# THE DVELOPMENT OF A HUMAN-SYSTEMS INTEGRATION MASSIVE OPEN ON-LINE COURSE (MOOC)

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## SUMMATIVE STATEMENT:

In the proposed lecture, we will describe how we developed a massive open on-line course (MOOC) entitled “Human-Systems Integration”. The goal, the expected learners and the content of the course will be described.

**KEYWORDS:** Human-systems integration; massive open on-line course (MOOC); Campus IL; Human Factors; System Engineering.

## SUMMARY:

In the proposed lecture, we will describe the development of a massive open on-line course (MOOC) entitled “Human-Systems Integration”. The course was developed by us in the recent months and is available in Campus IL, the main MOOC platform in Israel, with the intention to produce versions for international MOOC platforms such as Coursera and Webex.

A MOOC makes the contents accessible to a large audience of potential learners who were previously not exposed to them or were partially exposed to them and can now complete their training and knowledge. The course allows learners to learn what they want at their own pace, an important flexibility that makes learning possible for a population that works and finds it difficult to make time for regular training. The course will be offered as part of academic courses, and successful completion of the course will be necessary as part of future training in the field of human-systems integration, in cooperation with various industry bodies and institutions. Up to date, there is no course in this field, in Hebrew or English. Ways to acquire this knowledge are through academic courses or training and practical training, but, in most cases, it only provides a portion of what this course includes.

The goals of developing the course were to promote an understanding of the importance of integrating human factors in the development process of systems already in the first stages of the design, and throughout the development process. The project aims to make available

to systems engineers knowledge and methodologies in the field of human factors engineering, and to help them integrate them into the design process of the system. It is also intended to enhance relevant background in the field of system engineering accessible to human factors engineering experts. In addition, the general public and industry practitioners will be able to expand their knowledge in the field of human-systems integration and system design.

The course is composed of six units. In the first unit, we introduce the learners to the concept of human-systems integration, the importance of this concept and how it contributes to the development of excellent products and systems: systems with high compatibility with the people who operate them. In the second and third units, we focus on the cognitive and ergonomic aspects of human factors engineering and on the task analysis process. In the fourth and fifth units, we dive deeper into the actions and processes that must be carried out in the life cycle of the system to ensure proper integration between human operators and technology systems. We explain how to apply the principles that were taught as part of a complex system development project process. In the sixth unit, we demonstrate the human-system integration principles and process in two case studies: virtual worlds and augmented reality training in industry.

# Biography

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**Dr. Nirit Gavish**. A Senior Lecturer and the Head of the Department of Industrial Engineering and Management at Braude College of Engineering, Karmiel, Israel, and Senior Teaching Associate at the Technion – Israel Institute of Technology.
Nirit received her Ph.D. in Human Factors and Human-Computer Interaction and her M.Sc. and B.Sc. in Industrial Engineering and Management from the Technion. Her main research domains are human factors, human-computer interaction, user experience, explainable artificial intelligence, decision-making, augmented reality, virtual reality, and cognitive training.

**Prof. Yuval Bitan**. An Associate Professor in the Department of Health Policy and Management at Ben-Gurion University of the Negev, and the founding director of SimReC - The research center for simulation in healthcare. He received his PhD in Industrial Engineering and Management (2003) from Ben-Gurion University of the Negev.
Dr. Bitan led a wide range of studies covering both theoretical and implementation aspects of clinicians' interaction with technology within the healthcare system.

**Yakir Yaniv**. Chairperson of the Israeli Human Factors and Ergonomics Association and the owner of ED&U - a human factors engineering consultancy, He is also teaching human factors engineering courses in academia. Holds a bachelor degree in mechanical engineering and a Masters in Industrial design specializing in human factors.
Yakir worked for 12 years in HP Indigo Division as a systems engineer, half of them also as human factors lead. Yakir has founded his own consultancy for human factors engineering, working mainly with companies that develop complex systems and implementing HSI in different industries for the last 18 years

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