



INSTITUTE FOR
Sustainability Science
AND TECHNOLOGY

2020 – 2021
ANNUAL REPORT



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

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1. PRESENTATION

The Research Institute for Sustainability Science and Technology of UPC - BarcelonaTech is the responsible unit for promoting, coordinating and carrying out academic activities in the fields of sustainability science and sustainable technologies.

The Institute's mission is to generate technical and conceptual tools to create a more sustainable production and development model and to collaborate in the UPC's endeavor to provide scientific and technical support for human, social, cultural and economic progress.

The IS.UPC is active in higher education, research and innovation, technology transfer and promotion of sustainability culture.

Its main objectives are as follows:

- Opening up sustainability research to UPC groups and researchers, by coordinating and promoting multi and trans-disciplinary research projects.
- Organizing and promoting specific postgraduate courses and degrees (Master's degrees, PhD programmes and other specialized teaching activities) directly linked with the UPC research in the fields of sustainability science and sustainable technologies, as well as embedding sustainability in other UPC educational programmes.
- Disseminating the results of the research carried out at the IS.UPC, both to the university community and to the society as a whole, and sparking discussion about it.
- Encouraging the commitment and interaction of the UPC within society, and encouraging UPC's support of civic demands for promoting progress towards more sustainable development models.

Letter from the Director

The Institute for Sustainability Science and Technology (IIST.UPC) is a catalyst for excellent interdisciplinary and transdisciplinary research across Universitat Politècnica de Catalunya that is working for global sustainability.

Today, our institute assembles more than 200 professionals, including staff scientists, postdocs, PhD students, technicians, general research support staff and administrators, devoted to the well-functioning of ISST.UPC.

This Annual Report covers the activities of ISST.UPC of the academic year 2019-2020. During this period, main efforts have focused on consolidating an interdisciplinary academic space within the UPC community to face the challenges of sustainable human development through science progress and technology innovation. The integration of economic, environmental and social aspects of technology, architecture and engineering, as well as the reference points of closing of cycles and systemic thinking, are some of the distinctive characteristics of the Institute research focus. Academic excellence, strategic international and local networking, and a trans-disciplinary approach to knowledge creation and dissemination are other key characteristics of the Institute. Since March 2020 the COVID pandemic has affected all society and indeed the activities of the institute, specially the master that has become 100% virtual. I would like to thank the efforts of both faculty and students to overcome this situation and to carry on the teaching and learning processes successfully.

The ISST.UPC has its own Master degree in Sustainability Science and Technology (2 years – 120 ECTS) and the PhD programme in Sustainability (89 PhD students), with 8 PhD dissertations read in this academic year.

The COVID pandemic has affected all society and indeed the activities of the institute. I would like to thank the efforts of both faculty and students to overcome this situation and to carry on the teaching and learning processes successfully.

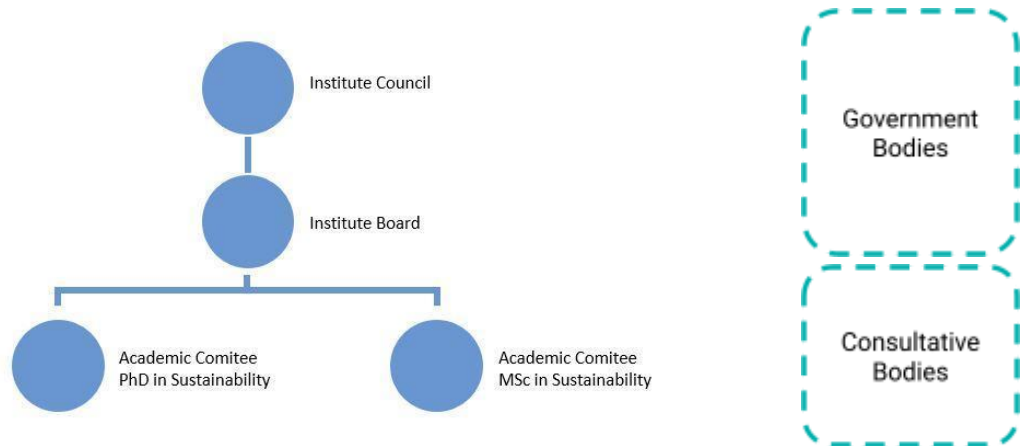
Finally, I would like to highlight the national and international recognition that our institute is achieving in sustainability science, with many of the research groups that constitute an outstanding international reference in their areas of expertise.

I would like to express my profound gratitude to the whole of the ISST.UPC personnel, at every professional level for their dedication, motivation and enthusiasm!

Jordi Segalàs, director

2. ORGANISATION STRUCTURE

2.1. ORGANIZATION CHART



2.2. INSTITUTE BODIES

Single-member bodies

SEGALÀS CORAL, JORDI	Director
VILLARES JUNYENT, MÍRIAM	Secretary
ALCARAZ SENDRA, OLGA	Deputy Director

2.3. COLLEGIATE BODIES OF GOVERNMENT AND REPRESENTATION

Institute Board

SEGALÀS CORAL, JORDI	<i>Director</i>
ALCARAZ SENDRA, OLGA	<i>Subdirectory</i>
VILLARES JUNYENT, MÍRIAM	<i>Academic Secretary</i>
ROCA BOSCH, ELISABETH	
SUREDA CARBONELL, BÁRBARA	
ROSAS CASALS, MARTÍ	
GAROLA CRESPO, ÀLVAR	
ALVAREZ DEL CASTILLO, JAVIER	
CLIMENT VILARO, JUAN	
CUCHI BURGOS, ALBERTO	
GIBERT, KARINA	
MAGRINYA TORNER, FRANCESC	
MARTIN ESCOFET, CARMÉ	
MORATO FARRERAS, JORDI	
DE PABLO RIBAS, JOAN	
RIBA ROMEVA, CARLES	
ROCA ROSELL, ANTONI-MARIA CLARET	
SANCHEZ CARRACEDO, FERMIN	
TRULLOLS FARRENY, ENRIC	
VIDAL LOPEZ, EVA	
LAZZARINI, BORIS	<i>Research Staff representative</i>
TEJEDOR PAPELL, GEMMA	<i>Research Staff representative</i>
WYBRANIEC, BARTOSZ	<i>Students representative</i>

