

MEDITERRANEAN
CAMPUS
OF RESEARCH



IN CHEMISTRY AND ENERGY, NUTRITION
AND HEALTH, OENOLOGY, TOURISM, AND
HERITAGE AND CULTURE

We move to move the world

ceics campus d'excel·lència internacional catalunya sud | campus de excel·lència internacional cataluña sur | campus of international excellence southern catalonia



CHEMISTRY AND ENERGY SUB-CAMPUS



HEALTH AND NUTRITION SUB-CAMPUS



OENOLOGY SUB-CAMPUS



TOURISM SUB-CAMPUS



HERITAGE AND CULTURE SUB-CAMPUS

The southern Catalonia region, which has a population of 800,000 and covers an area of 6,000 km², specialises socio-economically in the chemical and energy industries, in tourism, and in the food and wine industry. It is home to natural areas of great environmental value, and its cultural heritage has been recognised as a World Heritage Site. The URV, research and technology centres, and the specialised science and technology parks created in the region in recent years, some of which have become international leaders in their fields, together with companies in different productive sectors, governmental bodies and various socio-economic stakeholders have over the years created a system of knowledge and innovation with strategic specialisations in line with those set out in the EU's Smart Specialisation Strategy.



The CEICS project was launched under the aegis of this framework in 2009. It set out to gain CEI-Regional recognition in 2010, and has a clear vision of the future backed by solid measures to realise that future as well as committed stakeholders, and the university as a driving force to meet its goals.

This summary provides an overview of the progress of the CEICS from its inception and demonstrates the significant progress in excellence and international positioning in all of the CEICS's areas of specialisation.

Campus of International Excellence Southern Catalonia

Objective
To position southern Catalonia as a leading region of knowledge and innovation

Results
Provision of leading talent, generation of cutting-edge knowledge, creation of socio-economic value

Local and global impact
Contributions to knowledge, solutions to global challenges, promotion of competitiveness, creation of social capital

Smart specialisation
Areas of specialisation based on regional capabilities and global opportunities
Chemistry and energy, tourism, nutrition and health, oenology, and heritage and culture

CEICS STRANDS OF ACTION

- 1. Excellence in the education + research + innovation triangle**
 - Leading international education: bachelor's, master's, doctorate, and lifelong learning
 - Top quality research employing talent as a strategic vector
 - Focus on the creation of value: knowledge transfer, entrepreneurship and innovation
- 2. An effective strategic alliance: key stakeholders, governance, community action and projection**
- 3. Global action: strategy, cooperation, alliances and international visibility**
- 4. Benchmark campus: facilities, social responsibility, and creation of value in the area**

CEICS HAS BECOME A HUB FOR EXCELLENCE IN RESEARCH AND INTERNATIONAL VISIBILITY

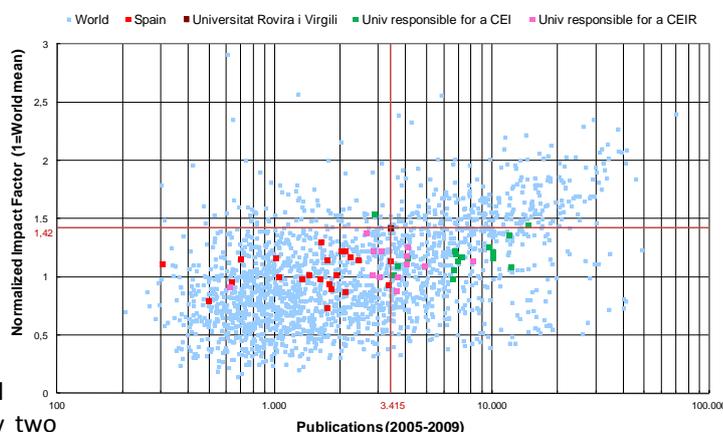
Vision in research

The CEICS is a top-quality intensive research environment, which, in terms of scientific impact indices, has positioned the URV among the top Spanish universities and among the top 100 European universities, and has positioned CEICS research institutes among the leaders in Europe and the top 100 in the world in their areas/subareas of expertise.

