

CINIE 2023

22TH, 23TH and 24TH March 2023

ESCUELA TÉCNICA SUPERIOR DE EDIFICACIÓN
UNIVERSIDAD POLITÉCNICA DE MADRID
Avda. Juan de Herrera, 6-28040-MADRID

DEPARTAMENTO DE TECNOLOGÍA DE LA EDIFICACIÓN



CINIE

ABSTRACTS BOOK

LIBRO DE ACTAS



International
Conference of
Educational
Innovation in
Building

*Congreso
Internacional de
Innovación
Educativa en
Edificación*



Escuela Técnica
Superior de
Edificación



CONSEJO GENERAL
DE LA ARQUITECTURA TÉCNICA
DE ESPAÑA





POLITÉCNICA



ESCUELA TÉCNICA SUPERIOR
EDIFICACIÓN
UNIVERSIDAD POLITÉCNICA DE MADRID



ESCUELA TÉCNICA SUPERIOR DE EDIFICACIÓN

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Universidad Politécnica de Madrid



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GREETINGS**VII INTERNATIONAL CONFERENCE OF EDUCATIONAL INNOVATION IN BUILDING
(CINIE 2023)
22, 23 y 24 de marzo de 2023**

This new edition of CINIE, the seventh, aims to lay the foundations for the development of joint projects and produce relevant results in the field of educational innovations in higher education. With the primary objective of continuous improvement in teaching methodology in the field of construction, the aim is to include the latest advances and research in the field of teaching-learning, which contribute to the production of quality scientific results of international interest.

The organisation of the CINIE 2023 programme includes different activities of innovation in educational methods, oral communications, posters and virtual exhibitions in different thematic areas such as Advances in educational research, 3D technologies in education, New trends in university education, Research in education and human development, Educational innovation in technical education and other different fields, as well as differentiated actions in the BIM environment.

In this seventh edition, it is worth highlighting the quality and involvement of all the participants, which has led to the presentation of a large number of communications, more than eighty, bringing together more than 250 speakers from different places through their different types of communications.

The Organizing Committee

CINIE 2023 PROGRAM
ORAL COMMUNICATIONS

VII Congreso Internacional de Innovación Educativa en Edificación

Miércoles 22

9:30-14:30	Registro/Recepción de documentación Lugar: Vestíbulo de entrada
10:15-11:00	<p>OPENING SESSION Lugar: Sala de Juntas</p> <p>CARLOS MORÓN <i>Director del Departamento de Tecnología de la Edificación</i></p> <p>PAULO SANTOS <i>Institute for Sustainability and Innovation in Structural Engineering (ISISE), University of Coimbra, Portugal</i></p>
11:00-12:15	COFFEE BREAK & POSTER SESSION Lugar: Vestíbulo de entrada

Lugar: Sala B. Moderadora: Amparo Verdú Vázquez

Educational innovation in technical education

12:30-12:45	<p>ANALYSIS OF THE INTERACTION OF ERASMUS EXCHANGE STUDENTS IN THE GROUP RESULTS. CASE OF THE SUBJECT OF SPANISH POPULAR CONSTRUCTION (IV)</p> <p>Gregorio García López de la Osa; Pilar Izquierdo Gracia; Sonsoles González Rodrigo</p>
12:45-13:00	<p>EUROPEAN COOPERATION: DISCOVERING MADRID WITH THE NEW INNOVATIVE METHODOLOGY OF GLOCAL PROJECT</p> <p>Maciej Kłopotowski; Kamil Leszek Rawski; Dorota Gawryluk; María Aurora Flórez de la Colina; Pilar Cristina Izquierdo Gracia</p>
13:00-13:15	<p>THE DENIAL OF THE SELF AS A FRAMEWORK FOR THE CONSTRUCTION OF HEGEMONIES IN UNIVERSITY EDUCATION</p> <p>Natalia Millán</p>
13:15-13:30	<p>LEARNING THROUGHOUT LIFE: NEW SKILLS AND COMPETENCES FOR A GLOBAL SOCIETY</p> <p>Bonifacio Pedraza López</p>

3D Technologies in Education

13:30-13:45	<p>DETERMINATION OF THE DIMENSIONS OF A PRINTED THERMOPLASTIC MODULAR PIECE AND THE APPLICATION OF 3D TECHNOLOGY IN ARCHITECTURAL EDUCATION</p> <p>Sandra Moyano Sanz; Mercedes Valiente López; Amparo Verdú Vázquez</p>
13:45-14:00	<p>CREATION OF METAVERSE FOR INFRASTRUCTURE RISK MANAGEMENT THROUGH PROJECT BASED LEARNING</p> <p>Rubén Muñoz Pavón; Paloma Caramés López; Jorge Muñoz Pavón; Lucía López-de Abajo; Ana Patricia Perez-Fortes; Jorge Jerez Cepa; Marcos García Alberti</p>