Institute Council

SEGALÀS CORAL, JORDI	<i>Director</i>
ALCARAZ SENDRA, OLGA	<i>Subdirectory</i>
VILLARES JUNYENT, MÍRIAM	<i>Academic Secretary</i>
ROCA BOSCH, ELISABETH	
SUREDA CARBONELL, BÁRBARA	
ROSAS CASALS, MARTÍ	
GAROLA CRESPO, ÀLVAR	
ALVAREZ DEL CASTILLO, JAVIER	
CLIMENT VILARO, JUAN	
CUCHI BURGOS, ALBERTO	
GIBERT, KARINA	
MAGRINYA TORNER, FRANCESC	
MARTIN ESCOFET, CARMÉ	
MORATO FARRERAS, JORDI	
DE PABLO RIBAS, JOAN	
RIBA ROMEVA, CARLES	
ROCA ROSELL, ANTONI-MARIA CLARET	
SANCHEZ CARRACEDO, FERMIN	
TRULLOLS FARRENY, ENRIC	
VIDAL LOPEZ, EVA	
LAZZARINI, BORIS	<i>Research Support Staff</i>
TEJEDOR PAPELL, GEMMA	<i>Research Support Staff</i>
ASUA BERASALUCE, JOANA	<i>Scholarship INIREC</i>
GARCIA GALOFRE, VICTOR	<i>Scholarship INIREC</i>
OLIVER MARÍN, ANDREA	<i>Scholarship for apprenticeships</i>
WYBRANIEC, BARTOSZ	<i>Scholarship for apprenticeships</i>

2.4. COLLEGIATE BODIES FOR CONSULTATION

Academic Committee of the Master's in Sustainability Science and Technology

ALCARAZ SENDRA, OLGA	<i>Co-coordinator</i>
VILLARES JUNYENT, MÍRIAM	<i>Co-coordinator</i>
GAROLA CRESPO, ÀLVAR	<i>University-Company Collaboration Agreements/ Employment Opportunities</i>
ROCA BOSCH, ELISABET	<i>International Mobility and Double Degrees</i>
ROSAS CASALS, MARTÍ	<i>Quality and Tutorial Action Plan</i>
SUREDA CARBONELL, BÁRBARA	<i>Final Master's Thesis</i>
ALIER FORMENT, MARC	<i>Teaching and Research Staff</i>
DE LA HOZ CASAS, JORDI	<i>Teaching and Research Staff</i>
DE PABLO RIBAS, JOAN	<i>Teaching and Research Staff</i>
ETXEBERRIA LARRANAGA, MIREN	<i>Teaching and Research Staff</i>
GASSÓ DOMINGO, SANTIAGO	<i>Teaching and Research Staff</i>
GIBERT OLIVERAS, KARINA	<i>Teaching and Research Staff</i>
GIL ROIG, JOSÉ MARÍA	<i>Teaching and Research Staff</i>
LOPEZ LOPEZ, JOSE	<i>Teaching and Research Staff</i>
MAGRINYÀ TORNER, FRANCESC	<i>Teaching and Research Staff</i>
MERCADÉ ALOY, JOSEP	<i>Teaching and Research Staff</i>
MORATÓ FARRERAS, JORDI	<i>Teaching and Research Staff</i>
SANCHEZ MARRE, MIQUEL	<i>Teaching and Research Staff</i>
SANCHEZ VILA, FRANCISCO JAVIER	<i>Teaching and Research Staff</i>
SEGALÀS CORAL, JORDI	<i>Teaching and Research Staff</i>
VIDAL LOPEZ, EVA MARIA	<i>Teaching and Research Staff</i>
LAZZARINI, BORIS	<i>Research Support Staff</i>
TEJEDOR PAPELL, GEMMA	<i>Research Support Staff</i>

Academic Committee of the PhD programme in Sustainability

GIL ROIG, JOSÉ MARÍA	<i>Coordinator</i>
ARANDA GIMO, SILVIA	<i>Secretary</i>
CHAMS, NOUR	
DE LA FUENTE ANTEQUERA, ALBERT	
GIBERT OLIVERAS, KARINA	
ROCA ROSELL, ANTONI	
VILLARES JUNYENT, MÍRIAM	

2.5. FACULTY AND STUDENTS PARTICIPATION

2.5.1. MEMBERS OF THE INSTITUTE

Academic Staff

ALCARAZ SENDRA, OLGA
ALVAREZ DEL CASTILLO, JAVIER
CLARET ROCA ROSELL, ANTONI-MARIA
CLIMENT VILARO, JUAN
CUCHI BURGOS, ALBERTO
DE PABLO RIBAS, JOAN
GAROLA CRESPO, ÀLVAR
GIBERT OLIVERAS, KARINA
MARGINYA TORNER, FRANCESC
MARTIN ESCOFET, CARMÉ
MORATO FARRERAS, JORDI
RIBA ROMEVA, CARLES
ROCA BOSCH, ELISABET
ROSAS CASALS, MARTÍ
SANCHEZ CARRACEDO, FERMIN
SEGALÀS CORAL, JORDI
SUREDA CARBONELL, BÁRBARA
TRULLOLS FARRENY, ENRIC
VIDAL LOPEZ, EVA
VILLARES JUNYENT, MÍRIAM

Support for Research Staff

LAZZARINI, BORIS
TEJEDOR PAPELL, GEMMA

2.5.2. MASTER IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

Faculty responsible for the organization and planning of master's subjects:

ALCARAZ SENDRA, OLGA
ALIER FORMENT, MARC
DE LA HOZ CASAS, JORDI
DE PABLO RIBAS, JOAN
ETXEBERRIA LARRANAGA, MIREN
GAROLA CRESPO, ÁLVARO
GASSÓ DOMINGO, SANTIAGO
GIBERT OLIVERAS, KARINA
GIL ROIG, JOSÉ MARÍA
LÓPEZ LÓPEZ, JOSE
MAGRINYÀ TORNER, FRANCESC
MERCADÉ ALOY, JOSEP
MORATÓ FARRERAS, JORDI
ROCA BOSCH, ELISABET
ROSAS CASALS, MARTÍ
SANCHEZ MARRE, MIQUEL
SÁNCHEZ-VILA, FRANCISCO JAVIER
SEGALÀS CORAL, JORDI
SUREDA CARBONELL, BÁRBARA
VIDAL LÓPEZ, EVA MARIA
VILLARES JUNYENT, MÍRIAM