Progress in research

Scientific output at the URV reached 803 international publications in 2011, compared to 598 in 2009. Only two

Spanish CEI universities outperformed the URV in normalised impact (1.42, see chart), positioning the URV among the 350 best universities in the world. CEICS research institutes have also attained a noteworthy scientific position (see below). CEICS scientific output has gone from 853 international publications in 2009, to 1028 in 2011.



Primary research activities

- Development of the CEICS Research Talent Programme: employing resources of the different CEICS members, co-financed by these same parties as well as by private parties, private financing, and the 2011 CEI Reinforcement Programme.
- Consolidation of policies to support tenure track researchers at the URV and CEICS research institutes through incentives and a focus on quality.
- Reinforcement of international cooperation in research through exchanges, workshops, alliances, seminars and networks, which have increased the number of CEICS co-publications with leading researchers and institutions.

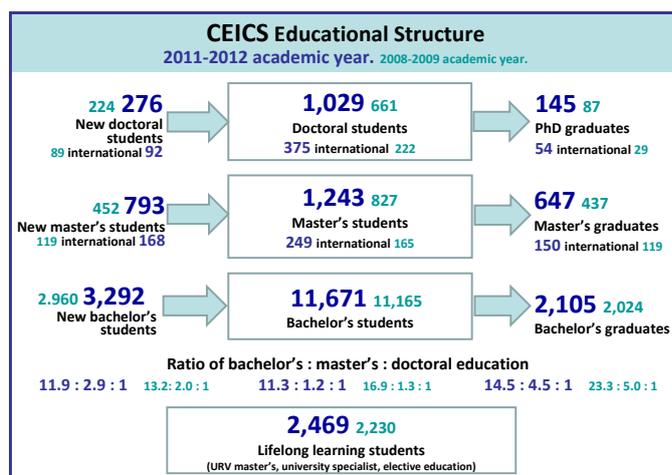
CEICS HAS DEVELOPED A COMPREHENSIVE AND TOP-QUALITY EDUCATIONAL PROGRAMME WITH POSTGRADUATES OF EXCELLENCE

Vision in education

The CEICS aims to position itself as a leader in the education of international entrepreneurial, research and innovation talent, providing master's and doctoral programmes of proven quality jointly with universities, research centres and Spanish and international companies, thereby acting as a magnet for the attraction of talent.

Progress in education

The CEICS has substantially increased its number of students and master's and doctoral graduates, and has made significant progress in internationalisation as well (see chart), achieving bachelor's-master's-doctorate ratios which approach those of leading European universities. Degree programmes are fully adapted to the European Higher Education Area (EHEA) and include eight doctoral programmes with excellence awards and six others with quality endorsements.



Primary educational activities

- The creation of the CEICS Doctoral School in cooperation with alliance stakeholders to improve research education.
- The development of a doctoral internationalisation strategy founded in creating partnerships that lead to joint international programmes and global campuses of excellence in the education of doctoral students.
- The URV leads the way in adaptation to the EHEA: teaching action plans, analysis of educator and student experiences, implementation of the core curriculum, improving external practices, implementation of competency assessment, educator training programmes, incentives to improve teaching, redefining learning spaces (virtual campus and remodelling Learning and Research Resource Centres – LRRCs).
- A commitment to [lifelong learning and vocational education](#): first Spanish university to develop a strategic plan for lifelong learning and an agreement to develop a joint university vocational education programme.



CEICS'S PRIORITY: KNOWLEDGE TRANSFER AND INNOVATION

Vision in knowledge transfer and innovation

Meeting the socio-economic needs in the CEICS's surroundings, providing solutions to global challenges while maximising the value of the knowledge generated at CEICS, developing new strategies and opportunities for co-innovation which will allow for a change from the linear generation-transfer-application concept to the collaborative dynamic of value creation which is emerging in leading universities and innovative environments.

