the success of the Faculty of Science and Technology is largely due to the fact that it is an integral part of Glasgow Caledonian University and its visionary policies towards higher education and that it receives special attention from the University Management Team.

The University is expanding its academic base and is particularly keen on developing global linkages. This is so much so that the UICEE satellite centre at Glasgow Caledonian University, called the *Caledonian Centre for Engineering Education*, which was established in 1998 with the support of the University, has gradually evolved to a new and much more substantial operation and has recently changed its name to the *Scottish Centre for Work-Based Learning*.

AIMS AND OBJECTIVES

The paramount objective of the Congress is to bring together engineers, educators, professional organisations and industry leaders from around the world to continue the dialogue about important issues and challenges in engineering and technology education for the 21st Century. It is anticipated that the Congress will address concepts, ideas and experiences within the international community in the context of rampant globalisation and rapid technological change.

However, we members of the UICEE should not forget about our mission, nor should we reduce our effort in assisting education institutions in developing countries and countries in social, political and economic transition in their efforts to restructure and modernise their university engineering education. In particular, we have come here to consider ways in which global linkages between universities can be developed, maintained and expanded.

THE UICEE

The UNESCO International Centre for Engineering Education (UICEE), the world's first and only such centre for engineering education, was established in 1994 and is hosted by the Faculty of Engineering at Monash University, Melbourne, Australia. The Centre is now in its 9th year of operation.

The general brief for the Centre is to provide expertise in, and to improve the quality of, engineering education. The Centre's main objective is to facilitate an effective transfer of information on engineering education between developed and developing countries, a transfer that is essential for the development and advancement of the underdeveloped world, which is so vital for the world's peace and stability.

THE UICEE'S NETWORK

We are living in a time when establishing linkages and building bridges between different cultures are of paramount importance to any education institution. Global collaboration is essential for the efficient operation of any university that aspires to be a good and progressive university.

The UNESCO International Centre for Engineering Education (UICEE) has been at the forefront of this process by opening up its membership to academic institutions and individuals involved in engineering education, in order to create a global platform for collaboration. We are proud to have been able to set up a global network of engineering educators, appropriately called the *UICEE Global Family of Engineering*

Educators. Since the last Global Congress, we have increased the number of partner institutions from five to twelve, a huge achievement in two years time.

Furthermore, there are many excellent examples of new initiatives undertaken by the UICEE network. The *Ryerson Centre for Engineering Education* (RCEE), established in 2000 in the Faculty of Engineering and Applied Science (FEAS) at Ryerson University (RU), Toronto, Canada, as a North American Satellite Centre of UICEE, has already made a considerable contribution to the work of the entire UICEE network. The *Central Asia Centre for Engineering Education* at the Tomsk Polytechnic University (TPU) in Tomsk, Western Siberia, Russia, established as a satellite centre of the UICEE in 2000, is also developing at a great pace.

We should also mention the enormous contribution made to the UICEE global network by the *Gottlob Frege Centre for Engineering Science and Design* (GFC), established at Hochschule Wismar - University of Technology, Business & Design, Wismar, Germany. It was established as a satellite centre of the UICEE only in November 2000 and under the dynamic leadership of both Prof. Norbert Grünwald and Prof. Dieter Schott has initiated and already carried out numerous programmes and projects.

Other satellite centres have emerged in the period of time after the Congress in Wismar, such as the Centre for Maritime Engineering Education (CMEE), Gdynia, Poland; the Centre for Engineering Education in Mechatronics (CEEM), Gliwice, Poland; the UICEE Centre for Problem-Based Learning (UCPBL) at Aalborg University, Aalborg, Denmark and the Centre for Electrical and Electronics Engineering Education (CEEEE), St Petersburg, Russia, to name a few.

This week, you will witness the signing of a Memorandum of Agreement between the Kigali Institute of Science, Technology and Management, Kigali, Rwanda and the UICEE. This is a tremendous achievement and a real breakthrough in our commission to assist developing countries, and countries in Africa, in particular.

I would like to take this opportunity and cordially welcome the representatives of the UICEE Partner Institutions. In particular, I am delighted to welcome a group of senior academics from the Tomsk Polytechnic University (TPU), Tomsk, Russia, under the leadership of the University Rector, Prof. Yuri P. Pokholkov. It should be mentioned that Prof. Pokholkov is also President of the Russian Association for Engineering Education (RAEE), an association that, over the last few years, has developed an excellent relationship with the UICEE. The TPU is an extremely

active Partner of the UICEE and has conducted numerous activities in engineering and technology education through the Central Asia Centre for Engineering Education (CACEE) based at the TPU.

In welcoming our friends from Tomsk, we shall congratulate Professor Pokholkov on the remarkable achievements of his University in research and development activities undertaken for the benefit of the entire international community of engineering educators.

