South East European Research Centre
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## Doctoral Study at SEERC: Kosovo scholarships 2013

### 1. The PhD programme

The PhD programme is run jointly by the University of Sheffield and the International Faculty CITY College , under a joint supervision scheme. The programme is hosted by the South East European Research Centre (SEERC), a Research Centre of the University's International Faculty based in Thessaloniki, Greece.

At SEERC there are currently two possibilities for a PhD degree:

**A) Full Time programme**. The duration is 3 years (with a $4^{th}$ year available for writing up the thesis) and it requires full time commitment on the part of the PhD student, which means that one would have to be physically present at SEERC premises located in Thessaloniki.

**B) Part Time programme**, with duration 6 years (with 2 years available for writing up). To be eligible for a part-time PhD the candidate should be able to prove significant experience in the selected field. In this case, the PhD student has the obligation for a minimum of four visits to Thessaloniki annually for supervision purposes. All other communication with supervisors occurs via e-mail and telephone.

Students applying for full-time positions on the programme must have an excellent academic record and should normally possess a Master's Degree.

Part-time students are expected to be mid-career professionals with strong educational and professional backgrounds and normally in possession of a Master's degree. Applicants for part time positions must submit proposals that demonstrate a clear linkage between their current work and their PhD topic.

### 2. Kosovo PhD scholarships

The scholarships will be awarded to five (5) qualified students for either Full Time or Part Time studies. The scholarships cover the program fees for 3 years (full time) or 6 years (part time). Students are expected to cover their travel and living expenses. **Priority will be given to applications for full time study.**

### 3. Research topics

Proposals are accepted in line with the following topics:

| Research Track 1: Enterprise Innovation and Development | |
|---|---|
| Topic 1: | Network management for innovation performance |
| Topic 2: | Economic and Political Implications of the Stabilization Processes Towards European Integration: A Quantitative and Qualitative Analysis of the Countries of the Balkan Region. |
| **Research Track 2: Information and Communication Technologies** | |
| Topic 3: | Engineering Emergence in Artificial Distributed Systems for Engineering Emergence in Artificial Distributed Systems for enabling Monitoring Networks for Health Care Systems or for Energy and the Environment |

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| Topic 4: | Wireless monitoring systems for enhancing national health services in developing regions |
|---|---|
| **Research Track 3: Society & Human Development Psychology, Politics, Sociology, and Education** | |
| Topic 5 : | Investigating executive control and attention in relation to workload in younger and older employees. |

A more detailed description of the topics is provided in the Annex

## 4. Submission of a proposal

PhD candidates need to initially submit an Application Pack which consists of: the Application Form (see also the **Guidance Notes** ), **a Research Proposal** on the topic of their preference and a detailed **CV** along with the following supporting documents:

* Two reference letters
* English Language Qualifications,
* Copies of degrees.

**PLEASE NOTE that all documentation should be written or translated in English.**

The Research Proposal should be typed, the length should be about 1,500 – 2,000 words (6 to 8 pages) and should include the following:
a) Title of the proposed thesis
b) Reference to one of the Topics (section 3)
c) Proposed mode of work (full time or part time)
d) Background to research topic
e) Specific problem(s) to be examined
f) Methods of research proposal, plan and timetable of work
g) Resources available and required (if any)
h) Any other information in support of your proposal
i) The proposal should include correct literature citations and a brief bibliography

Moreover, an electronic version of the Research proposal and the CV should be sent by **Monday June 17, 2013** by email to SEERC at phd_admissions@seerc.org

## 5. English Language Requirements

* For Research proposals on Topic number 1 please read the English language requirements of Management School at The University of Sheffield: http://www.shef.ac.uk/management/researchdegrees/apply

For all other Research Proposals: A good command of the English language is essential for postgraduate study. If English is not your first language, you must provide evidence of your language ability. In all cases the English language test should have been taken within the preceding two years. Our Standard English requirement is a minimum IELTS 6.5 (with no less than 6 in each part) – or equivalent. PhD candidates who hold an official English Language qualification will submit it with the rest of the documents by *June 17, 2013*. Those who do not hold an official English Language qualification are requested to take the English Placement Test. The date and the venue for the English Placement Test will be announced in due time.