Jueves 23

10:30-13:00	WORKSHOP UNIR-Valdecás
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Lugar: Sala B. Moderadora: Alicia Zaragoza Benzal

Educational innovation in technical education

15:30-15:45	A REFLECTION ON MEASURING INSTRUCTION QUALITY IN ENGINEERING DEGREES POINTING TO PROFESSIONAL SKILLS
	Isabel Chiyón Carrasco; Juan Carlos Mosquera Feijoo; Marcos García Alberti; Fernando Suárez Guerra
15:45-16:00	EVALUATION OF THE EVOLUTION OF LEARNING IN TRANSVERSAL AND SUSTAINABILITY COMPETENCES EUROPEAN EDUCATIONAL PROJECTS. CASE STUDY: CIRCULAR & SOCIO-CIVIC (CIRCLE) LEARNING HUB
	Beatriz Martin Bautista Cerro; Justo García Navarro
16:00-16:15	EXPERIENTIAL LEARNING OF HYDRAULIC PHENOMENA SUPPORTED BY DIGITAL APPLICATIONS
	Sandro Andrés Martínez; Juan Carlos Mosquera Feijoo; David Santillán Sánchez; Luis Cueto-Felgueroso Landeira
16:15-16:30	DEVELOPMENT OF A POLLUTANT MEASUREMENT STATION AS A RESEARCH BASED LEARNING TOOL
	Antonio Nieto-Márquez; Evangelina Atanes; Ana Cerrolaza; Pablo Merino; Irene Sánchez; Samuel Cerratos; José Luis Solé
16:30-16:45	PROJECT-BASED LEARNING AND SELF-EVALUATION FOR TRAINING INDUSTRIAL ENGINEERS IN GRAPHIC EXPRESSION
	María Linares Serrano; Felix Terroba Ramírez; Manuel Gonzalez-Gallego
16:45-17:00	ENHANCING STUDENT ENGAGEMENT AND CONCEPTUAL UNDERSTANDING WITH COMPUTER ALGEBRA SYSTEMS IN MATHEMATICS EDUCATION
	Francisco Javier Fernández Fidalgo; Sandro Andrés Martínez; Luis Cueto-Felgueroso Landeira; David Santillán Sánchez; Juan Carlos Mosquera Feijoo

Viernes 24

Lugar: Sala B. Moderador: Jose Luís Merino Fernández

Active teaching methodologies in building education

10:00-10:15	GROUP DISCOURSE BASED ON NARRATIVES GENERATED BY ARTIFICIAL INTELLIGENCE AS AN ACTIVE METHODOLOGY IN TEACHING STUDENTS IN CONSTRUCTION
	Teresa Cuervo-Vilches; Miguel Ángel Navas-Martín
10:15-10:30	CHALLENGES OF SUSTAINABLE URBAN DEVELOPMENT WITH CITIES: SKYLINES®
	Jorge Jerez Cepa, Paloma Caramés López, Lucía López-de Abajo, Rubén Muñoz Pavón, Jorge Muñoz Pavón, Ana Patricia Perez-Fortes, Marcos García Alberti
10:30-10:45	BUILDING LEARNING FROM BRAIN KNOWLEDGE
	Irene Ros-Martín; Enrique Parra Albarracín
10:45-11:00	PROPOSALS FOR SUSTAINABLE URBAN GROWTH THROUGH THE CONVERSION OF INDUSTRIAL AREAS AS A VERTICAL TRANSVERSAL LEARNING ACTIVITY OF THE URBAN PLANNING SUB-MODULE
	Pablo Miguel De Souza Sánchez; Helena Iballa Naranjo Henríquez

New challenges / trends in higher education

11:00-11:15	GENERATING DASHBOARDS OF LARGE AMOUNTS OF DATA WITH THE POWER BI TOOL
	Jorge Pablo Díaz Velilla; Daniel Ferrández Vega; Guadalupe Dorado Escribano; Alberto Leal Matilla
11:15-11:30	SERVICE-LEARNING FOR THE IMPROVEMENT OF ENERGY EFFICIENCY IN THE MUNICIPAL MARKET OF LA PAZ (MADRID)
	Marta Echevarria Gómez-Escolar; Jesús García Herrero; Miguel Ángel Gálvez Huerta; María Antonia Fernández Nieto; José Luis Parada Rodríguez; Jorge Gallego Sánchez-Torija
11:30-12:15	COFFEE BREAK & POSTER SESSION Lugar: Vestíbulo de entrada
12:30-12:45	RESUMEN DEL EVENTO Y CIERRE Lugar: Sala de Juntas CARLOS MORÓN <i>Director del Departamento de Tecnología de la Edificación</i>

