

# **2015 International Conference on Interactive Collaborative Learning (ICL 2015)**

**Firenze, Italy  
20-24 September 2015**

**Pages 1-642**



**IEEE Catalog Number: CFP1523R-POD  
ISBN: 978-1-4799-8708-5**

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
Students' self-making videos for the tandem learning of two engineering courses	1–4
Engineering Design Thinking: High School Students' Performance and Knowledge	5–12
Using a Career Conference to Promote Advising in the Freshman Curriculum	13–20
The Role of the Facilitator in a Project/Design Based Learning Environment	21–24
Mapping the development of Quality Sensuous Response through Blind and Visually Impaired Group (BVI) Touch Interaction	25–29
Work in Progress: All Round Questionnaire (ARQ) as the Tool for Raising Quality of Teaching	30–33
Training evaluators for programme accreditation and engineers certification	34–37
Interactive Learning Methods: Leveraging Personalized Learning and Augmented Reality	38–38
Work-in-Progress: SUTD Winter Abroad Program at MIT. Collaborative Learning as a Pathway towards Institutional Transplantation	39–42
Capacity Building Approach for EUR-ACE Accreditation in Central Asia. QUEECA TEMPUS Project Advancements	43–47
Implementing a Remote Experience for Engineering Education	48–50
Work-in-Progress: European Platform for Innovation and Collaboration between Engineer Students (EPICES)	51–55
Poster: Implementing a context-awareness ubiquitous learning environment - a case study of 921 Earthquake Museum of Taiwan	56–59
Using high brightness LED to design the practical teaching aid and demonstrating the mixture of colored light	60–62
Implementation of the system of education quality management and accreditation of educational programs at Tashkent State Technical University	63–68
Mentoring Tasks in Technical Teacher Training	69–70
Is video streaming a solution to the teacher-student / student-student synchronous communication in Physics blended learning courses?	N/A
Adolf Melezinek as the founder of the Klagenfurt school of Engineering Pedagogy	75–78
Blended learning activities development	79–81
Engineering Education for a Resilient Society: A Case Study of the Kingdom of Saudi Arabia	82–88
Elementary School Students' Conceptions of Engineers: A Preliminary Study	89–92
How accreditation agencies can help the necessary change of HEI's towards sustainable development practices	93–98
Dilemmas of Student Technical and Social Science Thinking	99–101
Procrastination: one of the student's worst enemies?	102–104
Modular approach to teaching ESP in engineering programs in Russia	105–108
Building professional competencies of transport engineers in the framework of project cooperation with employer companies	109–113
Learning by TKF to promote computational participation in Japanese education	N/A

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
Augmenting Mathematics Courses by Project-Based Learning	124–127
Social Learning Environments	128–131
Too old to learn? – Specific needs of senior learners	132–136
Creative Students Need Creative Teachers – Fostering the creativity of teachers: a blind spot in higher engineering education?	137–140
Development of cross-cultural and communicative competence of engineering students as one of the key factors of academic and labor mobility	141–145
ICT Needs and Trends in Engineering Education	146–149
Roles and Effects of Human Network of Supporting Experts out of Niigata University to Practical Engineering Education	150–154
How to support technology education: what does the practice in Slovakia show	155–162
Social Responsibility in Engineering Organizations	163–168
Mobile-assisted language learning in technical and engineering education	169–176
EdTech competence of engineering university professors. Research on pshychology and education	177–180
MYTH OF AN IDEAL TEACHER? (Prepossessions and reality)	181–183
New Components of Educational Path for a Modern Engineer	184–187
TEACHER SPECIALISTS: „AUTHORITY“ IN RELATION TO SOCIAL COMPETENCE	188–190
Achieving focused Program Outcomes through Center of Excellence (COE) Approach	N/A
IPTV and Cultural Probes: A qualitative explorative study for the development of an interface for learning	197–204
Expectations of the Generation NeXt in Higher Eduction - Learning Engagement Approaches in Information Science Subjects	205–214
Student's moral development in the engineering university environment	215–219
Technical and engineering graduates on the labour market	220–225
"Integrative foreign language course" for the professional purposes in oil and gas branch	226–229
Creative Learning Formats in order to integrate Social Media and Mobile Devices into Classroom Teaching	230–236
Building a Quality System of Technical and Vocational Education in Slovakia Towards a European Labour Market	237–243
Global trends in higher education and thier impact on engineering training in Russia	244–250
Continuous professional education as an instrument for development of industry employees' innovational competences within regional territorial-production	251–255
Psychological aspects of engineers' training in a technical higher educational institution	256–262
Information and Civil Society: Problem Statement	263–270
Semantic-Web Automated Course Management and Evaluation System using Mobile Applications	271–282