2.5.3. DOCTORATE IN SUSTAINABILITY

UPC researchers responsible for the mentoring of doctoral theses:

AGUADO DE CEA, ANTONIO	MARTIN CAÑADAS, MARIA ELENA
ALCARAZ SENDRA, OLGA	MASPOCH RULDUJA, MARIA LUÏSA
ALIER FORMENT, MARC	MAYORGA CARDENAS, MIGUEL YURI
ALVAREZ DEL CASTILLO, JAVIER	MONGUET FIERRO, JOSEP MARIA
ALVAREZ DEL CASTILLO, M. DOLORES	MONTserrat JORDA, JOSEP
ALMANTE GARCIA, BEATRIZ	MORATO FARRERAS, JORDI
BAIRAN GARCIA, JESUS MIGUEL	NAVARRO MOLDES, LEANDRO
BARCELO GARCIA, MIQUEL	OLMEDO TORRE, NOELIA
BOSCH TOUS, RICARD	ORTEGO MARTINEZ, MARIBEL
CADAFALCH RABASA, JORDI	PABLO RIBAS, JOAN DE
CARRILLO NAVARRETE, FERNANDO	PARDO BOSCH, FRANCESC
CONSUL SERRACANTA, RICARD	PEÑA CARRERA, MARTA
CREMADES OLIVER, LÁZARO V.	PEREZ FOGUET, AGUSTÍ
CUCHI BURGOS, ALBERTO	PUJADAS ALVAREZ, PABLO
DARBRA ROMAN, ROSA MARÍA	QUERA MIRO, MANUEL
DE LA FUENTE ANTEQUERA, ALBERT	RAHMANI MEDDOUR, DJAMEL
DE LA HOZ CASAS, JORDI	RIBA ROMEVA, CARLES
DOMENECH LEGA, BRUNO	ROCA BOSCH, ELISABETH
ESCRIBANO RODRIGUEZ DE ROBLES, BEATRIZ	ROCA ROSELL, ANTONI
FELIPE BLANCH, JOSE JUAN DE	RODRIGUEZ CANTALAPIEDRA, INMACULADA
FERRER MARTI, LAIA	ROSAS CASALS, MARTI
FONSECA CASAS, PAU	RUIZ MANSILLA, RAFAEL
FUERTES PEREZ, PERE	SABATER PRUNA, ASSUMPTA
GANGOLELLS SOLANELLAS, MARTA	SALAN BALLESTEROS, M. NÚRIA
GARCIA ALMIÑANA, JORDI	SEGALAS CORAL, JORDI
GARCIA CARRILLO, AGUEDA	TORRES LOPEZ, ANTONIO LUIS
GARRIDO SORIANO, NURIA	TRULLOLS FARRENY, ENRIC
GIL ROIG, JOSE MARIA	VALDERRAMA ANGEL, CESAR ALBERTO
HAURIE IBARRA, LAIA	VELO GARCIA, ENRIQUE
KALLAS CALOT, ZEIN	VIDAL LOPEZ, EVA
LOPEZ ALBAREZ, DAVID	VILLARES JUNYENT, MÍRIAM

2.5.4. STUDENTS

Number of students:

Academic year 2020 - 2021

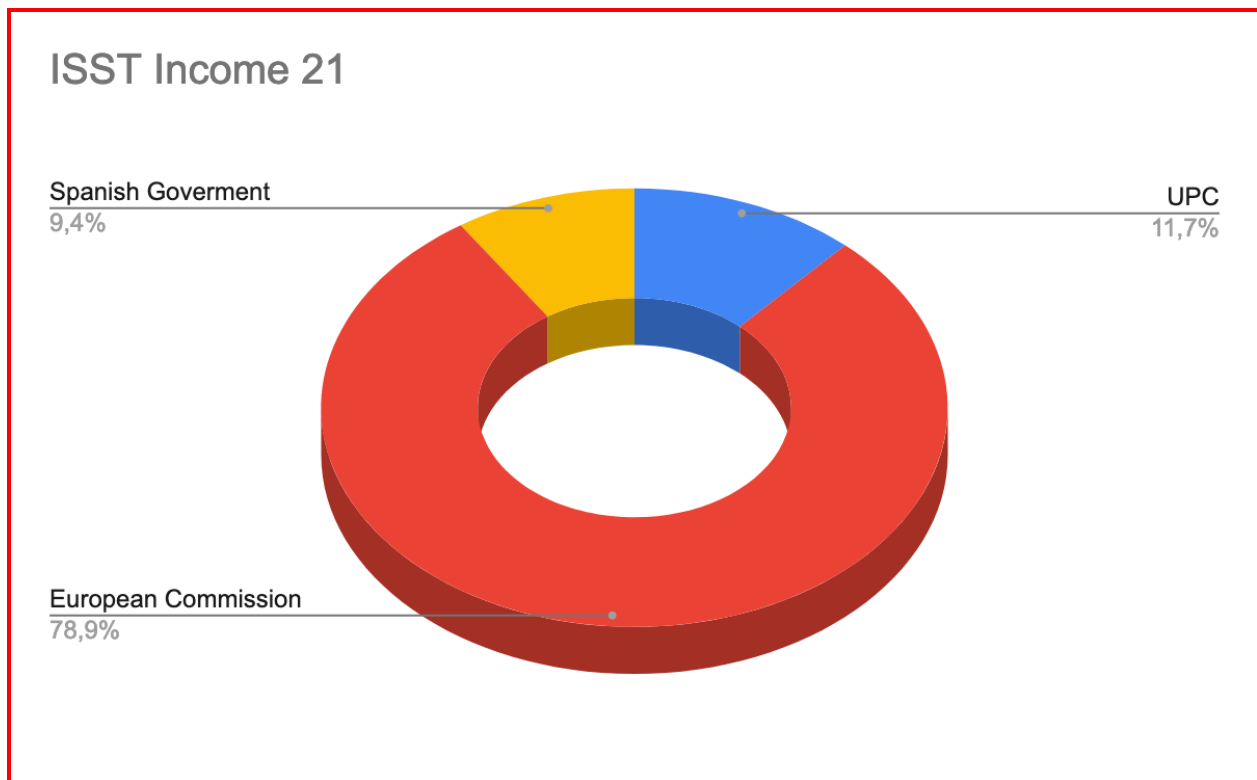
Master in Sustainability Science and Technology	38
PhD in Sustainability	89

3. FINANCIAL INFORMATION

A description of IS.UPC financial accounts for the course 2019-2020 is summarized in this section.

