2.   PRODUCT DEVELOPMENT

This bundle of lectures covers key aspects in the process of the conceptualization and creation of a new product. Students will learn how to design medical devices, as well as about the new materials used in the design. This pack will also give the participants an introduction to new tools in the field of digital health, such as the use of artificial intelligence in healthcare sector or Big Data. Finally, it will deep on one of the main challenges to face while developing a new product: the regulatory requirements.

- ➢ **Number of sessions:** 7
- ➢ **Starting date:** 13 June 2024
- ➢ **Whole Package Price:** 300 €
- ➢ **Buy one or more sessions:** 50 €/individual session
- ➢ **Platform:** Microsoft Teams; dial-in details will be sent before the lecture.

SESSIONS:

2.1 Medical products regulatory

Lecturer: Dominique Monferrer (head of Regulatory Affairs at Werfen OEM)

Date: 13 June 2024

Time: 17h – 18:30h

Price: 50 €

Course outline: This talk will provide information about the regulation of medical devices and digital health solutions, specifically in comparison to the pharmaceutical process. You will also take an in-depth look at the European regulatory process under the CE Marking process, and the key differences between both EMA and FDA approvals. To take the ideal and trickiest path in the regulatory adventure, can make the difference in the success or failure of your bussiness model.

2.2 Healthcare Robotics

Lecturer: Daniel Serrano (Director of Robotics and Automation R&D Unit at Eurecat)

Date: 26 June 2024

Time: 17h – 18:30 h

Price: 50 €

Course outline: Robotics has played a significant role in the evolution of different fields in the last decade. According to the European Robotics association, Healthcare is one of the flagship domains for the present and future growth of robotics applications. Many projects and pilots have been developed in recent years in different topics such as for instance home-care robots, rehabilitation, surgery, etc. This session will provide an overview of the type of robots and potential applications in this domain with a particular emphasis on the challenge of socially acceptable assistive robots.

Content:

- Introduction to robotics
- Application areas robotics in healthcare
- Case studies
- Future trends in cognitive and socially intelligent robots

2.3 Data Analysis and Artificial Intelligence in medicine

Lecturer: Carolina Migliorelli (advanced researcher at Eurecat)

Date: 27 June 2024

Time: 17h – 18:30 h

Price: 50 €

Course outline: Data Analysis and Artificial Intelligence have revolutionized Medicine and Healthcare, influencing everything from precision medicine to community health and healthcare administration. Nevertheless, employing these tools is not without risks or biases. In this brief session, we aim to showcase the expansive potential of AI, exploring its diverse applications and their profound impact on the future of healthcare. While highlighting case studies and success stories, we will also delve into the existing limitations and ethical considerations.

Content:

- The role of AI in Healthcare
- Establishing a Data Analysis Pipeline

- Diverse areas of application
- Case studies and success stories
- Current limitations

2.4 Innovative design and implementation of medical devices

Lecturer: Irene Ràfols (Head of Product Innovation & Multiphysics Simulation Unit at Eurecat)

Date: 16 July 2024

Time: 17h – 18:30h

Price: 50 €

Course outline: This session provides a comprehensive overview of the key principles and methodologies involved in developing cutting-edge medical technologies. Participants will explore the entire product development lifecycle, from ideation to commercialization, with a focus on creativity, user-centered design, and regulatory considerations.

Content:

- Medical Device Design Process
- Proof of Concept, Prototyping and Rapid Iteration
- Regulatory Pathways and their link with the design process
- Collaboration in Cross-Disciplinary Teams
- Case Studies and Success Stories

2.5 Digital Health for a Value-Based Personalized Integrated Care

Lecturer: Felip Miralles (Executive Director of Health Technologies at Eurecat)

Date: 17 July 2024

Time: 17h – 18:30h

Price: 50 €

Course outline: The transformative potential of digital health technologies enables transitioning towards a value-based, personalized care model. Emphasizing the pivotal role of digital health in making integrated care feasible, we will provide insights into the convergence of technology and healthcare, paving the way for a more patient-centric, efficient, and integrated approach to healthcare delivery. This session serves as a foundational exploration for understanding the paradigm shift underway in the healthcare and social services landscape.

Content:
- Digital Health Fundamentals
- Patient Experience as a Driver
- Value-Based and Personalized Integrated Care
- Key Digital Health Components
- Case Studies and Success Stories

2.6 Sensors, wereables, labs-on-chip (LAOs), points-of-care (POCs)

Lecturer: Ana Moya (Researcher at Eurecat)

Date: 23 July 2024

Time: 17h – 18:30h

Price: 50 €

Course outline: This session dives deep into the world of miniaturized medical technologies, exploring sensors, wearables, labs-on-chip (LOCs), and point-of-care (POCs) devices.

Content:
- Sensor Fundamentals for Medical Devices: Understand the principles behind various sensor technologies used in medical devices to monitor vital signs, track health metrics, and enable real-time diagnostics.
- Wearable Technology in Healthcare Monitoring: Explore the expanding role of wearable devices in capturing continuous health data, identifying trends, and promoting preventative care.
- Labs-on-Chip (LOCs) and their applications: Discover the tiny chips that can perform complex biological analyses – revolutionizing diagnostics and personalized medicine.
- Point-of-Care Diagnostics for Faster Results: Learn about POC devices that bring diagnostic capabilities closer to patients.
- Case Studies and Applications in Healthcare Delivery: Gain insights through real-world examples showcasing the impact of these miniaturized technologies.

2.7 Materials and 3D printing and bioprinting in medicine

Lecturer: Antonio Jesús Guerra (Engineer at Eurecat)

Date: 24 July 2024

Time: 17h – 18:30h

Price: 50 €

Course outline: This session provides a comprehensive overview of the key materials and 3D Printing Processes used in medicine in the last decade. Participant could learn about the most suitable process and their associated materials for some medicine cases.

Content:

- Introduction: 3D Printing in medicine
- 3D Printing processes
- Biocompatible materials in 3D Printing

PROMOTIONS

Students:

We offer a 50% discount (for any category, but not accumulative) to students who are in their final academic year at university, or who are studying a Masters degree related to the following fields: business, engineering, life sciences or design. If interested, please send an e-mail to oherrera@biocat.cat, with the subject "Short Programs Discount", providing your details and attaching a copy of your university registration. Promotions are limited and will be assigned on a first-come, first-served basis.

CANCELLATION POLICY

To withdraw from a session you must send an e-mail to: oherrera@biocat.cat, If cancellation is received more than one week (7 working days) before the date of the Short Program session, you will be reimbursed for 100% of the registration fee. If cancellation is received during the week prior to the date of the lesson, you will be reimbursed for 50% of the registration fee. If no notice is given, participants will not be reimbursed even if they do not attend the session.