UNIVERSITÀ
DEGLI STUDI DI TRIESTE

Sezione Ricerca e Dottorati

Ripartizione Dottorati

LAST REVISED 07/12/2011

DOCTORAL SCHOOL IN ENGINEERING SCIENCES

GENERAL DESCRIPTION

SUBJECT AREAS COVERED BY THE SCHOOL:
- main area:
- other areas: ICAR/22, GEO/11, ICAR/01, ICAR/10, ICAR/04, ICAR/08, ICAR/02, ICAR/07, ICAR/09, ICAR/17, ICAR/05, ICAR/06, GEO/10, ING-IND/13, ING-IND/15, ING-IND/01, ING-IND/10, ING-IND/16, ING-IND/14, ING-IND/11, ING-IND/09, ING-IND/02, ING-IND/17, ING-IND/08, ICAR/21, ICAR/14, ICAR/19, ING-IND/29, ICAR/18, AGR/01, SECS-P/06

ORGANIZING DEPARTMENT: Dip. di Ingegneria civile e architettura
PARTICIPATING DEPARTMENTS (UNIVERSITY OF TRIESTE):
- Dipartimento di Ingegneria Meccanica e Navale

DURATION: 3
OFFICIAL LANGUAGE OF THE SCHOOL: Italian

CONTACT INFORMATION

DIRECTOR OF THE SCHOOL: Prof. Diego Micheli - Dipartimento di Ingegneria Meccanica e Navale - Università degli Studi di Trieste - tel. 040/5583809, e-mail: micheli@units.it

VICE-DIRECTOR: Prof. Claudio Amadio - Dipartimento di Ingegneria Civile e Architettura - Università degli Studi di Trieste - tel. 040/5583833, e-mail: amadio@univ.trieste.it

SCIENTIFIC PROJECT:The PhD School in Engineering Science is finalized to the formation of researchers with a high scientific preparation and a culture oriented towards the engineering and architecture applications in the sectors of competence, able to conceive and to develop knowledge and innovative methodologies of investigation and design and to develop, with technical-scientific and managerial competences, a highly qualified research activity in public or private bodies.

The Doctors formed by the School will develop their professional activity in the sectors defined by the official research themes of the three Doctorate branches, in which the School is organized:
- MECHANICAL ENGINEERING, NAVAL ARCHITECTURE, ENERGY AND PRODUCTION ENGINEERING
- CIVIL AND ENVIRONMENTAL ENGINEERING
- ARCHITECTURE AND TOWN PLANNING

The School aims to favor the collaboration and the sinergies in teaching and research among the different branches. To this end, the actual structure must be intended as a proposal open to other sectors of the engineering, architecture and applied sciences that could take profit of this opportunity of mutual development in future applications for PhD Schools.

The activities of the PhD students will be oriented to the planning, theoretical analysis, soft-computing and advanced experimentation. The first year of the formative project includes the participation to courses of lectures, common to all the branches of the School and partly common to other Doctorate Schools of the University of Trieste and of other Universities (in order to build shared advanced research paths), on basic scientific subjects and organizational aspects of the scientific search. These courses will be integrated by courses belonging to postgraduate (Laurea Magistrale) studies, selected in base to the needs and weaknesses identified in the individual initial preparation, also taking into account the specificities of the selected research themes.

During the first year an analysis of the state of the art will be conducted in the discipline of interest, and the main theme of study will be identified. The second and third year will be devoted to the development of the individual themes of research, and in this frame it will be proposed to the student, preferably during the

second year, a period of permanence in a research body of international relevance specialized in the selected sector.
Important common features to the scientific formation that the School intends to transmit to the PhD students are an open and multidisciplinary approach the problems of the engineering science and architecture. Particular attention will also be devoted to the interaction with the territory, industrial and professional productive world and the theoretical-experimental approach as qualifying aspect of the advanced research.
The whole scientific project will be therefore oriented to the valorization of the abilities and individual professionalism of the PhD students, with whom the School assumes a precise responsibility of addressing and collocation of the given formation in the international job market. The correspondence of the planned activities to the obtainment of such objective will be carefully evaluated by the body of teachers and by the Scientific Council, constituted by external experts of known experience and high scientific profile.