2021 OPERATIONAL INCOME (EUR)

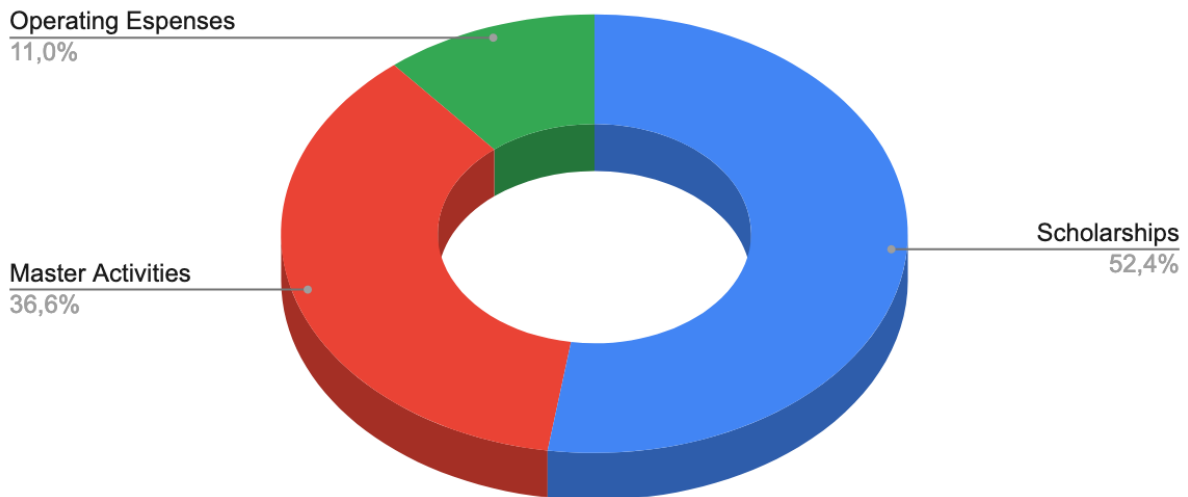
	UPC	EUROPEAN COMMISSION	SPANISH GOVERNMENT	TOTAL
INTERNAL				18.356,00€
Cap 2	18.356,00€			18.356,00€
EXTERNAL				139.573,68€
Competitive Projects		88.115,00	14.641,00€	104.270,32€
Others		35.303,36		35.303,36€
TOTAL	18.356,00€	123.418,36€	14.641,00€	157.929,68€



2021 OPERATIONAL OUTCOME

The external income has been used to carry on the research projects, and the internal income has been distributed among Operating, Scholarships and Master activities.

ISST Internal expenses 2021



4. RESEARCH AND PROJECTS

This section details research projects, agreements and collaborations undertaken by ISST.UPC researchers

4.1. ONGOING PROJECTS

EEISHEA, Enhancing Entrepreneurship, Innovation and Sustainability in Higher Education in Africa

The Institute for Sustainability participates in a new Erasmus+ project that promotes entrepreneurship, innovation and sustainability at African universities.

The project is led by the University of Aalborg (Denmark) and aims to initiate a sustainable educational change at the five greatest educational institutions of Africa, participating in the project, by redesigning best practices focussed on learning, teaching and methods of delivery.

A consequence of this modernisation will be an impact on the educational sector, due to the dissemination of information about best practices. As a further consequence, the project will provide graduates with entrepreneurial and innovative skills, due to the employability and the self-employment and the recognition of sustainability topics relevant for society.

Together with the UPC represented by the Institute of Sustainability, the project counts on the participation of well-known European universities:

University of Copenhagen (UCPH - Denmark); Roskilde University (RUC - Denmark); Royal Institute of Technology (KTH - Denmark)

African universities:

Kwame Nkrumah University of Science and Technology (KNUST – Ghana); University of Ghana (UG – Ghana); Sokoine University of Agriculture (SUA – Tanzania); State University of Zanzibar (SUZA – Tanzania); Kilimanjaro Christian Medical University College (KMUCo – Tanzania).

Scope: Global

Coordinator: University of Aalborg

Funding entity: Education, Audiovisual and Culture Executive Agency (EACEA)

Participating Entities/Institutions: Universitat Politècnica de Catalunya through the IS.UPC and University of Aalborg (Dinamarca)

Dates: Started on September 2017

Responsible researcher: Segalàs Coral, Jordi

EDINSOST2-SDG: Integration of sustainable development goals in sustainability training in spanish university degrees

The project is the continuation of the EDINSOST project (MINECO - EDU2015-65574-R). Built on the results of the previous project, adding the Sustainable Development Goals (SDGs) of the United Nations by analyzing how to efficiently and effectively introduce SDG competencies in the Spanish university system.

The main objective is to graduate students with the competencies in sustainability and the SDGs that society requires. Considering this, it will be studied how SDG competencies should be taught/learned in faculty and the learning tools required to teach/learn these competencies will be developed

Scope: Education

Coordinator: Segalàs, Jordi y Sánchez, Fermín

Funding entity: Ministerio Español de Ciencia, Innovación y Universidades, Agencia Estatal de Investigación, y el Fondo Europeo de Desarrollo Regional, con el código RTI2018-094982-B-I00.

Participating Entities/Institutions: Universitat Politècnica de Catalunya, Universidad Politécnica de Madrid, Universidad del País Vasco/Euskal Herriko Unibersitatea, Universidad de Sevilla, Universidad Internacional de Catalunya, Universidad de Murcia, Universidad de Salamanca y Universidad Complutense de madrid.

Dates: Started on October 2019

Responsible researcher: Segalàs Coral, Jordi and Sánchez, Fermín

DIGNITY - DIGital traNsport In and for socieTY

The main objective is to graduate students with the competencies in sustainability and the SDGs that society requires. Considering this, it will be studied how SDG competencies should be taught/learned in faculty and the learning tools required to teach/learn these competencies will be developed.

The overall goal of DIGNITY, digital transport within and for society, is to foster a sustainable, integrated and easy-to-use digital travel ecosystem that improves accessibility and social inclusion, along with the travel experience and daily life of all citizens.

