

UNIVERSITY DIPLOMA IN DIGITAL AND AI DENTISTRY

Main Language of Instruction:

French ☐ English ☒ Arabic ☐

Campus Where the Program Is Offered: CSM

OBJECTIVES

The UD in Digital and AI Dentistry aims to train dental professionals in the principles and clinical applications of digital dentistry and artificial intelligence. It aims to develop the ability to integrate digital technologies such as CAD/CAM, digital imaging, and workflow systems into diagnosis and treatment planning. The program also strengthens practical skills, critical thinking, and evidence-based decision-making to support efficient, modern, and high-quality dental care.

THE UD IN DIGITAL AND AI DENTISTRY AIMS TO:

- Understand the digital workflow, from data acquisition using digital dental equipment (intraoral scanners, 3D printers, etc.) to computer-aided manufacturing.
- Develop innovative technologies and treatment methods in digital dentistry.
- Support academic institutions and the lifelong education of dental professionals.
- Integrate digital technologies to improve dental care.

PROGRAM LEARNING OUTCOMES (COMPETENCIES)

- Present the digital workflow from data acquisition through digital imaging and radiology to prosthetic and surgical planning.
- Understand AI foundations (machine learning and deep learning) and clinical applications.
- Use CAD software and computer-aided manufacturing processes, including subtractive and additive technologies, to master the digital process.

ADMISSION REQUIREMENTS

- Doctor of Dental Surgery (Practicing Doctorate)

PROGRAM REQUIREMENTS

15 Credits: Required Courses (15 credits)

Required Courses (15 Cr.)

Article Analysis – Synthesis Work 1 (1 Cr.), Computer-Aided Imaging (1 Cr.), Artificial Intelligence in Dentistry (1 Cr.), Materials in Digital Dentistry (1 Cr.), Digital Clinical Observation (1 Cr.), Overview of the Digital Workflow and CAD/CAM Fundamentals (1 Cr.), Digital Preclinical Training (Practical Work) (2 Cr.), Overview of Different Platforms in Digital Dentistry (1 Cr.), Overview of Different Platforms in Digital Dentistry (1 Cr.), Digital Workflow Clinics (2 Cr.), Digital Workflow in Implantology (1 Cr.), Digital Preclinical Training (Practical Work) (1 Cr.), Case Presentation (1 Cr.)

COURSE DESCRIPTION

003SYNTP1	Article Analysis – Synthesis Work 1	1 Cr.
- Develop critical reading skills for scientific articles related to digital dentistry. - Understand and interpret methodologies used in clinical, in vitro, or exploratory studies. - Efficiently synthesize a scientific article and extract key points applicable to clinical practice. - Establish an active process of scientific and technological monitoring (literature watch). - Communicate rigorously and clearly during oral presentations of synthesis work.		
003ORDIP1	Computer-Aided Imaging	1 Cr.
- Master the fundamentals of digital imaging applied to clinical dentistry. - Understand factors influencing the quality and accuracy of acquired data. - Adapt acquisition techniques to various clinical cases (dentate, edentulous, full-arch). - Identify limitations, sources of error, and corrective solutions related to digital imaging. - Discover complementary advanced imaging modalities (facial scanning, CBCT).		
003INARP1	Artificial Intelligence in Dentistry	1 Cr.
- Understand the fundamental concepts of artificial intelligence, machine learning, and deep learning. - Identify current application areas of AI in clinical dentistry and research. - Explore synergies between AI and other digital technologies (virtual reality, augmented reality, expert systems). - Critically analyze benefits, limitations, and ethical challenges related to implementing AI in dental practice.		
003MATEP1	Materials in Digital Dentistry	1 Cr.
- Know the main classes of materials used in digital dental workflows. - Understand the properties and clinical indications of milled or printed materials. - Understand post-processing steps depending on the technology used (sintering, polymerization, etc.). - Distinguish materials suitable for dental prostheses, implant restorations, and orthodontic devices. - Develop critical thinking for material selection based on clinical performance, biocompatibility, and available scientific evidence.		
003CLDGP1	Digital Clinical Observation	1 Cr.
- Introduce workflow within the care center/clinic. - Become familiar with biomaterials, instruments, and implant accessories used in digital treatments.		
003CFAOP1	Overview of the Digital Workflow and CAD/CAM Fundamentals	1 Cr.
- Understand the fundamental steps of the digital workflow in dentistry. - Identify the tools, technologies, and file formats associated with each stage (imaging, planning, design, manufacturing). - Understand the clinical, organizational, and technological challenges linked to digital integration. - Initiate a critical reflection on the benefits and limitations of CAD/CAM in daily practice.		
003PRDGP1	Digital Preclinical Training (Practical Work)	2 Cr.
- Handle different types of intraoral scanners to produce accurate and reproducible digital impressions. - Compare and use the interfaces of the CAD AND CAM software most commonly encountered in clinical practice. - Develop autonomy in critically analyzing and applying digital tools according to clinical needs. - Rigorously perform post-processing steps for monolithic materials (zirconia, resins) and control the final quality of restorations.		