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## 6. Selection procedure.

After the submission of the research proposals, students might be requested to present their proposal in an interview in front of the scholarship selection panel. The scholarships will be awarded based on an evaluation of their academic credentials, the merit of their proposal and the alignment of the proposal with SEERC's strategy and research interests.

## 7. Time – plan

| Submission of Application Pack and electronic version of the CV and the proposal | June 17, 2013 |
|---|---|
| Interviews | July 1 – 12, 2013 |
| Notification of scholarship award | July 19, 2013 |
| Starting date | October 2013 |

## ANNEX: Description of topics

**Research Track 1: Enterprise Innovation and Development**

**Topic 1: Network management for innovation performance**

The purpose of the PhD studies will be twofold:

a) to develop a solid understanding of the main concepts and developments in the network and social capital literatures. Networks are defined as "a specific organizational form of economic activities directed toward the realization of competitive advantages. They are characterized by complex-reciprocal cooperative rather than competitive and relatively stable relationships between legally independent corporations."

b) to apply network and social capital theories and concepts to identify important research issues in innovation management, such as compare the characteristics of innovation networks in the Balkans for a few specific industry sectors. Focus on networks that create durable horizontal/vertical strategically important linkages among different partners (university, academia, business) to improve innovation activities of them with clear regional impact.

**Topic 2: Economic and Political Implications of the Stabilization Processes Towards European Integration: A Quantitative and Qualitative Analysis of the Countries of the Balkan Region.**

The research project aims to identify and estimate the economic and political implications that stabilization and association processes have for the Balkan countries which are in the process of negotiations for their accession in the European Union. The focus of the study will be to identify all the economic and political factors which will be definitive for the faster integration of emerging countries of the Balkan region in the European Union. Moreover, the analysis will link the above mentioned factors

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with the strategies that will be necessary to be implemented in order to lift the barriers that these countries will face due to the current economic and political crisis that the European Union faces.

The candidate will have a good first degree (Class 2:1 or above) and/or a Master level qualification in social science area related to management/business studies, marketing, economics/finance. The candidate needs to have an excellent knowledge of English (IELST 7). Also, the candidate needs to be enthusiastic, hardworking, well-organised and able to prioritise work demands. She/he needs to work in a full-time basis. Previous research experience would be an advantage along with knowledge of statistical and econometrical packages (e.g. EViews, Stata, SPSS) and qualitative data analysis software packages (e.g. NVivo).

## Research Track 2: Information & Communication Technologies

### Topic 3: Engineering Emergence in Artificial Distributed Systems for Engineering Emergence in Artificial Distributed Systems for enabling Monitoring Networks for Health Care Systems or for Energy and the Environment

The last two decades the complexity or scale of some applications rose so fast that soon humans will not be able to handle. Distributed architectures offer better scalability and utilisation of resources. Therefore it seems natural that in recent years systems operating within distributed environments have experienced considerable growth in size and diversity. The last years there is a trend to be inspired by natural systems by introducing bio-inspired properties and behaviours, so that a distributed environment could become a complex adaptive system, in the sense that adaptation, resilience and self-organization will emerge as a result of simple interactions between peers. In parallel, an increasing part of the world-wide energy supply is coming from distributed generation of electricity of different sources of electric power. The aim of this work will be to investigate all the above mentioned areas and propose a bio-inspired solution based on a set of emergent self-optimising structures and processes which will be the major catalyst for efficiency, scalability and adaptability in a (fully) distributed monitoring network. The case study that will be used to demonstrate the applicability of the approach should be taken either from Helathcare systems or from the energy and environment domain. E.g. could be a monitoring sensor network that requires no human interaction, it is autonomous and the application field to be for hospitals, health care systems, smart homes or buildings, waste management etc.

