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IScAI

THE INTERNATIONAL SCHOOL FOR ADVANCED INSTRUMENTATION

FUNDED BY CONSOLIDER INGENIO 2010 "FIRST SCIENCE WITH GTC"

ISCAI

THE INTERNATIONAL SCHOOL FOR ADVANCED INSTRUMENTATION

The Instituto de Astrofísica de Canarias (IAC) and partner institutions (UCM, UF, UNAM and INAOE) announce the first "International School for Advanced Instrumentation" (IScAI).

IScAI - 2009

IScAI is a major international initiative in higher education that aims to become a centre of excellence to learn expertise in all areas related to the construction of cutting-edge scientific instrumentation, with a particular emphasis on astronomical instrumentation.

IScAI-2009 offers an intensive programme of courses and laboratory work in key areas related to the design and construction of scientific instrumentation. The laboratory work will be done at various institutions with world-class instrumentation programs and high-tech companies in Europe and America.

IScAI-2009 is open to astronomers, physicists and engineers world-wide.

Students

Students attending the IScAI-2009 will have access to:

(i) A highly specialized curriculum of courses related to the construction of frontline scientific instrumentation.
(ii) Laboratory internships working with world-class instrumentation groups in scientific institutions and high-tech companies.

The IScAI-2009 will offer the students the knowledge and expertise required to participate in –and eventually lead– the construction of state-of-the-art scientific instruments, including those currently being designed for the new generation of giant ground-based telescopes and space observatories.

IScAI-2009 is funded by the Consolider-Ingenio 2010 grant "First Science with the GTC", under the Consolider Ingenio Programme of the Spanish Ministry of Science and Innovation.

Registration fee and Financial Aid

The IScAI-2009 registration fee is 15000 €. Financial aid may be available to students requesting funds to cover the cost of the registration fee, as well as travel, accommodation and/or living expenses while attending the courses and/or during their visit to the laboratories.

IScAI - 2009 Programme

The programme consists of three months of intensive course work, to be held at the headquarters of the IAC in Tenerife (Canary Islands), and three and a half months of lab work, to be done at the scientific institution or high-tech company assigned to each student.

Schedule

Jun 8:	Welcome and Introduction to the IScAI
Jun 8-26:	Optics (30 hours) & Mechanics (30 hours)
Jun 29-Jul 3:	Optics & Mechanics projects
Jul 6-24:	Software(30 hours) & Electronics (30 hours)
Jul 27-Aug 7:	Software & Electronics projects
Aug 10-21:	Management (20 hours)
Aug 24-28:	Management project
Aug 28:	Deadline for submission of class projects
Aug 31 - Sep 4:	Travel to Institutions/Companies
Sep 7-Dec 11:	Laboratory work
Dec 11:	Deadline for submission of Lab Report
Dec 16-17:	Oral presentations by the students. Evaluations by the Board of Directors
Dec 18:	Graduation

In addition to the course work, during the period Aug 10-21 various complementary activities will take place, including monographic conferences by invited speakers and a visit to the Gran Telescopio Canarias (GTC).

The theoretical courses will cover:

Optics: Students will learn the basis of optical design, including how to translate scientific requirements into high-level optical specifications, and to make decisions based on figures of merit and error budget calculations.
Mechanics: Students will learn the basis of mechanical design, including analysis of precision designs for opto-mechanical and robotic systems, both in cryogenic and non-cryogenic conditions.
Electronics: Students will learn the basis of electronic design, including control electronics for devices and low noise read out electronics.
Software: Students will learn the basis of control and data processing software. Students will develop expertise in the latest trends in all aspects of instrumentation software.
Management: Students will learn to describe projects in terms of packages, to impose milestones and deadlines, to control cash flow, and to discuss error budgets with both the scientists and the engineers.

Partner Companies

The IScAI is open to high-tech companies with expertise in cutting-edge scientific instrumentation in Europe and America interested to participate in 2009. As a partner, a company is expected, first, to propose an internship project, and second, to host IScAI students during their internship to work in its laboratories. Participation in the education of these highly specialized personnel will also facilitate the involvement of those high-tech companies in the partnerships with scientific institutions for building the next generation of scientific instrumentation. Partner Companies already confirmed for the IScAI 2009 are: GMV (Spain), and Fractal-SLNE (Spain).

Partner Institutions

Instituto de Astrofísica de Canarias (IAC, Spain)
Universidad Complutense de Madrid (UCM, Spain)
University of Florida (UF, USA)
Universidad Nacional Autónoma de México (UNAM)
Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico)

IScAI-2009 Board of Directors

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