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
The Practice of CSCL in Engineering Education within the Research on TEL	283–286
What influences students to use cloud services? From the aspect of motivation	287–290
Usage of «Flipped Classrooms» in English Teaching of Future Oil-Industry Technicians	291–295
Final project of graduate engineers as realization of principle of combinatory when teaching English in distant form	296–298
An Opportunity in Engineering Education: Russian BYOD Tendencies	299–304
The impact of creatid textbook related to quality of the educational process	N/A
Developing a Mobile Instant Messaging System for Problem-based Learning Activity	313–316
Science Towns in Russia: Challenges for Legal Regulation and Importance for Engineering Education	317–320
Increasing Diversity in Higher Education by Examining African-American STEM Mentors' Mentoring Approaches	321–326
Introducing PLM at Austrian Secondary Colleges of Engineering	327–329
Build-up Virtual Laboratory for Reinforced Concrete Structures to Enhance Understanding Design Requirements	330–333
Using Accreditation Criteria for Collaborative Quality Enhancement	334–341
Analysis of the results of research focused on applicants interest in the study specialization Teacher of technical subjects at the University of Hradec Kralove	342–346
Assessment of Interaction in Multinational Projects: A Comparison Based on Geographical Location	347–354
What users want: functional user experience	355–360
COLLABORATIVE LEARNING: PLUSES AND PROBLEMS	361–364
Sustainable Economic Development in BRIC Countries Through Engineering Education	365–368
Business Intelligence in e-learning	369–375
Corporate MOOCs	376–377
Global Diversity in Engineering Education – An exploratory analysis	378–388
Replacing a traditional lecture class with a jigsaw class to teach analysis class diagrams	389–392
Curriculum design and development of master's educational programs in IT area (through the example of international development of master programs	393–396
GLOBAL CHALLENGES AND PROBLEMS OF RUSSIAN ENGINEERING EDUCATION MODERNIZATION	397–400
Problems of formation and development of engineering education in Central Asia in the context of the new program of industrial and innovative development on	401–403
Results and Problems of the Bologna Process in the Russian Education	404–406
Project Based Learning for Urban Design Education: Resilient Cities Under Rapid Urban Change, the case of Doha, Qatar	407–412
Attractive Engineering Research Program for International Exchange Students	413–420