UNIVERSITÀ
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Sezione Ricerca e Dottorati

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CURRICULUM: CIVIL AND ENVIRONMENTAL ENGINEERING

GENERAL DESCRIPTION

SUBJECT AREAS COVERED BY THE CURRICULUM:
- main area: ICAR/05
- others areas ICAR/22; GEO/11; ICAR/01; ICAR/10; ICAR/04; ICAR/08; ICAR/02; ICAR/07; ICAR/09; ICAR/17; ICAR/05; ICAR/06; GEO/10

RESEARCH FIELDS:
1. Environmental and georesources engineering
2. Structures, roads and trasportation engineering

ORGANIZING DEPARTMENT: Dipartimento di Ingegneria Civile e Architettura

PARTICIPATING DEPARTMENTS (PADOVA):
- Dipartimento di Costruzioni e trasporti

ITALIAN PARTNER UNIVERSITIES:
- Università degli Studi di Padova

OTHER PARTICIPATING INSTITUTIONS (Italian):
- INOGS - Istituto Nazionale di Oceanografia e di Geofisica Sperimentale

MAXIMUM NUMBER OF MONTHS TO BE SPENT ABROAD: 6

ADMISSION INFORMATION

NUMBER OF PLACES AVAILABLE: **7**
- SCHOLARSHIPS: 4

  FUNDING BODY/IES:
  - [cod MD/1/1] Università degli Studi di Trieste + D.I.C.Ar 1
  - [cod MD/2/1] Università degli Studi di Trieste + D.I.C.Ar funded by IVALSA CNR (Project title "*Analysis of seismic behaviour of multi-storey wooden buildings*")..... 1
  - [cod M/D3/1] Università degli Studi di Trieste + D.I.C.Ar 1
  - [cod G/4/1] MIUR "Progetto Giovani Ricercatori" on the action of "*Transportation and advanced logistics, info mobility of persons and goods*" (Project title "*Innovative GNSS (Global Navigation Satellite System) Methodologies applied transportation, advanced logistics and environmental disaster management*") 1

    N.B: This scholarship does not provide extra funding for eventual periods of study abroad within the duration of the doctorate, unless the organizing Department decides to make these funds available.

  Candidates who accept an earmarked scholarship are committed to the pre-assigned topic

NON-FUNDED PLACES :
- holders of a research grant (see Art. 1.1 - Requirements)..... **2**

  grant-holders funded by the Italian Ministry of Foreign Affairs permitted to sit the entrance examination in the country of origin..... **1**

ACADEMIC QUALIFICATIONS REQUIRED: See Announcement (Art. 1.1 - Requirements)
- Degrees required for this curriculum (or equivalent degrees awarded by non-Italian institutions):
  - Lauree specialistiche/magistrali:

    28/S INGEGNERIA CIVILE
    34/S INGEGNERIA GESTIONALE
    36/S INGEGNERIA MECCANICA
    31/S INGEGNERIA ELETTRICA
    20/S FISICA
    35/S INGEGNERIA INFORMATICA
    38/S INGEGNERIA PER L'AMBIENTE E IL TERRITORIO

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45/S MATEMATICA
50/S MODELLISTICA MATEMATICO-FISICA PER L'INGEGNERIA
82/S SCIENZE E TECNOLOGIE PER L'AMBIENTE E IL TERRITORIO
85/S SCIENZE GEOFISICHE
86/S SCIENZE GEOLOGICHE