The project delves into the digital transport ecosystem to understand the full range of factors that can lead to disparities in the adoption of digitized mobility solutions by different user groups in Europe. Analyzing the digital transition from the perspective of both the user and the provider, DIGNITY analyzes the challenges posed by digitization, and then design, test and validate the

DIGNITY approach, a new concept that aims to become the “ABC for an inclusive digital travel system”.

The approach combines proven inclusive design methodologies with the principles of prospective analysis to examine how a structured involvement of all actors (local institutions, market players, stakeholders and end users) can help bridge the digital gap jointly creating more inclusive mobility solutions and by formulating user-centered policy frameworks.

Scope: Urban Sustainability

Funding entity: H2020 EU funding

Participating Entities/Institutions: ISINNOVA, MOBIEL 21, BUAS, UPC, IZT, UCAM, FACTUAL, BARCELONA REGIONAL, Tilburg, NEXTBIKE, Municipality of Ancona, myCicero, Conerobus, The Flemish Department of Mobility and Public Works.

Dates: Started on January 2020

Responsible researcher: Roca Bosch, Elisabet

NATWIP: Nature-based solutions for peri urban water management: linking the ecological, social and economic dimensions

The “Nature Based Solutions for Water Management in the Peri urban” project aims to help close the water cycle gap by exploring the potential offered by Nature Based Solutions (NBS) to address the challenges of water management in landscape areas that have been neglected because they are in the transition zones between urban and rural, called peri urban.

The main goal is to exchange learning experiences between the association and promote the debate between science and society in order to raise awareness among professionals and users about the application of NBS to manage water scarcity, pollution and risks related to extreme hydrological events.

There are 4 sub-objectives of the project that will be achieved through four work packages (WPs) that aim to (1) review international experiences, (2) establish a methodological framework for evaluating NBS, (3) apply the framework to case studies and (4) create a common narrative. It seeks to move beyond the state of the art where the issue of closing the water cycle gap is restricted to urban centers, ignoring the specificities of peri urban areas. The innovation of the project lies in building and sharing knowledge about the potential of NBS for water in peri urban spaces. The project will include case study sites in Norway, Sweden, Spain, Poland, South Africa, India and Brazil, where project partners have established contacts and will focus on peri urban areas.

Scope: Urban Sustainability

Funding entity: HSpanish Ministry of Science and Innovation (MCIU/AEI/FEDER) PCI2019

Participating Entities/Institutions: Södertörn University (Sweden), Norwegian geotechnical Institute (NGI, Norway), Universitat Politècnica de Catalunya Barcela-Tech (UPC, Spain), Stellenbosch University, Anugrah Narayan College (A.N. College, India), Royal Institute of technology (KTH, Sweden), International Institute for Sustainability (ISS-Rio, Brazil).

Dates: Started on April 2019

Responsible researcher: Roca Bosch, Elisabet

COLEOPTER: Consulta Local per a l'optimització de Polítiques Territorials sobre Energia Rural

COLEOPTER develops an integrated approach to energy renovation in public buildings, associating technical, social and economic challenges.

It aims to engage in a territorial dialogue with local stakeholders to co-construct the renovation work plan for a public building. The approach includes the use of innovative audits that involve the water-energy nexus.

The use of BIM as a collaboration tool facilitates dialogue (experts/non-experts) on a 3D model of buildings and allows the collaborative management of renovation work. It will be tested in exemplary buildings in Cartagena (Es), Combraille (Fr) and Póvoa de Lanhoso (Pt) and will be reproduced in Andorra to validate its transferability.

COLEOPTER is designed to address the challenges of Sudoe: raising awareness through dialogue to increase renewal rates, the study of the water-energy nexus and the dissemination of BIM collaborative tools.

<https://www.coleopter.eu/coleopter-es/>

Scope: Europe

Funding entity: European Union (FEDER)

Participating Entities/Institutions: RURENER, ADENE (Agencia para a Energia Portugal, Portugal), CETENMA (Asociación Empresarial Centro Tecnológico de la Energía y del Medio Ambiente de la Región de Murcia, España), UPC-ISST (Universitat Politècnica de Catalunya - Instituto universitario de investigación en Ciencia y Tecnologías de la Sostenibilidad, España), CIM DO AVE (Comunidad Intermunicipal do Ave, Portugal), Ayuntamiento de Cartagena (España), MPdL (Município da Póvoa de Lanhoso, Portugal), SM Est Creuse (Syndicat Mixte Ferme Est Creuse , Francia)

Dates: Started on October 2019

Responsible researcher: Rosas Casals, Martí

5. TEACHING

5.1. MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

The master's degree in Sustainability Science and Technology aims to provide students with advanced interdisciplinary training to help them understand the interactions between society, the economy and the environment. Graduates will also have a sound understanding of scientific and technical options and trends for tackling key challenges for the sustainable development of current socio-environmental systems.

The course will train students to become entrepreneurs and agents of change in the field of sustainable development. Based on their specialisation in areas related to biodiversity, the environment, the built environment, services, the production system and information management, graduates will be able to design, implement and evaluate sustainable solutions in different fields of engineering and technology. They will work in various cultural and professional contexts, applying a transdisciplinary approach based on scientific and technical rigour.

This master's degree has received the International **Master's Programme distinction** (2013 call) awarded by the Government of Catalonia's Agency for the Management of University and Research Grants (AGAUR).

The Master in Sustainability Science and Technology was validated by the Universities Council's Curriculum Validation and Accreditation Committee in July 2013.

