Special Session Title
Smart Engineering Education: Concepts, Pedagogy, Systems, and Technology

Acronym
SEE'19

Overview

Smart Education, Smart University, and Smart Pedagogy innovative concepts are heavily based on implementation and active utilization of 1) artificial intelligence, 2) big data, 3) data analytics and machine learning algorithms, 4) sophisticated smart software/hardware systems and smart technology on campuses and in the classrooms, including virtual and remote labs, and 5) innovative technology-based teaching strategies and learning styles. Our approach for a design and development of Smart Education (SmE), Smart University (SmU) and Smart Pedagogy (SmP) is based on the idea that SmE, SmU and SmP – as smart systems – should demonstrate significant maturity at various "smartness" levels, including their abilities for 1) adapting, 2) sensing (awareness), 3) inferring (logical reasoning), 4) self-learning, 5) anticipating, and 6) self-organizing. This special session will call for papers with the up-to-date outcomes of on-going research, design and development projects that are predominantly focused on various topics of Smart Engineering Education, Smart Engineering University, Smart Campus and Smart Pedagogy for Science, Technology, Engineering and Mathematics (STEM). Additionally, a special part of this session will be dedicated to various aspects of accommodations for college students with disabilities in STEM education.

Topics

Smart Engineering Education
- *Conceptual frameworks*
- *Smart Learning Environments: features, infrastructure, systems, and technology*
- *Smart Classrooms: features, infrastructure, systems, and technology*
- *Virtual and remote labs*
- *Software and hardware systems, and technology*
- *Educational applications of smart technology and smart systems*
- *Smart Learning Analytics*
- *Smart assessment and testing*
- *Smart blended, distance, online and open education*
- *Requirements for instructor's skills and faculty development*
- *Best practices and case studies*
- *Partnerships, national and international projects*

- *Standards and policies*
- *Economics of smart education*

Smart Pedagogy for Science-Technology-Engineering-Math (STEM) Education
- *Conceptual frameworks*
- *Learning-by-Doing, Active Learning, and Experiential Learning*
- *Project-based Learning*
- *Analytics-Based Learning*
- *Games-Based Learning and Gamification of Learning*
- *Adaptive Learning*
- *Collaborative Learning*
- *Flipped Classroom Learning*
- *Smart curriculum and courseware design and development*
- *Best practices and case studies*

Smart University and Smart Campus
- *Conceptual frameworks*
- *Smart University: management, analytics, and quality assurance*
- *University-wide (campus-wide) smart systems and smart technology for teaching, learning, research, collaboration, communication, management, and security*
- *Smart Campus: concepts, systems, and technology*
- *Academic (institutional) analytics*
- *Best practices and case studies*

Smart University and Students with Disabilities
- *Concepts, approaches, systems, and technology*
- *International, national and regional projects*
- *University-wide assistance centers for students with disabilities*
- *Best practices and case studies*
- *National standards, policies, and procedures for college students with disabilities in STEM education*

Program Committee

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