Progress in knowledge transfer and innovation

Relevant strategic focus of CEICS research activities and their areas of specialisation on social challenges (health, energy, water, food, climate change, education, new forms of entertainment, etc.) with a very considerable increase in participation in competitive projects within the framework of the National Plan for RDI (e.g. 6 CENIT) and the EU's Seventh Framework Programme, with a consolidation of knowledge transfer through RDI contracts, increased exploitation of intellectual property, the creation of spin-offs, and the emergence of new forms of cooperation with companies (e.g. mixed RDI units).



Primary knowledge transfer and innovation activities

- Progressive consolidation of technology centres established in different CEICS areas of specialisation (see below): chemistry, nutrition and health, tourism and oenology, with a concentration of more than 50 people and €4 million in competitive funding and RDI contracts.

- The [CEICS Innovation Hub](#) project launched in January of 2011 provides a venue to explore opportunities for innovation and for the education of researchers, students and professionals in skills that promote the creation of value.
- In 2011, 45 project proposals generated by the Tarragona Knowledge Region Office, a strategic alliance between the URV and the Tarragona provincial council, in Spanish and European programmes (€41 M).
- Pilot projects have been conducted involving the temporary dedication of senior researchers to developing and improving spin-offs created from research results.

CEICS HAS MADE A REAL PROGRESS IN THE TRANSFORMATION OF THE CAMPUS, CIVIC COMMITMENT AND REGIONAL IMPACT

Vision in the transformation of the campus, civic commitment and regional impact

CEICS is committed to sustainability, equity, equality, inclusion and solidarity, developing top-quality services and facilities for the integrated community of university cities, and is actively involved in regional development through multi-faceted action.

Progress in the transformation of the campus, civic commitment and territorial impact

CEICS has internalised, planned and maintained commitments to sustainability, equity, equality, inclusion and solidarity. CEICS provides an exceptional level of service to the community while developing further services in adverse economic conditions. It is an international leader in the planning, implementation and analysis of regional impact (for example, the groundbreaking [EU-Drivers Project](#), and the presentation at the OECD Roundtable on Higher Education in Regional and City Development, 2012).

Primary activities in campus transformation, civic commitment and territorial impact

- The creation of halls of residence and the launch of the CEICS community shared services card.
- The implementation of environmental plan with significant achievements (20% reduction in energy consumption).
- The consolidation of the [extended campus](#) with 16 active knowledge antennas across the region.
- The [strategic plan for the Third Mission](#) with objectives, [indicators](#), and action plans.
- Involvement in recently developed regional and municipal strategic planning processes.
- Leadership and participation in regional strategic agreements .
- The creation of the second URV regional socio-economic impact study (The Power of Ideas).



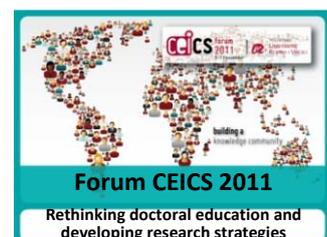
CEICS HAS MADE PROGRESS TOWARDS A LOCAL-GLOBAL COMMUNITY OF KNOWLEDGE AND INNOVATION

Vision in the development of the CEICS community

CEICS aims to establish itself locally and globally as an interconnected community of interests with a shared vision and actions based on governance, shared projection, combining resources, and efforts which will result in joint projects that multiply the impact on education, research and innovation.

Progress in the development of the CEICS community

CEICS has made significant strides in including alliance members in the community of interests which shares objectives and provides a common space for interaction. This progress is evidenced primarily in joint projects with different CEICS members: PhD partnerships, [Science Summer Campuses](#), the [Annual CEICS Forum](#), the [Nobel Chemistry Campus](#), [Cooperative Grant Programme](#), [University Vocational Education Programme](#), etc.