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
Promoting collaborative interactions in a learning management system	421–430
Foreign Language Training For Technical Teachers	431–433
Integration of the Study Programmes' Quality Assurance to the Internal Quality Management System in Russian Universities	434–436
Improving the quality of engineering education by controlling the incoming contingent	437–440
Faculty development programme based on CDIO framework	441–447
Multifunctional centres of applied qualifications: essential characteristics and definitions	N/A
New challenges in engineering education: Personal advancement for better marketability of future professionals	452–454
Clean Village and Engineering Education	N/A
Informatics as a part of study programmes in economy and management	462–470
Competency-build approach to the unitizing of vocational schools	471–476
Interactive Educational Methods of Engineering Pedagogy against Technical Teachers Emotional Burnout	477–486
Strengthening Engineering Education in Brazil	487–494
Development of a high school computer science learning tool for bit synchronization in network protocols	495–502
The research of the engineering pedagogy	503–507
TODAY'S KEY GLOBAL TRENDS IN ENGINEERING EDUCATION: PREPARING FRESHMEN FOR NANOTECHNOLOGY	508–510
Teaching math through blended learning	511–514
Framework for Development of Cognitive Technology for Children with Hearing Impairments	515–522
Ways of Delivering Tacit Knowledge in e-Learning	523–526
Learn programming through a business project: engineering education in financial IT case	527–532
Career-building training as a component of talent management	533–535
The Application of Virtual Reality Technologies in Engineering Education for the Automotive Industry	536–544
Preparation for Information Processing of Mentor Teachers	545–548
The siLang window to interaction - A game-based case study with Vocational High School learners	N/A
"Who says I can't make my story come true?" - A K-12 digital story based instructive scenario	N/A
Network education as a factor of increasing of professional mobility of students	N/A
ENGINEERING EDUCATION IN KAZAKHSTAN: PROBLEMS AND PROSPECTS	571–579
Experiences from field research on technology education at ISCED level 2	580–589

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
The role of international cooperation in ensuring the quality of engineering education in Central Asia within the project TEMPUS QUEECA	590–592
Understanding Methodological Solution In Design Situation Of Novice Designer	593–597
Determining priority of self-regulated learning ability development for engineering college students using IPA	598–601
Student Questionnaire – can we trust it?	602–607
Identifying Knowledge-building Phases in Computer-supported Collaborative Learning	608–614
Interdisciplinary education in vocational education and training	615–619
Fostering Creativity in Technological University: Conception of Creative Metasystemic Integrative Methodology	N/A
Accomplishment of quality-based objective for Social Integration and Regionalization in Minerva Academic Model	627–636
Energy transformation in everyday devices taught to primary school children, using web-based software	637–642
The effect of teaching electric circuits switching from real to virtual lab or vice versa – A case study with junior high-school learners	643–649
Learning difficulties screening web application	650–654
Blended learning in Software Engineering Education: the Application Lifecycle Management Experience with Computer-Supported Collaborative Learning	655–662
The implementation of the elements of computer aided design with emphasis on link between theory and practice	N/A
Peer Assessment Based Assignment to Enhance Interactions in Online Learning Groups	668–672
Development of Freshman Engineering Discovery Courses Integrated with Entrepreneurially Minded Learning	673–680
Preparing bachelors for creative professional activity in the course of training in an engineering university	681–684
Visual Scaffolding for Encouraging Online Participation	685–688
Assessment of the CDIO Syllabus learning outcomes: from theory to practice	689–694
Performance criteria of learning math tests	695–698
Resilience Engineering: A Report on the Needs of the Stakeholder Communities and the Prospects for Responsive Educational Programs	699–702
17 year evolution of the students' perspective on innovative teaching, curricular development and e-learning in Europe	703–708
From the Fundamentals to the Praxis: Constructing a Different Engineering Education to Make Our World a Less Risky Place	709–718
Including the energetic and water supply crises discussion in a first-year course of Electrical Engineering Program of University of São Paulo	719–721
A Benchmark for Curricula in Engineering Education: The Leonardic Oath	722–724
Multilevel system of vocational pedagogical education	725–728
Looking Beyond One's Own Nose Right from the Start – Interdisciplinary Study Projects for First Year Engineering Students	729–732
Environmental Tendencies in Engineering Education	733–736