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024	NEW METHODOLOGICAL APPROACH IN BUILDING MATERIALS SUBJECTS FOR ERASMUS STUDENTS
	Alejandro Pedreño-Rojas; Marta Rodríguez Aybar; César Porras Amores
037	ANALYSIS AND EVALUATION OF THE ARCHITECTURE WORKSHOP AS A TRANSVERSAL SUBJECT FOR THE TEACHING OF ARCHITECTURE AT THE UNIVERSITY OF SEVILLE
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044	ARE COMPUTING COMPETENCES BEING PROPERLY CONSIDERED IN GRADUATE AND POSTGRADUATE PROGRAMS OF THE ETSIAAB?
	Sergio Zubelzu; María Teresa Gómez; Jesús López
047	EDUCATIONAL INTERVENTION TO IMPROVE THE ACQUISITION OF WRITTEN COMMUNICATION SKILLS OF HIGHER EDUCATION STUDENTS
	Ana Jiménez-Rivero; Alexandra Míguez-Souto; Arturo Caravantes Redondo; Begoña Galián; David Medrano Calderón; Gema Martí-Blanc; Iciar de Pablo-Lerchundi; Juan Carlos del Mazo Blázquez; María Cristina Núñez del Río; Susana Sastre-Merino; José Luis Martín-Núñez
048	APPLICATION OF ICT AS A METHOD OF MOTIVATION IN STUDENTS
	Mario González Barriguete; Alejandra Vidales Barriguete; Laura Martínez Badillo; Noelia Sánchez Moreno
049	VIRTUAL REALITY AS A LEARNING METHODOLOGY FOR DESIGN STUDENTS
	Alejandra Vidales Barriguete; Mercedes Valiente López; Patricia Aguilera Benito; Carolina Piña Ramírez; Manuel Álvarez Dorado; Alicia Zaragoza Benzal; Tomás Gil López; Pedro Palmero Cabezas; Isabel Bach Buendía
050	IMPROVING TRADITIONAL LEARNING METHODS WITH ICT. THE TRADITIONAL LECTURE CASE
	Manuel Álvarez Dorado; Lubna Morales de Paz
051	CHALLENGE-BASED LEARNING FOR EFFICIENT USE OF FACILITIES AND CIRCULAR ECONOMY. IN SEARCH OF A FRIENDLY CITY
	Patricia Aguilera Benito; David Caballol Bartolomé; Mónica Morales Segura; Alejandra Vidales Barriguete; Carolina Piña Ramírez; Julián García Muñoz; Ana María Marín Palma; Paz Núñez Martí; Patricia Benítez Hernández

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ENHANCING COMPETENCE ACQUISITION IN HIGHER EDUCATION THROUGH AGILE PROJECT MANAGEMENT: APPLYING THE SCRUM METHOD TO THE SUBJECT 'TECHNICAL PROJECTS I' IN THE DEGREE IN BUILDING

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Abstract

This work deals with the competence acquisition process by students in the subject 'Technical Projects I' of the Degree in Building at the University of Seville. This four-month subject consists of teaching introductory theoretical content, and developing practical work based on a technical project within the scope of the professional competences granted by this Degree. Students often face this activity for the first time as designers, which leads them to a situation of uncertainty regarding the achievement of the objectives initially set in the programme. This paper proposes a teaching methodology based on the philosophy of agile work, which contributes to the achievement of the objectives, the acquisition of competences, and is adjusted to the professional context of the subject.

Agile project management is a set of methodologies within the scope of integrated project management, which consists of the application of knowledge, skills, tools and techniques to project activities in order to meet project requirements [1]. Traditional project management focuses on rigid up-front planning, and one of its objectives is to reduce change during the subsequent execution phase. In essence, this approach brings forward to the planning phase the detailed definition of the requirements, the product and how the tasks that make the project a reality will be executed. In contrast, there are other types of work contexts where requirements are often not entirely clear, and change is a common event during execution. This is the environment of agile management approaches. In these circumstances, rather than detailed pre-planning, flexibility and rapid adaptation are more important for the correct development of a

project in an environment of uncertainty. Software development projects are common cases of application of these agile methodologies.

There are different solutions for agile approaches, such as Scrum, Kanban, or Lean Change Management. This paper aims to apply the Scrum method, which is one of the best-known agile approaches in the business environment. This proposal is carried out in a complementary way to the traditional teaching system, although the latter is not inadequate for the acquisition of competences. The Scrum method provides students with new tools and resources that help to acquire 1) the specific competencies of the subject, and 2) one of the most important skills in today's professional environment: teamwork. Implementing Scrum in teams helps students to keep the project running smoothly and provides a greater awareness of how to manage the project and teams more effectively [2]. It also enhances the ability to use knowledge in a disciplined, critical and creative way, and develops the ability to think, live and act autonomously [3].

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