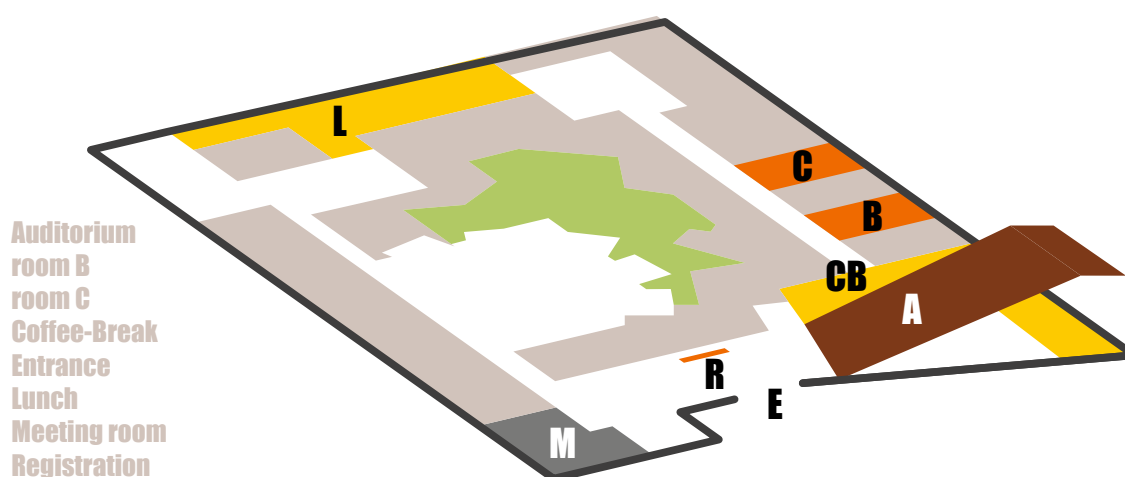


# **TECHNICAL PROGRAM**

## **Third International Conference of the Portuguese Society for Engineering Education**

**Aveiro, June 27-29, 2018**



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## Technical Program

Wednesday				June 27 <sup>th</sup>			
9h00		Registration			Lobby		
Forum session P1 chair: Bárbara Gabriel							
09h30		Opening Session Bárbara Gabriel (University of Aveiro), Gustavo Alves (SPEE)			AUD		
09h40		Forum Debate Ministério da Ciência, Tecnologia e Ensino Superior [tbc], Paulo Ferreira (Rector, University of Aveiro), Cláudia Sarrico (OECD), Bruno Abreu (UA)					
11h00		Coffee-Break					
Plenary technical session P2 chair: Robertt Valente							
11h30		Engineering education 2030 Anette Kolmos (Aalborg University, Denmark)			AUD		
12h30		Taking a scientific approach to engineering education and assessment (video presentation) Carl Wieman (Stanford University, USA)					
13h00		Lunch					
Parallel Scientific Sessions 1							
Scientific sessions 1.1 chair: Gillian Moreira							
Monitoring and Evaluation in Higher Education					ROOM		
14h00	18	Performance indicators to support the governance of research networks; Antonio Abreu, João Calado and Ana Dias					
14h15	20	Students' views and correlation regarding performance and attendance for a first year engineering cohort; Diogo Montalvao and Mihai Dupac					
14h30	33	A methodology for Virtual Reality interfaces assessment in Civil Engineering education; Fábio Dinis, João Poças Martins, Ana Sofia Guimarães and Bárbara Rangel					
14h45	49	Assessment and evaluation practices in engineering education: A global perspective; N P Subheesh and Satya Sundar Sethy					
15h00	59	Optimized methodology using multi-choice question tests on paper - From question authoring to grade publishing; Filipe Tiago de Oliveira					
15h15	66	Evaluation of group work in the Chemistry and Biotechnology laboratory; Carla A. Santos and Ana Gabriela Gomes					
Scientific sessions 1.2 chairs: Anette Kolmos							
Teaching and Learning Methodologies and Competences in Higher Education					ROOM		
14h00	75	What about using a project management Agile methodology supported by online platforms in the classroom?; Carlos Cunha and José Morgado					
14h15	60	Engineering Students perceptions on Learner Autonomy: a mixed methodology approach; Marina Duarte					
14h30	95	Professors' competences through the perspective of STEM students; Dragana Manasova, Sonja Mihajlov and Sofia Antera					
14h45	71	Civil Engineering Master hands-on challenge to motivate first-year students - CIVIL'in 2017-2018; Isabel Martins Ribeiro, António Abel Henriques, Bárbara Rangel Carvalho and Ana Sofia Guimarães					
15h00	85	Challenges in teaching electrical circuit analysis to millennials; Maria Helena Fino					
15h15	92	Civil'IN program - New first-year students support by peers on the Master of Civil Engineering; Isabel Martins Ribeiro, António Abel Henriques, Barbara Rangel and Ana Sofia Guimarães					
Special Session 1.3 chair: António Caetano							
"Teaching, Learning and Assessment in Higher Education", organised by António Caetano					ROOM		
14h00	21	Mathematics or Mathematics for Engineering?; Paula Oliveira and Paula Carvalho					
14h15	57	MOOC Técnico ways of learning (one year of online courses); Ana Moura Santos					
14h30	74	Implementing active learning through pedagogical coaching in Control Systems lectures; Alexandra Moutinho and Sofia Sá					
14h45	98	A marketing strategy to enhance active and flipped learning; Antonio Caetano					
15h00	100	Challenges and benefits in implementing problem-based learning in an elective MSc course; Margarida Pinho-Lopes					
15h15	103	Using different and complementary teaching tools in project-based learning; Joaquim Macedo and Margarida Pinho-Lopes					
15h30		Coffee-Break					

