1. Record Nr. UNINA9910865286103321

Autore	Auer Michael E
Titolo	Smart Technologies for a Sustainable Future : Proceedings of the 21st International Conference on Smart Technologies and Education. Volume 1
Pubbl/distr/stampa	Cham : , : Springer International Publishing AG, , 2024 ©2024
ISBN	9783031618918 9783031618901
Edizione	[1st ed.]
Descrizione fisica	1 online resource (370 pages)
Collana	Lecture Notes in Networks and Systems Series ; ; v.1027
Altri autori (Persone)	LangmannReinhard MayDominik RoosKim
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Committees -- Contents -- Engineering Education of the Future -- Fostering Experiential Learning and Situational Awareness Via Reporting and Broadcasting About Pilot Projects -- 1 Introduction -- 2 Literature Review -- 2.1 Information Flow and its Potential Impact on Situational Awareness in AEC Projects -- 2.2 Situational Awareness in Academic context and the role of Experiential Learning -- 3 About the Case -- 3.1 Pre-pilot study - SMART Team Monitoring a yearlong AEC Project -- 3.2 Pilot Study 1 - SMART Team to Monitor the Project Status of a Renovation Project -- 3.3 Pilot Study 2 - SMART Team to Monitor the Project Status of a Simulated Lab-based Construction Project -- 4 Discussions and Limitations for the Study -- 5 Conclusions for the Study -- References -- Real Estate Insights: A Boardgame-Based Experiential Learning Approach -- 1 Introduction -- 2 Literature Review and Identification of Factors -- 2.1 Unveiling the Dynamics of Real Estate Investment - the Literature Review -- 2.2 Integrate Real Estate Factors in Gameplay -- 3 Information About Game -- 4 Research Methodology -- 5 Discussions -- 6 Preliminary Results and Findings -- 7 Future Work -- Appendix --

References -- Heating System Case Study for Simulation-Based Control System Analysis -- 1 Introduction -- 2 Case Study: Heating Process -- 2.1 Grey-Box Model -- 2.2 Linear Black-Box Model -- 3 Designing Controllers -- 3.1 PI Control -- 3.2 Experimental Evaluation -- 4 Control System Analysis -- 5 Conclusions and Future Work -- References -- Perceived Importance of Laboratory Learning Objectives by Female and Male Engineering Students -- 1 Introduction -- 1.1 Constructive Alignment -- 1.2 Working World 4.0 and Laboratory Education -- 1.3 Goal of this Work -- 2 Method -- 2.1 Student Sample -- 3 Results -- 3.1 Descriptive Statistics.
3.2 Examination of the Scale of all Learning Objectives -- 3.3 Gender Influence -- 3.4 Qualitative Results -- 4 Discussion -- 5 Conclusion -- References -- Automated Code Readability Feedback on Student Awareness -- 1 Introduction -- 2 Related Work -- 3 Method -- 4 Results and Discussion -- 4.1 Overall Findings -- 4.2 CS1 Level Findings -- 4.3 CS2 Level Findings -- 4.4 Advanced Level Findings -- 4.5 Relationship Between Code Readability Awareness and Programming Level -- 4.6 Discussion and Recommendations -- 5 Conclusion and Future Work -- References -- An Easy-to-Use Experimental Platform for Advanced Control Teaching in Wuhan University -- 1 Introduction -- 2 Design and Implementation of the Easy-to-Use Experimental Platform -- 2.1 Physical Hardware Setup -- 2.2 Specific Simulink Module Design -- 2.3 Data Transmission -- 3 Application of the Easy-to-Use Experimental Platform in the Advanced Control Teaching -- 3.1 Curriculum Set with the Experimental Platform -- 3.2 Experimental Case -- 4 Conclusion -- References -- LLM Integration in Workbook Design for Teaching Coding Subjects -- 1 Introduction -- 2 Prior Work -- 2.1 Prompt Engineering -- 2.2 Online Supportive Tools -- 2.3 Instant Verification and Feedback -- 3 Design Methods -- 3.1 Chain of Thought -- 3.2 Persona-Based Counterarguments -- 4 Experimental Design -- 4.1 Description of the Use Case -- 4.2 Methodology of Implementation -- 4.3 Knowledge Base -- 4.4 Evaluation Metrics and Data Collection Methods -- 4.5 Main Concerns -- 5 Conclusions -- References -- A Research-Led Contribution of Engineering Education for a Sustainable Future -- 1 Introduction -- 2 Research Questions -- 3 Methodological Approach -- 3.1 Design-Based Research Approach -- 3.2 Systematic Literature Review -- 4 Results of the Analysis of Concepts for Sustainable Technology Education.
5 Development of a Concept for Sustainable Technology Education -- 5.1 Learning Objectives -- 5.2 Development of a Concept for Sustainable Technology Education -- 6 Summary -- References -- IoT Laboratories Based on Reconfigurable Platform with Analog Coprocessor -- 1 Introduction -- 2 Exploring PSoC Analog Coprocessor Pioneer Kit and PSoC Creator for IoT Projects -- 2.1 PSoC Analog Coprocessor Pioneer Kit and PSoC Creator Overview -- 2.2 IoT Projects with PSoC Analog Coprocessor Pioneer Kit and PSoC Creator -- 3 Augmenting Sensing Component of PSoC Analog Coprocessor Pioneer Kit and Further Considerations -- 3.1 PSoC Analog Coprocessor Pioneer Kit and Other Sensors -- 3.2 Further Developments with PSoC Analog Coprocessor Pioneer Kit, LabVIEW and NI ELVIS -- 4 Conclusions -- References -- Open-Source Software and Digital Sovereignty -- 1 Introduction -- 1.1 Sovereignty and Control -- 1.2 Approach -- 2 Method -- 2.1 Assessment Criteria -- 2.2 Mapping -- 2.3 Software Review -- 3 Results -- 3.1 Transparency and Collaboration -- 3.2 Implementation -- 3.3 Assessment -- 4 Conclusion -- References -- Demand for Future Skills: Education on AI in Comprehensive Digital Business Development, Big Data Analytics, and Ubiquitous Approach