Primary activities in the development of the CEICS community

- The creation of the Southern Catalonia Knowledge Hub Association as a driving force at CEICS and the creation of executive bodies (board of directors, the CEICS council, coordinators of areas of specialisation) and executive functions (executive management, the CEICS office, area of specialisation managers).
- The first [CEICS Forum](#) was held in 2011 and brought together the CEICS community with international doctoral and research allies. The event will be held annually and plays a key role in promoting a sense of community and joint action.
- The development of corporate communications: the CEICS website with specific areas for important events, the CEICS newsletter, corporate image and materials, presence in international forums (for example, EU-drivers).
- The implementation of a CEICS information system for the indicator scorecard.
- Qualitative and quantitative evaluation of the satisfaction and impact of CEICS actions.



Meeting of the CEICS board
November 2011

- CEICS currently has a portfolio of 15 ongoing corporate projects/programmes and three seed projects.

ADVANCES IN INTERNATIONAL EXCELLENCE IN CEICS AREAS OF SPECIALISATION



Partnerships: Rovira i Virgili University (URV), Catalan Institute of Chemical Research (ICIQ), Catalan Institute for Energy Research (IREC), Chemistry Technology Centre of Catalonia (CTQC), Chemical Business Association of Tarragona (AEQT), Tarragona Science and Technology Park, URV Foundation. Collaborators: Repsol, BASF, DOW, BAYER, ENRESA Mestral Technology Centre, Tarragona Service Business Association (AEST), ENRESA, ENDESA, Lear Corporation, Frape Behr, IDIADA, Ascó Nuclear Association, Tarragona City Council, Tarragona Provincial Council

Vision

The goal of CEICS – chemistry and energy is to gain a position among the top European and international centres for education, research and innovation in chemistry, while leading in specific areas, such as catalysis, energy efficiency and renewable energy, biofuels and offshore wind. CEICS – chemistry and energy aims to become a first-class environment for chemical research and innovation with an emphasis on energy challenges, sustainability and health.

Progress

CEICS – chemistry and energy has developed cutting-edge, top-quality, highly competitive research

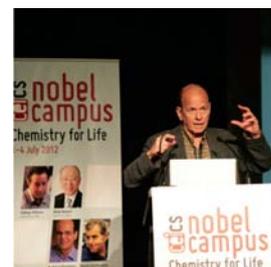
- The URV started 2012 in 178th place in the Shanghai University Ranking, with a specialty in chemistry. In one of the five indicators analysed, the relative number of publications in top journals, it ranked 14th.
- The [ICIQ](#) achieved a leading position, with a normalised impact of publications that places it third among all Spanish institutions, 17th among European institutions and 57th worldwide (SIR 2012 Report).

CEICS – chemistry and energy offers a wide range of excellent educational opportunities at all levels

- 8 bachelor's degrees adapted to the EHEA in recent years.
- 13 master's (many of these through joint programmes) a new master's in offshore wind power.
- 5 doctoral programmes which have received excellence or quality endorsements in recent years.

Primary actions and results

- The joint doctoral scholarship programme. The programme is an international leader in terms of the annual number of scholarships made available.
- The creation of the [CEICS Nobel Chemistry Campus](#): 6 Nobel Laureates in chemistry, leaders in RDI at major companies and 100 young researchers from 15 countries who came together for a world class educational experience.
- Two [summer campuses](#) (2011-2012) with broad participation in the field of chemistry: ICIQ and the URV.
- The creation of the [Zéfir Project](#), an experimental offshore wind energy park built on the Tarragona coast. The project is led by the Catalan Institute for Energy Research ([IREC](#)) and represents a scientific and technical challenge.
- Consolidation of the [Chemistry Technology Centre of Catalonia](#) (CTQC), with 40 projects and €1 million in fundin



Partnerships: Rovira i Virgili University (URV), Pere Virgili Institute for Health Research (IISPV), Nutrition and Health Technology Centre (CTNS), Institute for Food and Agricultural Research and Technology (IRTA), Tecnoparc – Technology Park of the Region of Camp, Joan XXIII University Hospital, Sant Joan University Hospital, Hospital of Verge de la Cinta in Tortosa, Pere Mata Institute, URV Foundation, Innovative Companies in Nutrition and Health Group (AEI-AINS). Collaborators: Borges, Virginias, La Morella Nuts, Pentaluba Group, Big Drum, Montsià Chamber of Rice Growers, Reus City Council, Tarragona Provincial Council, Farmers' Union of Catalonia