- Lauree vecchio ordinamento
  INGEGNERIA CIVILE
  INGEGNERIA CIVILE PER LA DIFESA DEL SUOLO E PIANIFICAZIONE TERRITORIALE
  INGEGNERIA DELLE TECNOLOGIE INDUSTRIALI
  INGEGNERIA EDILE
  INGEGNERIA EDILE-ARCHITETTURA
  INGEGNERIA ELETTRONICA
  INGEGNERIA ELETTROTECNICA
  INGEGNERIA GESTIONALE
  INGEGNERIA INDUSTRIALE
  INGEGNERIA INFORMATICA
  INGEGNERIA MECCANICA
  INGEGNERIA NAVALE
  INGEGNERIA NAVALE E MECCANICA
  INGEGNERIA PER L'AMBIENTE E IL TERRITORIO
  INGEGNERIA DEI MATERIALI
  INGEGNERIA ELETTRICA
  INGEGNERIA MINERARIA
  INGEGNERIA NUCLEARE
  SCIENZE GEOLOGICHE
  MATEMATICA
  FISICA

DEADLINE FOR COMPLETION OF DEGREE: **22.11.2011**
ASSESSMENT CRITERIA: Qualifications + Interview

- FINAL SCORE (the final score is based on the sum total of marks obtained in the interview plus the points given for qualifications and publications): 100
  MINIMUM FINAL SCORE REQUIRED: 70/100
- MAXIMUM NUMBER OF POINTS AWARDED FOR QUALIFICATIONS+ PUBLICATIONS: 40
  QUALIFICATIONS REQUIRED/RELATIVE WEIGHT:
  - Art. 11 Rules for Doctorates: all candidates are required to present the following documents, regardless of whether or not a score is assigned to them (see below):
    a. a detailed curriculum vitae et studiorum: 20/40
    b. a copy of the Master's degree thesis: 10/40
       For students with a degree awarded by a non-Italian university, an abstract of the thesis in English or Italian is sufficient.

    as well as
    1. other academic qualifications and publications: 7/40
    2. other qualifications: 3/40
    - Qualifications Assessment Form (unless this form is presented, qualifications and publications CANNOT be assessed by the Examining Board)

  MINIMUM SCORE REQUIRED FOR QUALIFICATIONS/PUBLICATIONS: ..... no
- ORAL EXAMINATION MARK OUT OF: 60
  MINIMUM SCORE REQUIRED FOR INTERVIEW: 42/60
  ABSOLUTE DEADLINE FOR RECEIVING CERTIFICATES: **23.11.2011**
  ADDRESSES TO WHICH CERTIFICATES SHOULD BE SENT: by mail to Segreteria del Dipartimento di

Ingegneria civile e architettura – edificio C9 (C9 building) – P.le Europa,1 - 34127 TRIESTE (please write on the envelope: Scuola di dottorato in Scienze dell'ingegneria indirizzo Ingegneria Civile e Ambientale) – in person at the same address from Monday to Friday from 9:00 am to 1:00 pm.

EXAMINATION SCHEDULE:

- ORAL INTERVIEW: **24.11.2011 at 3.00 p.m.** at D.I.C.Ar – Biblioteca Sezione Strade Trasporti e Topografia

ALTERNATIVE LANGUAGE TO ITALIAN FOR THE INTERVIEW: English, French, German

CEFR LEVEL: --

CONTACT INFORMATION

CURRICULUM SUPERVISOR: Prof. Claudio Amadio - Dipartimento di Ingegneria Civile e Architettura- Università degli Studi di Trieste - tel. 040/5583833, e-mail: amadio@univ.trieste.it

VICE: Prof.ssa Raffaela Cefalo - Dipartimento di Psicologia - Università degli Studi di Trieste - tel. 040/5583578, e-mail: cefalo@dic.univ.trieste.it

WEB SITE: www.dicar.units.it/dottorati/dottorato.htm

EDUCATIONAL AIMS AND RESEARCH TOPICS:The research themes are those characterising the civil engineering research fields at the University of Trieste and, in particular:

a. structural and functional design;
b. design and management of infrastructure and transport systems;
c. environmental engineering and earth resources;
d. geomatics.