Parallel Scientific Sessions 2			
Scientific sessions 2.1 chair: Gustavo Alves			
Training of Engineers for the World and for Humanity			ROOM
16h00	5	The employment expectations of Masters Engineering students; Michelle Morgan and Ines Direito	
16h15	12	Bridging science technoloy and engineering Education: The Hands-on Science Network; Manuel Costa	
16h30	4	The role of education on the acquisition of 21st century soft skills by Engineering students; Susana Nicola, Carla Pinto and Jorge Mendonça	
16h45	28	Proposal of a new taxonomy of the psychomotor domain for to the engineering laboratory; Paulo Campos, Eugênio Castelan and Ubirajara Moreno	
17h00	32	Portuguese language, didactics and engineering: an (im)probable relationship?; Cristina Manuela Sá	
17h15	51	Nádúr Daonna (Natureza humana): An intervention to work with nature in the intellectual development of first year engineering students; Domhnall Sheridan and Michael Carr	
Scientific sessions 2.2 chair: Paula Oliveira			
Teaching and Learning Methodologies and Competences in Higher Education			ROOM
16h00	27	Use of computational thermodynamics in process engineering education - Case: HSC Chemistry and its possibilities; Eetu-Pekka Heikkinen and Antti Roine	
16h15	35	A didactic processor and simulator for IoT; Gabriel Silva, Alonso Amparo Neto and José Antonio Borges	
16h30	52	Some considerations and reflections on Engineering Thermodynamics teaching and learning; Vítor Costa	
16h45	72	Personalized student assessment based on learning analytics and recommender systems; Alexandre Gonçalves, Gustavo Alves, Lucas Carlos and Juarez Da Silva	
17h00	36	Sustainable Projects of Students: Using electronic waste to increase awareness of students; María-José Terrón-López, Carlos Quiterio Gómez-Muñoz, Verónica Egido García and David Estévez	
17h15	64	Introduction of experiment for the improvement of learning in engineering; Gabriel Gomes and Dayana Santos	
Special Session 2.3 chairs: Rui Lima and Diana Mesquita			
"Engineering Education Research", organised by Rui Lima and Diana Mesquita			ROOM
16h00	45	General satisfaction in chemical and biological engineering courses: what matters? A students' perception study; Celina P. Leão, Filomena Soares, Isabel M. Brás Pereira, Margarida Marques Ribeiro, M. Teresa Sena Esteves, M. João Meireles, Cristina Morais, Anabela Guedes, Paulo Silva, M. Nazaré Coelho Pinheiro, Laura Santos, João Peixoto, Débora Oliveira and Rodrigo Koerich Decker	
16h15	70	What's going on: Mapping the evolution of engineering education research in Europe via European Journal of Engineering Education publication; Bill Williams and Pedro Neto	
16h30	105	Engineering Education (Research) in European Countries – An overview based on publications in journals; Rui M. Lima and Diana Mesquita	
16h45	108	How Portugal is doing: a comparative look at the evolution of engineering education; Bill Williams and Pedro Neto	
17h00	6	Promoting understanding and academic success using Guided Exercises supported by ICT; Cristina Gaspar Oliveira, Joaquim Macedo and Paulo Coelho Oliveira	
17h15		open debate	
Open Forum			
17h30		HEInnovate - Stimulating and supporting change in higher education (institutions and systems) Andrea Hofer (OECD), Peter Baur (DG-EAC, European Commission)	
19h00		Sunset drink	
Thursday	June 28 <sup>th</sup>		
Plenary technical session P3 chair: Victor Neto			
09h00		Quadruple Helix: The new role of universities in the society and implications for education formats Klaus Sailer (Munich University of Applied Sciences, CEO of Strascheg Center for Entrepreneurship, Germany)	
Forum session P4 chair: Gillian Moreira			
09h45		University-Society Cooperation Andrea Hofer (OECD), Luis Reis (SONAE), José Sanchez-Gomes (Airbus), Klaus Sailer (MUAS)	
11h00		Coffee-Break	
Forum session P5 chair: Jennifer Case			
11h30		Institutional Change Peter Baur (DG-EAC, European Comission), Rovani Sigamoney (UNESCO), Pedro Mêda (EUR-ACE Label Committee), Eduardo Marçal Grilo (General Council, University of Aveiro)	
13h00		Lunch	