Vision

The goal of CEICS – nutrition and health is to gain a position as a benchmark European and international hub in education and knowledge generation in the relationship between diet and health, leading with a strategic “fork to farm” approach to agri-food innovation that involves the entire food chain (from sales to production), which places value on consumers (health, welfare, comfort, leisure.), and which employs sustainability and safety as key strategies.

Progress

CEICS – nutrition and health has significantly increased its impact and scientific competitiveness

- The URV was ranked second in the ranking of Spanish universities in the area of food science and technology (according to assessments of scientific publications related to food in this area).
- A significant number of research projects under the aegis of the National RDI Plan, RETIC networks (Thematic Networks for Cooperative Research in Health such as Predimed, REDINSCOR, Ris and Biobancs), CIBER networks

(Biomedical Research Networking Centres in Bioengineering such as CIBERDEM, CIBERES, CIBERBORN), and the Seventh Framework Programme (NUTRIMENTHE, BIOCLAIMS, FOODRISC).

CEICS – nutrition and health has made advances in the consolidation of postgraduate international excellence studies

- The coordination of inter-university master's and doctoral programmes (excellence endorsements).
- The consolidation of bachelor's studies in biochemistry and molecular biology, and in nutrition and dietetics as well as the recent creation of an agricultural engineering degree, which complements current educational opportunities in this area.

CEICS – nutrition and health has significantly improved capabilities to transfer knowledge to the productive sector

- Very significant participation in the food industry Centre for Transport Innovation (CENIT) projects (for example, CENIT VIDA, SENIFOOD).
- URV and CEICS hospitals have developed functional food safety and efficacy validation systems required by the EU via in vitro, in vivo, and human studies.

Primary actions and results

- European Consortium MOLNUPH Doctorate in Molecular Nutrition and Physiology led by the URV.
- The consolidation of the [Nutrition and Health Technology Centre](#) (CTNS) leading position: 70 RDI projects and almost €1 million in knowledge transfer.
- The creation of the Innovative Companies in Nutrition and Health Group (AINS), the only business association in Spain focused on functional food innovation and which is part of the CEICS.
- The launch of the Centre for -Omic Sciences (COS), with €4 million in funding from INNOCAMPUS. The only centre in Europe which applies -omic technology to RDI in health and nutrition.



Nutrition and Health Technology Centre (CTNS) with the Centre for -Omic Sciences (COS)



Partnerships: Rovira i Virgili University (URV), VITEC-Wine Technology Park, Institute for Food and Agricultural Research and Technology (IRTA), Catalan Institute of Vines and Wines (INCAVI), URV Foundation; Collaborators: Freixenet, Miquel Torres, Juvé&Camps, DO Montsant, DO Priorat, DO Penedés, DO Catalunya, DO Tarragona, DO Terra Alta, DO Conca de Barberà, Falset Town Council, Tarragona Provincial Council

Vision

The goal of CEICS – oenology is to position itself as one of the top international hubs for education, research and innovation in viticulture and oenology, acting in a local and international network with leading knowledge stakeholders, and a working closely with the productive sector. In order to achieve this aim, CEICS – oenology focuses its RDI efforts on knowledge of the biological processes involved throughout the winemaking process, developing advanced techniques for better production, marketing, and adaptation to climate change.

Progress

CEICS – oenology offers a wide range of excellent educational opportunities at all levels

- The [URV's School of Oenology](#), the first institution to provide specialty studies in Spain, is a leader in bachelor's education with some 30 annual graduates from Catalonia and the other communities of Spain.
- The URV and the University of Bordeaux have a joint degree agreement for the master's in oenology.
- CEICS – oenology has consolidated its doctoral programme in oenology (2011 excellence endorsement) with a remarkable critical mass (20 students in the 2011-2012 academic year) and its participation plays a very important role in the OENODOC international consortium, which is coordinated by the University of Bordeaux and includes 11 universities on four continents.