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
MATHEMATICS AND PHYSICS - BASIC OF THE STUDY OCCUPATIONAL SAFETY AND HEALTH AT WORK	737–741
Innovation of the Occupational Health and Safety Study Programme	742–747
Innovation in Engineering Education at University College Dublin, Ireland	748–753
A successful approach to study skills: the 'Pupils' Academy' with Go4C	754–763
Learning Strategies for Small Groups of Professionals	764–770
Exploring Visual Literacy as a Global Competency: An International Study of the Teaching and Learning of Communication	771–778
The Evolution of E-Learning Platforms from Content to Activity Based Learning. The Case of Learn@WU	779–784
IoT-DESIR – A case study on a cooperative learning experiment in Sardinia	785–792
Integration of Virtual Instrument Systems in Reality (VISIR) OpenLabs with Khouribga OnlineLab	793–797
Effectiveness of Jigsaw Based Cooperative Report Writing in Vocational High School	798–802
The Blended Learning Study On Corporate training Project Planning	803–808
Computer Supported Collaborative Learning: A Business Simulation using Social Media	809–814
The flipped classroom in engineering education: A survey of the research	815–818
Merging Engineering and Art – What are the Real Lessons?	819–826
MaSciL Project, or How to Improve the Interest in Engineering Studies and Professions of Primary and Secondary School Learners	827–831
Design of a project based active cooperative course to develop and assess safety and security cultures in undergraduate nuclear engineering programs	832–837
Assessing the Role of AR-Based Content in Improving Learning Performance Considering Felder-Silverman Learning Style	838–843
Self-regulated learning and learning style – A longitudinal research in the area of vocational education	844–853
Preferences and uses of a remote lab from the students' viewpoint	854–857
Cross Cultural Diversity between Western Cultures and Its Impact on Educating Global Engineers	858–862
How Self-Concept and Self-Efficacy Relate to Achievement Outcomes : New Technology-Based learning Models for Science and Technology Universities	863–870
The instructional design of integrative STEM curriculum: A pilot study in a robotics summer camp	871–875
An Interactive E-book Application in Musical Production of University Theatre Department	876–882
Academic-industry partnerships: Developing new concepts in student engineering industry experience	883–885
Lifelong learning in the professional practice	886–894
Engineering Accreditation and Professional Competence in Ireland and Brazil - Similarities, Differences and Convergence in a Global Context	895–903
Web Application for Graph Data Visualisation in Computer Science Courses	904–910

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
A New Didactic Method for Programming in C for Freshmen Students Using LEGO Mindstorms EV3	911–914
Role of ICT enabled Virtual Laboratories in Biotechnology Education: Case studies on blended and remote learning	915–921
A cross-cultural exploration of spatial visualisation abilities of first year STEM students	922–926
Implementation of the model of environmental engineers' professional competence formation	927–928
Formative assessment diversity to foster students engagement	929–935
Paper Mechatronics: a Material and Intellectual Shift in Educational Technology	936–943
Strategies to Enhance Learner's Motivation in E-learning Environment	944–949
Approaches to Training of Engineering Program Students for Innovative Activity	950–952
NETWORKING IN ENGINEERING EDUCATION: CASE STUDY OF RUSSIA AND VIETNAM	953–956
Reshaped partnership and good practise in engineering education	957–963
A Final Touch for the Environmental Engineering Students at the Onset of their Profession: the Senior-Year Graduation Design Project – Case Study for 2014	964–969
Collaborative learning techniques for developing communicative competences in large classes of engineering university students	970–974
Engaging Games with Computer Science Underlying Concepts	975–979
Peer Assessment on Presentations of "Real World" Information Systems Case Studies by Students	980–982
Mixed strategies for motivation and retention of entrants	N/A
Global Innovation Network for Entrepreneurship and Technology: Next Steps	989–991
Collaborative Learning through local and regional entrepreneur proposals from the UNAJ Engineering and Agronomy Institute	992–998
Ethical and Legal Model for Technological Surveillance System	999–1006
Competences that facilitate the achievement of the objectives of an introductory programming course	1007–1012
Meaning and benefits of the EUR-ACE label: Portuguese Higher Education Institutions	1013–1017
University as a Center of Project-Based Learning of School Students	1018–1021
Capacity Building for Engineering Education	1022–1025
Digital Citizen in a Resilient Society	1026–1030
Is mathematical background crucial to freshmen engineering students?	1031–1035
Environmental issue through the international accreditation of engineering education	1036–1043
chair CEAPI	1044–1046
Introducing PLM to engineering design education at Secondary Colleges of Engineering - a students' view	1047–1050



## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
Achieving earthquake resilience through design for all	1051–1058
An Example of teaching slope stability from true case histories: three year experience	1059–1064
Civil engineering education programs - state-of-the-art in Poland	1065–1074
Infrastructure Resilience: Definition, Calculation, Application	1075–1078
Summary of Developments in the Civil Engineering Capstone Course in Taiwan	1079–1083
LEARNING FROM THE OBSERVATION OF FAILURES	1084–1090
Advanced training in French with practical application in professional and scientific activities at KNRTU	1091–1092
Disrupting Engineering Education to Better Address Societal Needs	1093–1097
Engineering Education in China	1098–1101
Klagenfurt School of Engineering Pedagogy by Adolf Melezinek as the Basis of Teaching Engineering at Tallinn University of Technology	1102–1111
THE CURRENT STATUS OF ENGINEERING EDUCATION IN INDIA	1112–1116
Teaching to Foster Critical & Creative THINKing at North Carolina State University	1117–1119
Work-in-Progress: Consolidating Engineering Education Discipline at Polytechnic School of University of São Paulo	1120–1123
Investigation of Pathways to Successful Employment Through a Graduate Survey	1124–1125
Engineering Education in Russia: Challenges	1126–1129
Accuracy of Self-assessment Among Graduate Students in Mechanical Engineering	1130–1133
Peer Led Learning in STEM disciplines	1134–1135
A temporal estimation of students' on-task mental effort and its effect on students' performance during computer based testing	1136–1144
Contribution to reducing of the effects of geographical separation between actors of virtual universities: Proposal of an IP-SMSC integrating value-added	1145–1150
Remote Laboratory experience for STEM education:the case of Senegal Virtual University	N/A
Mobile Technologies in Engineering Education	1157–1164
Adolf Melezinek as the Supervisor of Doctoral Thesis Based on Klagenfurt School of Engineering Pedagogy	1165–1165
Work in progress: Innovative Masters Program "Safety of Civil Engineering Critical Infrastructures and Territories"	1166–1170
Coding with Scratch: The design of an educational setting for Elementary pre-service teachers.	1171–1177
Engineering Education in Brazil	1178–1180
Implementation of Mentoring System in College For Smooth Transition to Work	1181–1183
Creativity in STEM Education: Reshaping the Creative Project	1184–1189

## 2015 International Conference on Interactive Collaborative Learning (ICL)

### Table of Contents

Title	Page range
Remote PID Control of Tank Level System	N/A
Collaborative Learning and Virtual Laboratories.A New Teaching and Learning Model in the International Telematic University UNINETTUNO's 3D Island of	1194–1197
Soft Skills for Science and Technology Students - A pedagogical experience	1198–1202
"History and geography of water": an online interdisciplinary course on water value	1203–1205
Working Paper: Ethical Leadership in Engineering Education in Africa: The Case of Ashesi University College	1206–1207
Understanding adaptive capacity to extreme events and climate change in urban areas	1208–1208
Talking about mentoring relationships from the perspectives of PhD students: A conceptual model development	1209–1215
Tablet PCs and Slate Devices Can Improve Active Learning Classroom Experiences	1216–1216
A STEM MOOC for School Children – What Does Learning Analytics Tell us?	1217–1221
Two fold evaluation of academic open courses in STEM education - The case of TEI EMT	1222–1226
Behind the Wall Earth pressure on retaining structures	1227–1230
DIGITAL CREATIVITY PECULIARITIES IN THE CASE OF REMOTE EXPERIMENT	1231–1234
Reorganizing the industrial robotics laboratory for spatial training of novice engineering students	1235–1241
Towards a definitive virtual laboratory	1242–1247