In particular, in structural engineering researches is developed on calculation of steel, reinforced concrete and wood structure both in static and dynamic conditions. Particular attention is paid to the study of seismic vulnerability and mitigation of existing structures, in addition to the advanced seismic design of new structures. In the design and management of infrastructure and transportation systems are addressed first the issues of geometric and physical characteristics, with particular reference to the effects on road safety. Furthermore are deepened methods for planning the transportation systems, with particular reference to road and rail, and for their technical and economic evaluation. Within the environment and earth resources engineering, researches are detailed on methods and techniques for subsoil characterization, new raw materials and energy sources research and exploitation and their sustainable management in different geological and environmental contexts. Particular attention is devoted to surface and ground water resources management, vulnerability and rehabilitation of polluted water bodies from urban and industrial activities. Finally, specific aspects are examined, such as natural risk prevention and protection (hydrological, geological, seismological and volcanic) and security for large civil settlements. In the geomatics field the research activities are relative to GNSS surveying technologies applications to environmental monitoring, terrestrial and aerial real time navigation and integrated GIS (Geographic Information Systems). These research topics are addressed in an integrated approach, with particular emphasis on user safety, operational efficiency and economic and environmental sustainability.

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Sezione Ricerca e Dottorati

Ripartizione Dottorati

CURRICULUM: MECHANICAL ENGINEERING, NAVAL ARCHITECTURE, ENERGY AND PRODUCTION

GENERAL DESCRIPTION

SUBJECT AREAS COVERED BY THE CURRICULUM:
- main area: ING-IND/08
- other areas ING-IND/13, ING-IND/15, ING-IND/01, ING-IND/10, ING-IND/16, ING-IND/14, ING-IND/11, ING-IND/09, ING-IND/02, ING-IND/17

RESEARCH FIELDS:
1 Theorical and experimental methodologies for the analysis and design of ships and ocean structures
2 Inverse problems and functional and shape optimization in heat transfer
3 Design and optimization of fluid machines and power plants
4 Design, synthesis and mechanical construction
5 Product development, process modeling and optimization, design, management and logistics of industrial plants
6 Rational use of Energy in civil and industrial fields

ORGANIZING DEPARTMENT: Dipartimento di Ingegneria Meccanica e Navale
FOREIGN PARTICIPATING INSTITUTIONS:
University of Rijeka
Osaka University – Department of Naval Architecture and Ocean Engineering

MAXIMUM NUMBER OF MONTHS TO BE SPENT ABROAD: 12

ADMISSION INFORMATION

NUMBER OF PLACES AVAILABLE: **12**
- SCHOLARSHIPS: 6
  FUNDING BODY/IES:
  - [cod M/1/2] Università degli Studi di Trieste 1
  - [cod MD/2/2] Università degli Studi di Trieste + Dip di Ingegneria meccanica e Navale funded by Area Scienze Park – project ENERPLAN and co-funded by the Department. 1
  - [cod D/3/2] Dip di Ingegneria meccanica e Navale funded by ELECTROLUX professional (Project title: "*Chemical and energetic optimization of cleaning processes in appliances for professional use*") 1
  - [cod D/4/2] Dip di Ingegneria meccanica e Navale funded by ELECTROLUX professional (Project title: "*Fluid-dynamic and energetic optimization of cleaning circuits in appliances for professional use*"). 1
  - [cod D/5/2] Dip di Ingegneria meccanica e Navale funded by ELECTROLUX Italia s.p.a. (Project title: "*Energy optimization of the production processes of home appliances*") 1
  - [cod D/6/2] Dip di Ingegneria meccanica e Navale funded by NAVALPROGETTI s.r.l. (Project title: "*Analysis of offshore Oil and Gas installations with particolar reference to Energy and environmental issues*") 1

  Candidates who accept an earmarked scholarship are committed to the pre-assigned topic

ACADEMIC QUALIFICATIONS REQUIRED: See Announcement (Art. 1.1 - Requirements)
Degrees required for this curriculum (or equivalent degrees awarded by non-Italian institutions):
- Lauree specialistiche/magistrali:
  4/S - in architettura e ingegneria edile
  25/S - in ingegneria aerospaziale e astronautica
  28/S - in ingegneria civile
  29/S - in ingegneria dell'automazione
  31/S - in ingegneria elettrica
  33/S - in ingegneria energetica e nucleare
  34/S - in ingegneria gestionale
  36/S - in ingegneria meccanica