Courses offered in academic year 2019-2020:

Mandatory courses

Code	Subject	Professor
480011	Fundamentals of Economics, Environmental Economics and Ecological Economics	José María Gil
480012	Fundamentals of Engineering, Sustainability and Development	Bárbara Sureda
480021	Fundamentals of Mathematical and Systemic Sustainability Modelling ⁽¹⁾	Martí Rosas
480022	Fundamentals of Applied Statistics and Sustainability and Development Measurement	Karina Gibert
480041	Fundamentals of Social Sciences and Approaches to Socio-Environmental Conflicts	Míriam Villares
480051	Fundamentals of Geosciences and Geographic Information Systems	Xavier Sánchez
480031	Fundamentals of Ethics, Business and Innovation	Marc Alier
480032	Fundamentals of Sustainable Management and Environmental Management Systems	Santiago Gassó
480042	Research-Action Workshop on Sustainability Science and Technologies ⁽¹⁾	Jordi Segalàs

Elective courses

Code	Subject	Professor
480081	Urban Metabolism and Ecological Urbanism ⁽¹⁾	Josep Mercade
480093	Socio-Environmental Data Science ⁽¹⁾	Karina Gibert
480111	Integral Management of Urban and Ecological Water Cycles	Joan de Pablo
480072	Climate Change Mitigation Policies	Olga Alcaraz
480071	Biodiversity and Socio-Ecological Systems ⁽¹⁾	Jordi Morató
480074	Transdisciplinary and Social Research	Elisabet Roca
480075	Intelligent Sustainability Decision Support Systems ⁽¹⁾	Miquel Sànchez
480083	Regional and Transport Infrastructure Metabolism	Francesc Magrinyà
480091	Information and Communication Technologies	Eva Vidal
480092	Industrial Ecology	Joan de Pablo
480152	Sustainable Design of Products and Services ⁽¹⁾	Jordi Segalàs
480171	Complex and Socio-Environmental Networks ⁽¹⁾	Martí Rosas
480521	International Cooperation and Development	Alvar Garola
480511	Urban and Regional Development ⁽¹⁾	Francesc Magrinyà
480602	Construction and Building Construction Engineering and Technologies ⁽¹⁾	Miren Etxeberria
480073	Energy Economics and Sustainable Energy Systems ⁽¹⁾	Jordi de la Hoz

⁽¹⁾ Subjects taught in English language. Exams can be taken in Catalan, Spanish or English

Defended Master Thesis

Implementación de un modelo dinámico para evaluar la calidad de agua de la laguna Alalay en Cochabamba Bolivia

Hurricane Seasonal Forecast Modelling

Propuesta metodológica para la evaluación de la Huella de carbono de una titulación universitaria

Economía Circular: Diseño de una metodología y herramienta de evaluación de proyectos académicos

Estudio de promoción de movilidad activa en Puebla (México)

Analysis of the digital divide in the mobility ecosystem of the Barcelona Metropolitan Area

Movilidad sostenible desde una perspectiva ecofeminista hacia un espacio urbano resiliente e inclusivo

5.2. DOCTORAL PROGRAM IN SUSTAINABILITY

Sustainability research involves specialists from different origins and backgrounds with a variety of disciplinary perspectives but with the common will to contribute to the development of society by providing future generations with the options and skills required to forge their own path.

The doctoral programme in Sustainability encompasses the research and courses that deal with the current challenges to sustainability: exhaustion, distribution and management of natural resources, including energy and water; climate change impacts and adaptation and mitigation mechanisms; modelling of socio-environmental systems and assessment of their evolution and development; poverty and imbalances in urban and rural environments; technological innovation and integrated concepts in construction, architecture and management of public services and the environment; and preservation and promotion of environmental and cultural heritage.

Sustainability science and technology is a highly interdisciplinary field of research that offers the opportunity to make original contributions in understanding and solving problems that affect the welfare and development of peoples and societies, and in shaping a new perspective from which to analyse our reality, integrating approaches from different disciplines and embracing the very agents of change.

This programme, in which highly diverse research lines and fields of interest converge, may benefit from cross-disciplinary exchange between the different research lines. For this reason, in addition to the activities in which each research group is involved, a framework for discussion of research in progress is provided in the form of the Research Monitoring and Support Working Session. This session is held every academic year and is open to all doctoral candidates and lecturers who are interested in sustainability science and technology.

This PhD therefore, is open to professionals and researchers with the will and capacity to face these challenges and provide solutions through academic contributions of international impact.

The doctoral programme in Sustainability was validated by the Universities Council's Curriculum Validation and Accreditation Committee, in accordance with the provisions of Royal Decree 99/2011, of 28 January, regulating official doctoral studies. The first academic year under Royal Decree 99/2011 was 2013-14.

PhD in Sustainability – Facts & Figures 2020-21

Access and enrolment	
New doctoral students	14
Total students	89
Research plans defended	7
Read doctoral thesis	12

Defended PhD Thesis

Barbarà Mir, Laia

Thesis title: The Water-Energy-Food Nexus to tackle Climate Change in Morocco

Supervisor: Gil Roig, Jose Maria

Reading date: 12/11/2020

Gilani, Golshid

Thesis title: MCDM Approach for Assessing the Sustainability of Buildings Facades

Supervisor: De la Fuente Antequera, Alberto | Pons Valladares, Oriol

Reading date: 09/10/2020

Orduño Torres, Miguel Ángel

Thesis title: Análisis de preferencias hacia las acciones de adaptación y mitigación al cambio climático: Perspectiva del agricultor en el noroeste de México

Supervisor: Kallas Calot, Zein

Reading date: 20/11/2020

Ávila García, Daniela

Thesis title: Assessment of water ecosystem services and alternative scenarios to climate change and human impact in neotropical mountains

Supervisor: Morato Farreras, Jordi | Comín Sebastián, Francisco

Reading date: 22/01/2021

Sánchez Balvás, Lizeth Artemisa

Thesis title: Sustainability for energy-efficient lighting

Supervisor: De la Fuente Antequera, Alberto | Felipe Blanch, Jose Juan de

Reading date: 15/01/2021

Carrés González, Jordi

Thesis title: Propuesta metodológica para la implantación del análisis de riesgo en las auditorías de eficiencia energética

Supervisor: Alvarez del Castillo, Javier

Reading date: 23/02/2021

Oliveres Solé, Jordi

Thesis title: The Management of Fire Complexity at the Edge of Criticality. From Analysis of FIRE case studies, to a Synthesis approach for Mediterranean Forest landscapes and for Emergency Management Organization

Supervisor: Rosas Casals, Martí

Reading date: 02/02/2021

Ruiz Almeida, Adriana

Thesis title: Sustainability of the Agri-food Systems Characterization with Food Sovereignty Framework and the Evaluation Approach of the Major Threats

Supervisor: Rivera Ferre, Marta Guadalupe | Rosas Casals, Martí

Reading date: 29/04/2021

Ávila García, Daniela

Thesis title: Assessment of water ecosystem services and alternative scenarios to climate change and human impact in neotropical mountains