Parallel Scientific Sessions 3			
Scientific sessions 3.1 chair: Bill Williams			
Training of Engineers for the World and for Humanity			ROOM
14h00	94	The UCL MSc Engineering and Education:Towards formal education and training for Engineering educators; Abel Nyamapfene and David Guile	AUD
14h15	88	Industry needs in Requirements Engineering - XXI century challenges for an IT curricula; Isabel Sofia Sousa Brito, Maria Pinto-Albuquerque, Jorge Miguel Sousa Barreiros and António Miguel Rosado Da Cruz	
14h30	102	Improving the employability of graduates by strengthening the relationships between higher education and enterprises - The Erasmus+ Voyage international cooperation project; Manuel Costa, Antonio Mario Almeida, Luis Cunha and Cacilda Moura	
14h45	41	Offering engineering programs in a scenario of Brazilian political and economic crisis: The case of the Federal Institutes; Paulo Rogério Guimarães, Jalon Morais Vieira and Wagner Rodrigues Belo	
15h00	76	Mens Sana: An investigation into the relationship between psychological traits and academic success of first year engineering students; Domhnall Sioradáin and Michael Carr	
15h15	24	Designing and teaching a curricular unit to accomplish the outcomes related learning objetives; Isabel João and João M. Silva	
Scientific sessions 3.2 chair: Vitor Costa			
Teaching and Learning Methodologies and Competences in Higher Education			ROOM
14h00	81	Application of active learning techniques on Electrical Machines course in classroom environment: Pedagogical strategy and results; Silviano Rafael and Julia Justino	B
14h15	58	What is an Engineer? Students and teachers' perceptions of Physics of the 12th year; Lisete Coimbra and Carina Guimarães	
14h30	26	Perception level of hazard pictograms by future engineers; Silvia Monteiro, Kirill Ispolnov and Maria Lizete Heleno	
14h45	78	Intercultural management for engineers - A teaching design for intercultural competences in a French graduate school of Engineering; Christophe Morace and Alison Gourvès-Hayward	
15h00	13	The importance given to the ethics education of engineering students in the academic production and dissemination; Fátima Monteiro	
15h15	34	Improving the unreasonable university; Manuel Alonso, Rui Lobo, Mario Pinheiro and Joshua Spodek	
Special Session 3.3 chair: Sara Paiva			
"Social Responsibility", co-organised by IPVC			ROOM
14h00		Cristina Carita, ORSIES - Invited speaker of the opening session	C
14h15	30	Mentoring by peers: A new proposal of the Jaén School of Engineering; Angela Medina Quesada, Jose Ramón Balsas Almagro, Dolores Eliche Quesada, Elisabet Estevez, Francisco Javier Gallego and Catalina Rus Casas	
14h30	84	Social responsibility in technology promotion; Maria Emília Bigotte de Almeida and Ricardo Almeida	
14h45	87	We Won't Waste You - Design for social inclusion; Adriana Fernandes, Barbara Rangel, Jorge Lino Alves, Ana Cristina Aires Cardoso, Ana Sousa, Camelia Georgiana Butunoi, Gonçalo Marques Silva, João Bernardo Ferreira De Almeida Cardoso, João Paulo Areias Moreira De Sá, Mónica Alexandra Sousa Rocha, Mónica Sofia Rodrigues Oliveira, Rita Enes Azevedo, Rita Manuel Castro Lopes Vieira Leite, Rodrigo João Prata Baldaia and Sophia Pernbert	
15h00	111	Strategic analysis of dimensions and indicators of social responsibility in HEI - A case study in IPVC; Goretti Silva, Joana Santos, Ana Teresa Oliveira, Ana Sofia Rodrigues and Sara Paiva	
15h15		open debate	
15h30	Coffee-Break		