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37/S - in ingegneria navale
38/S - in ingegneria per l'ambiente e il territorio
61/S - in scienza e ingegneria dei materiali
LM-4 ARCHITETTURA E INGEGNERIA EDILE-ARCHITETTURA
LM-20 INGEGNERIA AEROSPAZIALE E ASTRONAUTICA
LM-23 INGEGNERIA CIVILE
LM-24 INGEGNERIA DEI SISTEMI EDILIZI
LM-25 INGEGNERIA DELL'AUTOMAZIONE
LM-28 INGEGNERIA ELETTRICA
LM-30 INGEGNERIA ENERGETICA E NUCLEARE
LM-31 INGEGNERIA GESTIONALE
LM-33 INGEGNERIA MECCANICA
LM-34 INGEGNERIA NAVALE
LM-35 INGEGNERIA PER L'AMBIENTE E IL TERRITORIO
LM-53 SCIENZA E INGEGNERIA DEI MATERIALI

- Lauree vecchio ordinamento
  ARCHITETTURA
  INGEGNERIA CIVILE
  INGEGNERIA AEROSPAZIALE
  INGEGNERIA DELLE TECNOLOGIE INDUSTRIALI
  INGEGNERIA EDILE
  INGEGNERIA EDILE-ARCHITETTURA
  INGEGNERIA NUCLEARE
  INGEGNERIA ELETTROTECNICA
  INGEGNERIA GESTIONALE
  INGEGNERIA INDUSTRIALE
  INGEGNERIA MECCANICA
  INGEGNERIA NAVALE
  INGEGNERIA NAVALE E MECCANICA
  INGEGNERIA PER L'AMBIENTE E IL TERRITORIO
  INGEGNERIA DEI MATERIALI

DEADLINE FOR COMPLETION OF DEGREE: **15.12.2011**

ASSESSMENT CRITERIA: Qualifications + Interview

- FINAL SCORE (the final score is based on the sum total of marks obtained in the interview plus the points given for qualifications and publications) 100
  MINIMUM FINAL SCORE REQUIRED: 70/100
- MAXIMUM NUMBER OF POINTS AWARDED FOR QUALIFICATIONS + PUBLICATIONS: 30
  QUALIFICATIONS REQUIRED/RELATIVE WEIGHT:
  - Art. 11 Rules for Doctorates: all candidates are required to present the following documents, regardless of whether or not a score is assigned to them (see below):
    a. a detailed curriculum vitae et studiorum: 18/30
    b. a copy of the Master's degree thesis: 9/30
       For students with a degree awarded by a non-Italian university, an abstract of the thesis in English or Italian is sufficient.

    as well as

    1. other qualifications and publications: 3/30
  - Qualifications Assessment Form (unless this form is presented, qualifications and publications CANNOT be assessed by the Examining Board)

  MINIMUM SCORE REQUIRED FOR QUALIFICATIONS/PUBLICATIONS: 21/30
- ORAL EXAMINATION MARK OUT OF: 70

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MINIMUM SCORE REQUIRED FOR INTERVIEW: 49/70
ABSOLUTE DEADLINE FOR RECEIVING CERTIFICATES: **15.12.2011**
ADDRESSES TO WHICH CERTIFICATES SHOULD BE SENT: by email to micheli@units.it **(by 15.12.2011 midnight CET)** or in person to Segreteria Amministrativa del Dipartimento di Ingegneria Meccanica e Navale Via A. Valerio 10 from 9:00 am to 11:00 am from Monday to Friday – please check beforehand by calling 040/558.3804 or one of the following extensions – 7806 – 3500 – 3813 – 7891.

EXAMINATION SCHEDULE:

- ORAL INTERVIEW: **21.12.2011 at 09.30 a.m.** at Dipartimento di Ingegneria Meccanica e Navale – Biblioteca (library) ed. C7 (C7 building).