### Topic 4: Wireless monitoring systems for enhancing national health services in developing regions

The recent major developments in sensor technology, wireless networking, and computer science have enabled the introduction of new solutions for healthcare provision. Nowadays, small devices can be easily built to take physical measurements. These sensors can now be cost and power efficient. These capabilities along with the sensors' small size allow embedding sensors in different everyday objects, like furniture, watches, or even clothes. In-hospital and out-of-hospital monitoring are hot research areas for long time now. Especially the ability of collecting physiological variables' values in real-time and in real-life conditions can be proved extremely useful for applying the appropriate treatment or improving the subject's wellbeing.

A special field of health monitoring that has lately gathered a lot of attention is that of wearable sensor-based systems. The increment in healthcare costs and the advances in sensors' technology have greatly affected the development of this specific research area. Different sensing devices of constrained size can be combined in such a health monitoring system. In this manner, the health status of a patient, an elderly

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person or even an athlete can be monitored seamlessly, that is without affecting the subject's daily activities, and on a constant basis. Among the expected results is high quality health service provision.

These systems actually involve sensor networks that may be formed even on or around a person's body, so they are called Wireless Body Area Networks (WBANs). The nodes of such networks are characterized of short range and low data rate. IEEE 802.15 Task group 6 is standardizing the current WBAN detailed specifications.

The main aim of this project is the development of a complete system-architecture for the efficient collection and dissemination of monitored health data on top of a health services provision infrastructure. The key objective is the integration of this system with hospital services offered in the context of national healthcare in developing regions. In order to successfully accomplish the project's goals, in depth study and analysis of the related cutting edge approaches globally is required. Moreover, knowledge of the nation's healthcare system and its structures is desired. Skills/experience on the following fields would be appreciated:

- wireless sensors
- networking modeling
- communications protocols
- network/web services
- agent-based systems
- arduino-based platforms
-

**Research Track 3: Society & Human Development Psychology, Politics, Sociology, and Education**

## Topic 5: Investigating executive control and attention in relation to workload in younger and older employees.

The EU is facing great challenges due to the economic crisis and the effect of the aging population worldwide. Organizations will be facing challenges and opportunities in the following decades that relate to the management of employees from different generations in many aspects (e.g., working together, knowledge exchange, innovation etc.). It is thus very important to investigate, with a multidisciplinary approach, working and aging particularly factors that affect job performance in older and younger adults. In doing so, it is highly important to determine strengths and weakness of different generations of employees in cognitive performance. Several studies have documented that fluid intelligence is more affected by aging than crystallized intelligence (for a review see Ypsilanti & Vivas, 2012). Horn and Cattell (1966) explained that crystallised intelligence involves general acquired knowledge and vocabulary and is related to linguistic ability and expression. Fluid intelligence refers to ability to think logically and to solve novel problems, to reason and to draw conclusions. Results from studies investigating memory difficulties in younger and older healthy workers indicated controversial results, with most studies point to idea that if memory difficulties exist they are evident after the age of 70 years (e.g., Cabeza et al., 2004; Blacker et al., 2007). Speed of processing has also been extensively investigated in older workers indicating that there is evidence for deterioration in speed with aging. This project will further explore factors that influence job performance for a cognitive psychology perspective. Specifically, it aims to investigate executive function and attention in relation to workload in younger employees using cognitive models. Since a large body of research highlights the importance of cognitive training through lifelong learning in successful ageing and increased job-related performance (Kemper, 1994; Lawrence, 1996; Schaie, 1994) it is vital to understand more about the mechanisms that support these functions. More specifically, this thesis will explore executive control, attention switching (selective attention) i.e. task management (e.g., Dismukes & Nowiski, 2007) using cognitive models in relation to workload in younger and older employees.