Supervisor: Jordi Morató Farreras, Francisco A. Comín Sebastián

Reading date: 22/01/2021

Moreno Barros, Ángela María

Thesis title: Memoria biocultural del conocimiento ancestral del agua para la resiliencia comunitaria. Casos de estudio embera-katios y zenúes (Colombia)

Supervisor: Morato Farreras, Jordi | Meneses Lucumi, Lucia Eufemia

Reading date: 14/07/2021

Penagos García, Guillermo León

Thesis title: From low carbon buildings to sustainable cities. Sustainability transitions in the built environment towards the UN Agenda

Supervisor: Morato Farreras, Jordi | Tollin, Nicola

Reading date: 06/07/2021

Silva Laya, Silvia Josefina

Thesis title: Dinámicas socioecológicas de la producción de durazno bajo el sistema de agricultura familiar periurbana en El Jarillo, Venezuela

Supervisor: Alvarez del Castillo, Javier | Pérez Martínez, Simón

Reading date: 21/04/2021

Defended Research Plans

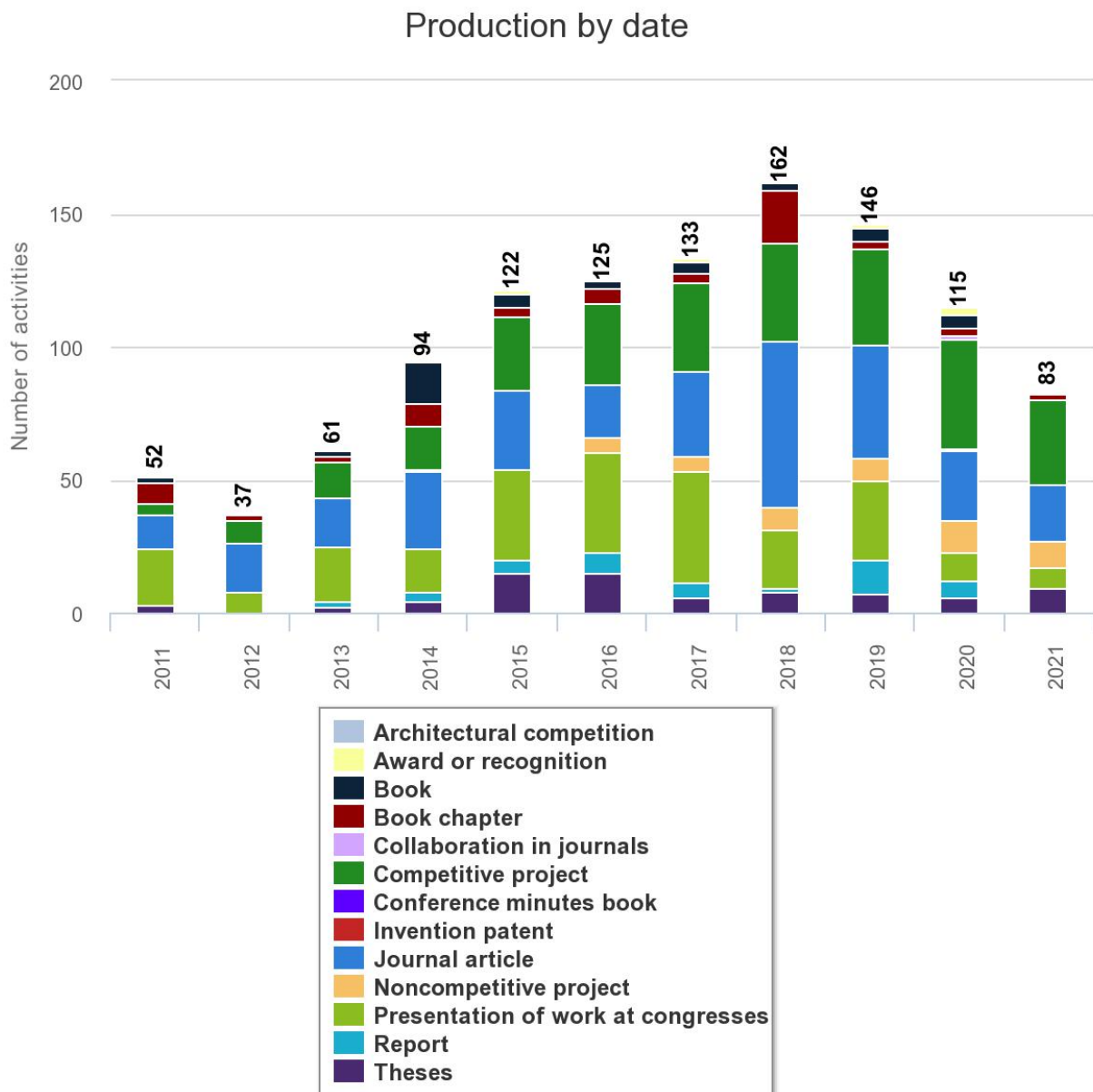
Student	Director
ANGERRI TORREDEFLOT, XAVIER	GIBERT, KARINA
BOJA GALLART, EDUARD	MASPOCH, M. LLUISA
RESTREPO MESA, MARÍA DEL PILAR	MORATÓ, JORDI
FALLAH DOOST, AHMAD	BOSCH RICARD
ROURE SALIETTI, MIREYA	NAVARRO, LEANDRO
SANTANA VALLS, JORDI	MASPOCH, M. LLUISA MIGRANYA, FRANCESC
YAZDIBHRI, SEYEDEHSARA	ALIER, MARC

6. PUBLICATIONS

6.1. SCIENTIFIC PRODUCTION

The research activities and production of ISUPC members are included in the following link:

<http://futur.upc.edu/IS.UPC>



Highcharts.com

7. ACTIVITIES

7.1. RESEARCH SEMINARS, WORKSHOPS AND OUTREACH ACTIVITIES

Campanya de comunicació: No resoldrem l'emergència climàtica sense justícia climàtica

Participants: Institute for Sustainability Science and Technology (ISST), Observatori del Deute de la Globalització (ODG) and Students from the Sustainability Science and Technology Master.

Date: 1th December 2020

Web: <https://odg.cat/blog/emergencia-justicia-climatica/>

Presentació llibre “Pactes verds en temps de pandèmies” de l'autor Alfons Pérez

Participants: Alfons Pérez and ISST (Institute for Sustainability Science and Technology)

Date: 17th February 2021

Web: <https://is.upc.edu/ca/noticies/alfons-perez-presenta-el-llibre-pactes-verds-en-temps-de-pandemies>

Els estudiants del Màster universitari en Ciència i Tecnologia de la Sostenibilitat participen en la xarxa Greening Africa Together

Participants: Students from the Sustainability Science and Technology Master.