CEICS – oenology has advanced in scientific production and competitiveness in basic and applied research

- Scientific output at CEICS – oenology for 2007–2012 reached 120 publications (26% of which were joint international efforts), a critical mass leader in Spain and the first in Europe in its field.
- CEICS – oenology competitiveness in basic and applied research projects, including the [CENIT-DEMETER](#) and European WILDWINE project (2012-2015) of the Seventh Framework Programme.

Primary actions and results

- European and international university network mobility opportunities for master's and doctoral degree students through the OENODOC consortium.



Oenological Industry Science and Technology Park (VITEC)

- Consolidation of the VITEC technology centre as a comprehensive support centre for RDI and technology services for the wine sector. Financing scheme fully supported by competitive activity, contracted projects, and services plans expected to reach €1 million in 2012.



Partnerships: Rovira i Virgili University (URV), Tourism and Leisure Science and Technology Park (PCTTO), Consortium for Improving Competitiveness in Tourism and Leisure in the Province of Tarragona (CMCTUR), Costa Daurada Foundation for Tourism Studies (FET), Hotel and Catering Business Association of the Province of Tarragona (FEHT), URV Foundation. Collaborators: PortAventura, BDigital, Vila-seca City Council, Tarragona Provincial Council

Vision

Located in one of the foremost European and global tourist destinations, CEICS – tourism aims to become a leader in talent, research and innovation in tourism and leisure activities aimed at developing knowledge and solutions to address structural changes associated with competitive processes between destinations, new demand profiles, social and environmental awareness, widespread use of new technologies, new patterns of mobility and consumption trends which lead to the differentiation of tourism and leisure, and art, culture, education, shopping and sports.

Progress

CEICS – tourism has progressed towards a full range of top quality bachelor’s and graduate degree courses

- The consolidation of degree courses offered in tourism with some 90 graduates per academic year in recent years.
- Official master’s degrees (Tourism Management) and specific master’s degree programmes for professionals (for example, wine tourism) and increased in-company training in individual cases (for example, Port Aventura University, Port Aventura’s internal training programme).
- Doctoral programme in tourism, one of the few in this field in Spain, and theses linked to tourism, leisure, service management, mobility and technologies in economics and engineering doctoral programmes.

CEICS – tourism has advanced steadily towards the formation of a leading knowledge and innovation hub

- CEICS – tourism has achieved a critical interdisciplinary mass, which is currently among the most prominent in Spain, and has established itself as a European hub for knowledge in tourism and leisure with great future potential.
- Increased scientific output, especially top-quality production, accompanied by increased competitiveness, both nationally (five national RDI plan projects) as well as internationally (two Seventh Framework Programme projects).

Primary actions and results

- The creation of the [URV’s School of Tourism and Geography](#) with a modern LRRC.
- The internationalisation of the doctoral programme in tourism, including the creation of a roadmap, coordinated by the URV, in which leading universities and research centres on three continents already participate.
- The consolidation of the [Tourism and Leisure Science and Technology Park](#) (PCTTO), the only park in Spain exclusively specialising in tourism. The park has an occupancy rate of 70%, and includes the Consortium for Improving Competitiveness in Tourism and Leisure, as well as the Costa Daurada Foundation of Tourism Studies and Businesses. In the last two years projects have been conducted for a total of €2 million.



Tourism and Leisure Science and Technology Park (PCTTO)

Partnerships: Rovira i Virgili University (URV), Catalan Institute of Human Paleocology and Social Evolution (IPHES), Catalan Institute of Classical Archaeology (ICAC), URV Foundation; Collaborators: Tarragona City Council, Tarragona Provincial Council

Vision

The goal of CEICS – heritage and culture is to become an international leader in education, research and socio-economic application of knowledge in the fields of human palaeoecology and social evolution, as well as classical archaeology, with an interdisciplinary approach linking social and human sciences with experimental sciences and technologies.