ALTERNATIVE LANGUAGE TO ITALIAN FOR THE INTERVIEW: English

CEFR LEVEL: B1

DATI GENERALI

COORDINATORE: Prof. Diego Micheli - Dipartimento di Ingegneria Meccanica e Navale - Università degli Studi di Trieste - tel. 040/5583809, e-mail: micheli@units.it

VICE: Prof. Alberto Francescutto - Dipartimento di Ingegneria Meccanica e Navale – Università degli Studi di Trieste – tel. 040/5583425, fax 040/5583443, e-mail francesc@units.it

SITO WEB DEL DOTTORATO: http://www.MNEP.units.it

EDUCATIONAL AIMS AND RESEARCH TOPICS: The scope of this Doctorate is to form researchers with a high scientific preparation and a culture oriented towards the engineering applications in the sectors of competence, able to conceive and to develop knowledge and innovative methodologies of investigation and to develop, with technical-scientific and managerial competences, research activity in public or private bodies in the following subjects:

- DESIGN AND OPTIMIZATION OF FLUID MACHINES AND POWER PLANTS
- RATIONAL USE OF ENERGY IN CIVIL AND INDUSTRIAL FIELDS
- INVERSE PROBLEMS AND FUNCTIONAL AND SHAPE OPTIMIZATION IN HEAT TRANSFER
- DESIGN, SYNTHESIS AND MECHANICAL CONSTRUCTION
- THEORETICAL AND EXPERIMENTAL METHODOLOGIES FOR THE ANALYSIS AND DESIGN OF SHIPS AND OCEAN STRUCTURES
- PRODUCT DEVELOPMENT, PROCESS MODELING AND OPTIMIZATION, DESIGN, MANAGEMENT AND LOGISTICS OF INDUSTRIAL PLANTS

The activity of the PhD students will therefore concern the fields of the thermo and fluid dynamics of machines, of the transmission of heat, of the advanced systems for energy, energy savings in buildings, of the design, construction and control of mechanical systems (with particular reference to the structural and dynamic aspects and to the fatigue damage of materials and biomaterials), of naval architecture and ocean engineering, of the mechanical plants (with particular reference to concurrent and reverse engineering, lean manufacturing and the environmental impact of the industrial plants).

The research activity “at home” will be developed in the laboratories of the Department of Mechanical Engineering and Naval Architecture (DIMN). These structures have consolidated scientific collaborations with universities and research bodies at national and international level. At the same time they have agreements for industrial research and regulations development with regional, national and European industries operating in advanced technology sectors. The following collaborations can be quoted as an example: Area Science Park, SISSA, INSEAN, CETENA, SAIPEM, Fincantieri, Dassault and INRIA Sophiantipolis, EADS, Penn University & VirginiaTech, Sendai & Osaka Universities, Chalmers University of Technology.

The PhD students can avail themselves of a period of formation in a foreign country in centers of excellence like the VKI of Bruxelles or the EPFL in Lausanne.

Important peculiarities of the proposed Doctorate is the offer of third level formation in the sectors of naval architecture, ship construction and plants and the wide offer of themes on energy, close to the environmental thematic treated in the other branch of the School.

Another specificity of the proposed Doctorate will be the collaboration with the Doctorate in Chemistry and Energy Technologies of the University of Udine. This collaboration derives from previous participation of some professors of former Department of Mechanical Engineering and Department of Naval Architecture of University of Trieste, as coordinated University, uninterruptedly since the XII cycle.

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UNIVERSITÀ
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Sezione Ricerca e Dottorati

Ripartizione Dottorati

CURRICULUM: INTEGRATED DESIGN OF ARCHITECTURE AND CIVIL ENGINEERING

GENERAL DESCRIPTION

SUBJECT AREAS COVERED BY THE CURRICULUM:
- main area: ICAR/21
- others areas ICAR/21, ICAR/14, ICAR/19, ING-IND/29, ICAR/10, ICAR/22, ICAR/04, ICAR/06, ICAR/18, AGR/01, ICAR/17, SECS-P/06

RESEARCH FIELDS:
1. Urban design and sustainability valuation
2. Architectural design, restoration and representation of architecture
3. Technical architecture of buildings and infrastructures