to Data in Business -- 1 Introduction -- 2 Impact and Needs -- 2.1 Survey Description -- 3 Problem-Solving Techniques in AI -- 3.1 Big Data Analytics -- 3.2 Recommender Systems Based on NLPs and Image Analysis -- 4 Results -- 5 Conclusion -- References -- University 4.0: The Future of Higher Education in the Age of Technology -- 1 Introduction -- 2 Evolution of Education 4.0 -- 3 Learning in University 4.1 -- 4 Approach -- 5 Results and Discussion -- 6 Conclusions -- References -- The Role of Online and Traditional Laboratories in the Context of Modern Engineering Curricula -- 1 Introduction -- 2 Frameworks.
2.1 Practical and Laboratory Learning -- 2.2 Engineering Education and Accreditation Requirements -- 2.3 Digital Revolution -- 2.4 Project-Based Learning -- 3 Methodology -- 4 Data Analysis -- 4.1 Instrumentation -- 4.2 Models -- 4.3 Experiment and Data Analysis -- 4.4 Learn from Failure -- 4.5 Psychomotor and Sensory Awareness -- 4.6 Safety -- 4.7 Ethics in the Lab -- 5 Observations and Future Work -- 6 Conclusions -- References -- Work-in-Progress: Technology-Driven Introductory Phase in Engineering Sciences for Sustainable Individual Support of Students' Academic Success -- 1 Introduction -- 2 Methodology and Research-Based Objectives -- 3 Design of the Technology Oriented Initial Phase -- 4 Exemplary Concept Modules -- 4.1 Matlab Grader -- 4.2 Embedded Systems I/O: Interrupts and Polling -- 4.3 Implementation and Further Research Focus -- 5 Conclusion and Further Steps -- References -- Will My Job Be Automated? Fathoming Current and Persisting Impediments for Automation -- 1 Introduction -- 2 State of the Art -- 3 Method -- 4 Results -- 5 Conclusion -- References -- Industry 4.0 and Education -- Implementation of an Industry 4.0 Module in the International Educational Project ERASMUS+ WORK4CE -- 1 Motivation and Purpose -- 2 Methodology -- 3 Actual and Anticipated Outcomes -- 4 Conclusion -- References -- Educational Advancement of an Industrial Automation Course: Combining Simulation with Physical Experience -- 1 Introduction -- 2 Materials and Methods -- 2.1 Setups -- 3 Educational Value -- 3.1 Application in Lectures -- 3.2 Student Feedback -- 4 Discussion -- 5 Conclusion -- References -- Enhancing Industrial Automation and Control Systems Cybersecurity Using Endpoint Detection and Response Tools -- 1 Introduction -- 2 Related Work -- 3 Chosen PLC Platform -- 4 Water Tower Cyber-Physical System -- 5 Implementation of the Chosen EDR Solution.
5.1 Impact of the EDR Tool on Real-Time Performance of the PLC -- 6 Conclusion and Future Work -- References -- Digital Twins and Model-Based Design for New Vehicle Engineering -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 4.1 Hardware Setup -- 4.2 General Approach -- 5 Conclusions -- References -- Evaluation Design for Cross-Reality Laboratories -- 1 Introduction -- 1.1 Principles of Education -- 1.2 Cross-Reality Laboratories -- 1.3 Evaluation of Laboratory Education -- 1.4 Aim of this Paper -- 2 Method -- 2.1 Evaluation Design Development -- 3 Results -- 3.1 Quantitative Items -- 3.2 Pre-face Validity -- 3.3 Pre-pilot Testing -- 3.4 Pre-pre-Testing -- 3.5 Qualitative Items -- 4 Discussion -- 4.1 Next Steps -- References -- Introducing Aviation Technological College Students to Online Collaborative CAD Design -- 1 Introduction -- 2 The Workshop -- 3 The Study -- 4 Findings -- 4.1 Characteristics of LOCD -- 4.2 Workshop Contribution -- 5 Conclusion -- References -- Education for Industry 4.0: Introducing Engineering Students to Cloud-Based Collaborative Design -- 1 Introduction -- 2 Engineering Courses Dedicated to Industry 4.0 -- 3 The Study -- 4 Findings -- 5 Conclusion

-- References -- Predictive Maintenance and Production Analysis in Smart Manufacturing -- 1 Introduction -- 1.1 Manufacturing Types -- 1.2 OEE - A Key Parameter for Smart Manufacturing -- 2 Objectives -- 2.1 Predictive Maintenance in Discrete Manufacturing -- 2.2 Production Analysis in Discrete Manufacturing -- 3 System Implementation and Features -- 3.1 Predictive Maintenance -- 3.2 Production Analysis -- 4 Results and Discussion -- 5 Future Scope -- 6 Conclusion -- References -- Automated Quality Control of 3D Printed Tensile Specimen via Computer Vision -- 1 Introduction -- 2 Methodology -- 2.1 Experimental Setup.
2.2 Sample Design Variables.