Date: 19th February 2021

Web: <https://www.betterplace.org/en/projects/76407-support-an-eco-farming-school-in-kpassamga-mbou-benin>

Jornada “Entitats i universitats, una col·laboració de futur”

Participants: Institute for Sustainability Science and Technology (ISST) and Observatori del Deute de la Globalització (ODG).

Date: 23th february 2021

Web: <https://www.barcelona.cat/barcelonaciencia/ca/aprenentatge-servei-entitats-universitats-collaboracio-futur>

Jornada d'iniciació a la recerca (JoinRED-21)

Participants: PhD program in Sustainability

Date: 4th March 2021

Web: <https://is.upc.edu/ca/noticies/jornada-diniciacio-a-la-recerca-del-4-marc>

Xerrada sobre Territori i Sostenibilitat amb Sergi Saladié del Cicle de Conferències Parlem de Sostenibilitat

Participants: Sergi Saladié

Date: 11th March 2021

Web: <https://is.upc.edu/ca/noticies/xerrada-sobre-territori-i-sostenibilitat-amb-sergi-saladie-del-cicle-de-conferencies-parlem-de-sostenibilitat>

Sessió informativa del Màster en Ciència i Tecnologia de la Sostenibilitat

Participants: Institute for Sustainability Science and Technology (ISST)

Date: 18th May 2021, 15th June 2021 and 14th July 2021

Web: <https://is.upc.edu/ca/noticies/sessio-informativa-del-master-en-ciencia-i-tecnologia-de-la-sostenibilitat-2>

Conferència inaugural al congrès internacional "Vive la ciudad sostenible", a Colombia

Participants: Fermín Sánchez Carracedo

Date: 22th April 2021

Web: <https://is.upc.edu/ca/noticies/conferencia-inaugural-en-el-congreso-internacional-vive-la-ciudad-sostenible-en-colombia>

Diàleg: "Alfabetización y brecha digital"

Participants: Eva Vidal and Yolanda Rueda

Date: 20th April 2021

Web: <https://is.upc.edu/ca/noticies/dialeg-alfabetizacion-y-brecha-digital>

Tercera xerrada del cicle de conferències "Parlem de Sostenibilitat", "Live-in-Labs: A unique participatory approach for building sustainable communities"

Participants: Maneesha V. Ramesh

Date: 29th April 2021

Web: <https://is.upc.edu/ca/noticies/dialeg-alfabetizacion-y-brecha-digital>

Entrevista a Ràdio 4 sobre la llei europea contra l'obsolescència programada

Participants: Fermín Sánchez

Date: 26th April 2021

Web: <https://www.rtve.es/play/audios/serveis-informatius-radio-4/26-04-21/5888551/>

Dos NúmeroS Especials a la revista Sustainability editats per professorat de l'ISST: Education for Sustainable Development in Higher Education and Emergent Approaches to Prospective Thinking for Sustainable Development in Engineering Education.

Participants: Fermín Sánchez, Jordi Segalàs and Gemma Tejedor, Manuel Fernández and Eva Vidal.

Date: 26th April 2021

Web: https://www.mdpi.com/journal/sustainability/special_issues/higher_education_sustainable
https://www.mdpi.com/journal/sustainability/special_issues/eng_edu_susdev

Quarta conferència del cicle "Parlem de Sostenibilitat": "Transdisciplinary and Societal Impact"

Participants: Prof. Dr. Martina Schäfer

Date: 13th May 2021

Web: <https://is.upc.edu/ca/noticies/quarta-conferencia-del-cicle-parlem-de-sostenibilitat>

Vine i fes-te teva la Comunitat Climàtica de la UPC

Participants: Col·legi d'Arquitectes de Catalunya (COAC) and Universitat Politècnica de Catalunya (UPC)

Date: 25th May 2021

Web: <https://canviaelmon.upc.edu/ca/esdeveniments/durant/sostenible/comunitat-climatica>

8. ANNEX

Academics with formal adscription to IS.UPC and research activity related:

- Alcaraz Sendra, Olga (<http://futur.upc.edu/OlgaAlcarazSendra>)
- Àlvarez del Castillo, Javier (<https://futur.upc.edu/JavierAlvarezDelCastillo>)
- Claret Roca Rosell, Antoni-Maria (<https://futur.upc.edu/AntonimariaClaretRocaRosell>)
- Climent Vilaro, Juan (<https://futur.upc.edu/JuanClimentVilaro>)
- Cuchi Burgos, Alberto (<https://futur.upc.edu/AlbertoCuchiBurgos>)
- De Pablo Ribas, Joan (<https://futur.upc.edu/JoandePabloRibas>)
- Garola Crespo, Àlvar (<https://futur.upc.edu/AlvaroGarolaCrespo>)
- Gibert Oliveras, Karina (<https://futur.upc.edu/karinaGibert>)
- Magrinyà Torner, Francesc (<https://futur.upc.edu/FrancescMagrinyaTorner>)
- Martin Escofet, Carme (<https://futur.upc.edu/CarmeMartinEscofet>)
- Morató Farreras, Jordi (<https://futur.upc.edu/JordiMoratoFarreras>)
- Ribas Romeva, Carles (<https://futur.upc.edu/CarlesRibaRomeva>)
- Roca Bosch, Elisabet (<https://futur.upc.edu/ElisabetRocaBosch>)
- Rosas Casals, Martí (<https://futur.upc.edu/MartiRosasCasals>)
- Sánchez Carracedo, Fermín (<https://futur.upc.edu/FerminSanchezCarracedo>)
- Segalàs Coral, Jordi (<https://futur.upc.edu/JordiSegalasCoral>)
- Sureda Carbonell, Bàrbara (<https://futur.upc.edu/BarbaraSuredaCarbonell>)
- Trullols Farreny, Enric (<https://futur.upc.edu/EnricTrullolsFarreny>)
- Vidal Lopez, Eva (<https://futur.upc.edu/EvaMariaVidalLopez>)
- Villares Junyent, Míriam (<https://futur.upc.edu/MiriamVillaresJunyent>)