Parallel Scientific Sessions 4			
Scientific sessions 4.1 chair: João Dias-de-Oliveira			
Monitoring and Evaluation in Higher Education			ROOM
16h00	101	Assessment of quality of teaching and learning for 1st year engineering programmes – An initial contribution; Carla Ferreira, Margarida Pinho-Lopes and Isabel Huet	AUD
16h15	109	Towards excellence in engineering education: The profile of Higher Education teachers on engineering programs; António Andrade-Campos, Barbara Gabriel, Gillian Owen Moreira, João Dias de Oliveira, Robertt Valente and Victor Neto	
16h30	93	Industrial engineering and management at the University of Aveiro: a 30 year journey; Ana Raquel Xambre, Helena Alvelos, Leonor Teixeira and Maria João Rosa	
16h45	79	Massive Open Online Courses design: Guidelines to enhance user experience; Isaura Ribeiro	
17h00	42	Project- and experienced-based learning for communication skills development: analysis of complementary studies courses for engineers; Artur de Matos Alves and Matthew Harsh	
17h15	67	Educational innovations in Engineering education sustainability of financed projects developed in Portuguese higher education institutions; Cecília Guerra and Nilza Costa	
Scientific sessions 4.2 chair: Joaquim Macedo			
Teaching and Learning Methodologies and Competences in Higher Education			ROOM
16h00	82	Teaching mathematics in tertiary education through collaborative work; Júlia Justino and Silviano Rafael	B
16h15	110	Promoting IoT education for pre-university students with coloured QR codes; Rute Ferreira, João Ramalho, Rita Amante, Miguel Amaral, Joana Cardoso, Inês Ferreira, Joaquim Almeida and Paulo André	
16h30	63	Application of QCA method to GUESS data in search of factors' configurations behind engineering students' entrepreneurial intention; Pierluigi Rippa, Gabriella Ferruzzi, Marian Holienka, Alicia Coduras and Guido Capaldo	
16h45	68	Multiple approaches to the economic dispatch problem - A pedagogical perspective; Celia de Jesus and Luis Ferreira	
17h00	2	Technical museum as a contribute to Civil Engineering education; Alcinia Zita Sampaio	
17h15	3	Historical evolution of Technical Drawing in engineering; Alcinia Zita Sampaio	
Special Session 4.3 chair: Alfredo Soeiro			
"Evaluation of Learning and Certification of Competencies in Engineering", organised by Alfredo Soeiro			ROOM
16h00	7	CALOHEE: Learning outcomes and assessment in Civil Engineering; Alfredo Soeiro	C
16h15	31	Transversal and transferable skills training for engineering PhD/doctoral candidates; José Coelho Rodrigues, Ana Freitas, Marie-Pierre Favre, Catarina Maia and Paulo Garcia	
16h30	86	Mind the gap: Bridging the transversal and transferable skills chasm in a public engineering school; Ana Freitas, Helena Lopes, António Augusto de Sousa and Paulo Garcia	
16h45	15	Portuguese academic staff and students in UK's engineering higher education; Ines Direito and Stella Fowler	
17h00	open debate		
17h30	Social program - Visit to "Museu do Brincar"		
20h00	Conference Banquet		