Progress

CEICS – heritage and culture has consolidated its leadership in graduate human paleoecology and archaeology

- European quaternary and prehistory master’s programmes promoted by the URV with the participation of the [Catalan Institute of Human Paleocology and Social Evolution \(IPHES\)](#) in conjunction with leading European universities and centres. In 2004 it was chosen as one of the first Erasmus Mundus master’s and doctoral programmes of intercollegiate excellence in this speciality.

- Official interuniversity master's in classical archaeology under the aegis of the international ARCHEOMED master's programmes promoted by the URV and ICAC, and the interuniversity doctoral programme led by the URV.
- In 2012 there were nearly 40 doctoral students in prehistory (22) and classical archaeology (15), as well as 70 master's degree students (32 and 38, respectively).

CEICS – heritage and culture has conducted research of excellence in human paleoecology and archaeology

- IPHES-URV ranks first worldwide in scientific quality (impact factor) in the field of human paleoecology (ahead of Harvard according to the Scopus database) which means that in the area of social sciences of the Essential Science Indicators (2001-2011), the URV is first in citations per article of the 12 Spanish centres in this large and visible multidisciplinary area (prehistory and paleoecology are included in this large area of social sciences).
- URV-IPHES oversees the study of some of the most important international prehistoric sites in the world: the Atapuerca and Orce sites in Spain as well as sites in Chile, Algeria, Mexico, Morocco, the Philippines, Indonesia, Korea and Georgia.
- In the area of classical archaeology CEICS – heritage and culture has maintained a significant scientific presence in excavations and archaeological sites in Spain and internationally and made very significant progress in recent years. Recently [the Catalan Institute of Classical Archaeology \(ICAC\)](#) and the URV joined an archaeological project in the city of Cuzco (Peru) to create a 3-D reconstruction which will add value to the site of the Inca capital.
- ICAC is coordinating the International Union of Prehistoric and Protohistoric Sciences Conference to be held in Burgos in 2014, and IPHES coordinates the 18th International Congress of Classical Archaeology to be held in Merida in May 2013.
- CEICS – heritage and culture is a leader in the socialisation of science through museumization, audiovisual productions, and other cultural and historical festivals.



Atapuerca archaeological site, co-directed by Eudald Carbonell, Director of IPHES

Primary actions and results

- The international quaternary and prehistory doctorate recognised in 2012 as ERSAMUS Mundus (among 9 of 239 proposals submitted) and the creation of an alliance with the University of Burgos and the Spanish National Research Center for Human Evolution to create a doctoral school in this field.
- The ICAC and URV led the European consortium Doctoral Programme in Classical and Mediterranean Archaeology which resulted from the meeting held at Forum CEICS 2011 on doctoral internationalisation.
- The launch of the Tarraco project, a leading international platform that combines education, research, innovation, socialisation and economic impact.



Roman amphitheatre, Tarragona, UNESCO World Heritage Site

CONCLUSIONS AND FUTURE CHALLENGES

Principal conclusions for the approximately two years of CEICS development:

1. CEICS has made significant progress in teaching, research and knowledge transfer.
2. All CEICS areas of specialisation have international visibility and impact and positioned in highly competitive areas in their fields.
3. The joint activities of CEICS's allied stakeholders and partners have resulted in projects and programmes that have contributed to CEICS's progress and vision.
4. CEICS has made progress as a united community of interests with actions that combine resources and efforts to increase impact.

Key challenges and opportunities for the CEICS's immediate future:

1. Creating leading global campuses for the education of researchers and the mobility of talent.
2. Developing environments for co-innovation with the participation of researchers from all disciplines.
3. Intensifying strategic public-private cooperation in mutually beneficial programmes and projects.
4. Creating international RDI alliances to face global challenges.
5. Promoting a sound strategy for participation in the EU's Horizon programme.