Also, I am delighted to welcome another, equally strong delegation from a single academic institution. I refer to the *Lucian Blaga* University of Sibiu from Sibiu, Romania, which has come to the Congress under the leadership of the University Vice-Rector, Prof. Constantin Oprean. This University has been particularly active in engineering education in the last two or so years.

This Congress is a special occasion for the UNESCO International Centre for Engineering Education (UICEE), the Congress sponsor and organiser, as well as for Glasgow Caledonian University, principal co-sponsor and co-organiser of this Congress, and for the many Scottish colleagues. In particular, I refer to Prof. Colin U. Chisholm, whose life achievements in engineering and engineering education we are about to celebrate during the Congress.

Our international colleagues, who have been collaborating with us in order to promote the UICEE and to foster the idea of global cooperation, and who are today with us, deserve special praise, as without their participation in, and contribution to this process, the achievements of the UICEE and its global network would have not been possible.

We are delighted by the fact that despite various international tensions and problems so many distinguished international academics, representing over 30 countries worldwide, have responded to our call and have joined us today to participate in this exciting Congress. In a time of the globalisation of engineering and technology education, it is our duty, honour and privilege to promote international achievements in higher engineering education on a global basis. Hence, we look forward to working during the Congress on an action oriented agenda for the UICEE and its entire network in order to provide us with a direction for our joint projects, programmes and activities.

THE ILG-EE

I would like to emphasise the contribution of, and the involvement in our timely endeavour, by members of the International Liaison Group for Engineering Education (ILG-EE). The ILG-EE has strongly supported and promoted this Congress in the inter-

national arena, thereby strengthening international links and collaboration in the field of engineering education. Several members of the ILG-EE have joined us today to celebrate this important occasion.

I wish to point out that one of the highlights of this Congress will be the hosting of the *15th Annual General Meeting of the ILG-EE*, and we look forward in anticipation to the deliberations and resolutions of this meeting.

CONGRESS AGENDA

I would like to turn your attention to the fact that a special, so-called *Scottish Day* has been organised during this *3rd Global Congress on Engineering Education* on Monday. We will have the opportunity to listen to several outstanding contributions in terms of keynote addresses by distinguished Scottish engineering educators. The addresses will cover a broad range of topics and issues and hence I would cordially invite you to attend those sessions.

The Congress Proceedings include over 100 paper contributions by authors from 30 countries worldwide with a wide range of exceptional contributions from many distinguished Scottish academics. There are three opening and 18 keynote addresses, as well as 16 lead and close to 70 regular papers. The quality of papers, as assessed by independent international referees, is very high, and the papers address many important and critical issues to engineering and technology education.

Judging by the papers, the Congress will cover almost all the topics indicated in the original call for papers. The papers included in these Proceedings present findings and experiences relevant to the three general groups envisaged as major Congress topics, that is: general issues in engineering and technology education, international collaboration in engineering and technology education and academia/industry collaboration in engineering technology education. A large group of papers deals with the application of new technologies in engineering and technology education and industrial training. It is hoped that the Congress discussions will extend over the content of the papers and will address crucial issues, relevant to the process of advancing of engineering education.

UICEE BEST PAPER AWARDS

Once again, the UICEE will present awards to the authors of those papers included in the Congress

Proceedings that are considered to offer the most significant contribution to the field of engineering education. Registered Congress participants in a popular vote will select the award-winning papers. There will be five award categories: Diamond, Platinum, Gold, Silver and Bronze, selected on the basis of the greatest frequency of recognition.

You will find a voting paper included in your satchel. I encourage you to take some time to fill out this form. It will be collected on Friday morning, and the awards will be presented at the Closing Ceremony of the Congress on Friday.

CONCLUSION

We have been, indeed, very fortunate to have Prof. Colin U. Chisholm and his team involved in the organisation of the Congress. They were able to attract substantial sponsorship to the Congress. The Congress organisers are grateful for the support received, which has allowed us to reduce significantly the Congress registration fees for all the participants.

I am indebted to Prof. Colin U. Chisholm and his team for the great support they have provided to the organisation of this Congress.

On behalf of the Congress Organisers and, indeed, those closely associated with the UICEE, I wish to thank all the paper contributors for their effort in producing excellent papers submitted to this *3rd Global Congress on Engineering Education* and their willingness to share their ideas and findings with other colleagues.

Also, I would like to extend our sincere gratitude to the referees, who have done this excellent work in a very limited span of time.

The Congress programme has been structured so that as well as having a strong academic programme, it will also provide participants, guests and accompanying persons with an exciting social programme.

In concluding these opening remarks, I have the real pleasure to cordially welcome you all to this Congress and wish you not only successful formal activities, but also a pleasant and enjoyable stay in Glasgow, a town rich in its heritage and beautiful surroundings, which, I am sure, should provide you with the excellent opportunity for relaxation and enjoyment.

I cordially welcome all of you to this *3rd Global Congress on Engineering Education* and wish to thank you very much for your attention.