## Parallel Scientific Sessions 5

## Scientific sessions 5.1

chair: Maria Manuel Nascimento

Engineering Courses and Curricula			ROOM
09h00	11	Gender differences in first-year students' expectations towards a new engineering multidisciplinary curriculum; Ines Direito, Emanuela Tilley and John Mitchell	AUD
09h15	29	Investing in entrepreneurial skills - Creating an entrepreneurial mind-set amongst engineering graduates; Angela Hamouda and Ledwith Colman	
09h30	14	Strategy for promoting academic success in higher education - Methodology for the early drop out detection; Rita Pereira and Cristina Borges	
09h45	38	Maintenance in civil engineering course and learning methodologies; Inês Flores-Colen and José Carvalho	
10h00	83	Students learn while teaching; Joao Matos, Pedro Martins and Duarte Dias	
10h15	96	The transversal skills agenda: profiles for mechanical and industrial engineers; Marcelo Gaspar and Margarida Morgado	
10h30	open debate		

## Scientific sessions 5.2

chair: Maria Rute André

Physical and Digital Technologies in Engineering Teaching and Learning			ROOM
09h00	46	On the motivational aspects of serious games; Andreas Hartmann	B
09h15	54	Evolving pedagogical artefacts; Matthew Montebello, Mary Kalantzis and Bill Cope	
09h30	77	Dew point humidity sensor for instrumentation engineering classes; Luis Mourão, Luis Coelho, Marta Barbosa, Marta Torres, Pedro Moreira and Sofia Magalhães	
09h45	90	Implementation of a PBL/CDIO methodology at ISEP-P.PORTO Systems Engineering Course; José Manuel Magalhães, Alberto Manuel Peixoto Pinto, Maria Teresa Costa and Christopher Alves de Sá	
10h00	97	Using 3D technologies in materials teaching - Engaging students in early R&D activities; J. Luís, J.M. Oliveira and A. Silva	
10h15	62	Multimedia teaching aid to laboratory tasks on analog communication training setup; Karel Perutka and Christian König	
10h30	open debate		

## Special Session 5.3

chair: Gustavo Alves and Vanderli Fava Oliveira

(presentations in Portuguese)

			ROOM
09h00		Vanderli Fava de Oliveira, Presidente da ABENGE	C
09h15	17	Experiência na implementação de trabalhos em ambiente empresarial no 1º ciclo de estudos em Engenharia Civil; Diogo Ribeiro, Teresa Neto, Ricardo Santos and Maria de Fátima Portela	
09h30	25	Usando atilhos para ensinar resistência dos materiais a partir da Aprendizagem Baseada em Problemas (ABP); Luciano Andreatta-da-Costa and Jorge Gonçalves	
09h45	89	Cursos Técnicos de áreas afins à Engenharia no Ensino Superior; Carmen Guimarães, Dina Seabra and Fernando Costa	
10h00	39	Significant and autonomous learning of scientific writing by active methodologies in Portuguese language classes; Renata dos Santos	
10h15	65	Strength of materials laboratory of the civil engineering department at ISEP; Madalena Serpa Marques, Maria de Fátima Silva, Carlos Félix and António Pestana	
10h30	10	A program to promote mathematical knowledge for students' integration in Engineering degrees: CeAMatE; Emilia Bigotte and João Branco	
10h45	50	New approaches to strength of materials teaching using different tools; Luciano Andreatta-da-Costa and Daniel Cortinovis	

11h00 Coffee-Break

## Plenary technical session P6

chair: Bárbara Gabriel

11h30	A critical engagement with excellence in engineering: Centring powerful knowledge, teaching and learning Jennifer Case (Virginia Tech, USA)		AUD
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12h30 Prizes Award and Closing session  
Bárbara Gabriel e Gustavo Alves

AUD

13h00 Lunch