ORGANIZING DEPARTMENT: Dipartimento di Ingegneria Civile e Architettura
OTHER PARTICIPATING INSTITUTIONS (Italian):
- Scuola di dottorato, Università IUAV di Venezia
- Direzione regionale per i Beni culturali e Paesaggistici del Friuli Venezia Giulia
- Comune di Ronchi dei Legionari (GO)
- Azienda per i Servizi Sanitari n. 1 "Triestina"
- Azienda Provinciale Trasporti Gorizia

FOREIGN PARTICIPATING INSTITUTIONS:- University of Ljubliana, Faculty of Architecture

MAXIMUM NUMBER OF MONTHS TO BE SPENT ABROAD: 6

ADMISSION INFORMATION

NUMBER OF PLACES AVAILABLE: **6**
Please note that the number of seats available has increased from 4 to 6, the amendment added 06/12/2011
- SCHOLARSHIPS: 2
  FUNDING BODY/IES:
  - [cod D/1/3] Dip. di Ingegneria Civile e Architettura funded by the Faculty of Architecture in Gorizia (Project title: "*Integrated design of architecture and civil engineering*") 1
  - [cod MD/2/3] Università degli Studi di Trieste + Dip. di Ingegneria Civile e Architettura funded by the Faculty of Architecture in Gorizia (Project title: "*Integrated design of architecture and civil engineering*") 1

  Candidates who accept an earmarked scholarship are committed to the pre-assigned topic.

NON-FUNDED PLACES :
  grant-holders funded by the Italian Ministry of Foreign Affairs permitted to sit the entrance examination in the country of origin.....**1**
- non-EU citizens residing abroad **1**

ACADEMIC QUALIFICATIONS REQUIRED: See Announcement (Art. 1.1 - Requirements)
Degrees required for this curriculum (or equivalent degrees awarded by non-Italian institutions):
- Lauree specialistiche/magistrali:
  3/S - in architettura del paesaggio
  4/S - in architettura e ingegneria edile
  10/S - in conservazione dei beni architettonici e ambientali
  28/S - in ingegneria civile
  38/S - in ingegneria per l'ambiente e il territorio
  54/S - in pianificazione territoriale urbanistica e ambientale
  LM-3 - architettura del paesaggio
  LM-4 - architettura e ingegneria edile-architettura

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LM-10 - conservazione dei beni architettonici e ambientali
LM-23 - ingegneria civile
LM-24 – ingegneria dei sistemi edilizi
LM-35 – ingegneria per l'ambiente e il territorio
LM-48 - pianificazione territoriale urbanistica e ambientale

- Lauree vecchio ordinamento
  Architettura
  Conservazione dei beni culturali
  Ingegneria civile
  Ingegneria civile per la difesa del suolo e pianificazione territoriale
  Ingegneria edile
  Ingegneria edile – architettura
  Ingegneria per l'ambiente e il territorio
  Pianificazione territoriale ed urbanistica
  Pianificazione territoriale, urbanistica ed ambientale
  Politica del territorio
  Urbanistica

DEADLINE FOR COMPLETION OF DEGREE: **31.10.2011**

ASSESSMENT CRITERIA: Qualifications + Interview

- FINAL SCORE: the final score is based on the sum total of marks obtained in the written examination and interview plus the points given for qualifications and publications 100
  MINIMUM FINAL SCORE REQUIRED: 70/100
- MAXIMUM NUMBER OF POINTS AWARDED FOR QUALIFICATIONS+ PUBLICATIONS: 20
  QUALIFICATIONS REQUIRED/RELATIVE WEIGHT:
  - Art. 11 Rules for Doctorates: all candidates are required to present the following documents, regardless of whether or not a score is assigned to them (see below):
    a. a detailed curriculum vitae et studiorum: 5/20
    b. a copy of the Master's degree thesis: 5/20
       For students with a degree awarded by a non-Italian university, an abstract of the thesis in English or Italian is sufficient.

    as well as
    1. degree score: 5/20
    2. qualifications and publications: 5/20
  - Qualifications Assessment Form (unless this form is presented, qualifications and publications CANNOT be assessed by the Examining Board)

  Candidates also have to present a detailed research project (three pages at least) which will be discussed and assessed during the interview.

  MINIMUM SCORE REQUIRED FOR QUALIFICATIONS/PUBLICATIONS: 10/20
- ORAL EXAMINATION MARK OUT OF: 80
  MINIMUM SCORE REQUIRED FOR INTERVIEW: 60/80
  ABSOLUTE DEADLINE FOR RECEIVING CERTIFICATES: **16.11.2011**
  ADDRESSES TO WHICH CERTIFICATES SHOULD BE SENT. Segreteria del Dipartimento di Ingegneria civile e architettura –C9 building – P.le Europa,1 - 34127 TRIESTE. Please write on the envelope: "Scuola di dottorato in Scienze dell'ingegneria indirizzo Progettazione Integrata dell'architettura e dell'ingegneria civile" or in person Monday to Friday from 9:00 am to 1:00 pm

EXAMINATION SCHEDULE:

- ORAL INTERVIEW: **28.11.2011 at 12.00 a.m.** at Dip. di Ingegneria Civile e Architettura, p.le Europa 1, Edificio H3 (H3 building), aula 1C (1C room)

ALTERNATIVE LANGUAGE TO ITALIAN FOR THE INTERVIEW: English, French

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EDUCATIONAL AIMS AND RESEARCH TOPICS: The Doctorate focuses on the study and on the project of the city and the territory, of the different scales and assets which characterize them: architectures, buildings, urban parts, infrastructures, landscapes, environments. It aims to develop skills in scientific research and education, promoting a multidisciplinary and integrated approach in the frame of the assessment of the environmental sustainability of interventions.

The goal of the Doctorate is to train designers and researchers who have the skills to deal, with competence and awareness, with specific issues of design and planning, such as:

- the classical fields of Civil Engineering, Planning of Transports, Technique of Construction (design and construction of buildings, roads, railways and airports, ...), the broader issues of the survey and management of the territory and the environment (Geomathics, Geotechniques, Environmental Engineering);
- fields of intervention, methods and forms of Architectural, Urban and Spatial, Landscape Planning and Design, in a frame of environmental coherence favouring the use of renewable energy resources;
- further important fields of research and training deal with the issues of Representation and Communication of projects, of their Economic Evaluation, of the enhancement of Environmental Resources, of History of Architecture City and Territory.

In more specific terms, taking as background national and international debate on the issues of habitability and reuse of the spaces of contemporary cities and territories, the Doctorate focuses on the forms and issues of design in Architecture, Planning and Engineering:

- The reflection on the existing city and architecture: approaches, tools, processes that planning and architectural design can adopt to face, in an innovative way, the renewal of the assets of single parts composing urban territories (social housing districts, open spaces and terrains vagues, disused areas, rural areas and unbuilt spaces that spread in-between settlements);
- Theories, techniques, technologies, tools and procedures that can direct the renewal, reuse and "recycling" of buildings for living and producing towards new assets, ecological and environmental performances;
- The re-signification of contemporary landscapes: ways to interpret and enhance landscape areas and resources that elude criteria of exceptionality; places that, being near to dispersed living spaces and able to activate new – slow and local – development processes, spur the project to draw innovative tools for the interpretation and design of transformations;
- The adjustment of infrastructural framework: sustainable accessibility and mobility can be interpreted as generators of projects aimed to reorganize into a hierarchy, redesign, complete infrastructural texture and to interact, in a fertile and innovative way, both with the rearrangement of existing settlement situations, and with the enhancement of crossed landscapes.

Developing new forms of collaboration with the Doctorate School of the University Iuav in Venice and with the Faculty of Architecture of Ljubljana, the Doctorate will deal with strategic issues in order to offer to a plurality of addressees - local institutions, social and economic actors, research and training institutions – competences and products which are able to give answer to new demands of quality for living spaces. Demands which have to face physical, social and economic transformations that characterize contemporary cities and territories.