Educating and training for innovation

**Professors**
- 117 Full Time
- 141 Part Time
- 93% PhDs
- 7% Candidates
- 21% Masters
- 32% Engineers and Other Professionals

**Non-academic Staff**
- 66 Professionals
- 115 Administrative Positions
- 7% PhDs

**2013 Curricular Structure**

**UC Engineering Selection**
- More than 10,767 alumni
- 3,707 Undergraduate students in 2013
- Graduate students in 2012
  - 654 Master’s students
  - 169 PhD or Post-doctorate students
- First-year undergraduate students in 2013
  - Gender

**Disciplinary Majors**
- Environmental Engineering
- Geological Engineering
- Biological Engineering
- Biomedical Engineering
- Engineering, Design and Innovation
- Mathematical Engineering
- Autonomous and Robotic Systems
- Engineering and Architecture

**Interdisciplinary Majors**
- Earth Sciences
- Geology
- Geographical Engineering

**Of the top 100 students selected in Civil Engineering programs in Chile who have the possibility of studying Civil Engineering at UC, 49% choose our School**

**Entrepreneurship**
- Public/Private Employment
- Market Search
- Concurrent Studies Possibility
- Bridging After Degree and Career

**Professional Degree - UC**
- Civil Engineer
- 130 or 180 cr.

**Other Professional Degree**
- UC or not UC

**UC or not UC**

**Science Common Courses**
- New Engineering
- 150 cr.

**Major**
- Concentration
- 50 cr.

**Minor**
- Concentration
- 50 cr.

**General Base**
- 180 cr.

**General Education**
- 80 cr.

**Depth**
- 0 years

**Width**
- 4 years

**-5.5 years - 8 years**

**NEW ENGINEERING CURRICULUM MODEL**

**First-year undergraduate students in 2013**
- Gender

**Gender**
- 79%

**More than 10,767 alumni**
- 3,707 Undergraduate students in 2013
- Graduate students in 2012
  - 654 Master’s students
  - 169 PhD or Post-doctorate students
- First-year undergraduate students in 2013
  - Gender
  - 79%

**% PhDs**
- 93%
- 7%
- 21%
- 32%
- 47%

**% Masters**
- 93%
- 7%
- 21%
- 32%
- 47%

**% Engineers and Other Professionals**
- 93%
- 7%
- 21%
- 32%
- 47%

**% PhDs**
- 93%
- 7%
- 21%
- 32%
- 47%
Scholarships
• 39 Students receiving post-graduate certificates in 2012

Origin of undergraduate students by type of educational establishment

17.7% Private Schools
74.2% Public Schools
8.0% Private Schools
0.1% Other

480 Graduates in 2012
• 120 Civil Engineers:
  • 1 Civil Engineer with Concentration in Environmental Engineering
  • 26 Civil Engineers with Concentration in Construction Engineering and Management
  • 26 Civil Engineers with Concentration in Structural Engineering
  • 1 Civil Engineer with Concentration in Geotechnical Engineering
  • 4 Civil Engineers with Concentration in Hydraulic Engineering
  • 4 Civil Engineers with Concentration in Mining Engineering
  • 2 Civil Engineers with Concentration in Transport Engineering
  • 13 Computer Science Engineers
  • 22 Mechanical Civil Engineers
  • 17 Electrical Civil Engineers
  • 4 Civil Engineers in Biotechnology

360 Industrial Civil Engineers:
• 18 Industrial Civil Engineers with Concentration in Environmental Engineering
• 10 Industrial Civil Engineers with Concentration in Biotechnology
• 11 Industrial Civil Engineers with Concentration in Computer Sciences
• 42 Industrial Civil Engineers with Concentration in Electrical Engineering
• 22 Industrial Civil Engineers with Concentration in Hydraulic Engineering
• 7 Industrial Civil Engineers with Concentration in Mathematical Engineering
• 68 Industrial Civil Engineers with Concentration in Mechanical Engineering
• 33 Industrial Civil Engineers with Concentration in Mining Engineering
• 33 Industrial Civil Engineers with Concentration in Chemical Engineering
• 62 Industrial Civil Engineers with Concentration in Information Technology Engineering
• 54 Industrial Civil Engineers with Concentration in Transport Engineering

104 Graduate students in 2012
• 13 PhD students
• 64 Master’s students in Engineering Sciences
• 10 Master’s students in Engineering
• 59 Professional Master’s students

Titles and Academic Degrees offered

6 Titles
• Civil Engineer:
  • Concentration in Environmental Engineering
  • Concentration in Construction Engineering
  • Concentration in Design and Construction Engineering
  • Concentration in Construction Management and Engineering
  • Concentration in Structural Engineering
  • Concentration in Geotechnical Engineering
  • Concentration in Hydraulic Engineering
  • Concentration in Mining Engineering
  • Concentration in Transport Engineering

• Computer Civil Engineer
  • Electrical Civil Engineer
  • Mechanical Civil Engineer
  • Civil Engineer in Biotechnology
  • Industrial Civil Engineer:
    • Concentration in Environmental Engineering
    • Concentration in Bioprocess Engineering
    • Concentration in Computer Engineering
    • Concentration in Electrical Engineering

11 Academic Degrees
• Academic Focus:
  • B.S. in Engineering Sciences
  • PhD in Engineering Sciences
  • Master’s in Engineering Sciences
  • Master’s in Construction Management
  • Master’s in Information Technology and Management

• Professional Focus:
  • Master’s in Information Technology and Management
  • Master’s in Structural and Geotechnical Engineering
  • Master’s in Industrial Engineering
  • Master’s in Construction Management
  • Master’s in Energy Engineering
  • Master’s in Data Processing and Management
  • Master’s in Innovation
Centers
- Led by the Engineering Department
- Center for Bioimaging
- Center for Excellence in Construction Management
- Center for the Environment
- Center for Mining
- Center for IT Studies
- Center for Astro-Engineering
- Across Latitudes and Cultures Center – Bus Rapid Transit

UC Centers
- Center for Stochastic Analysis and Applications
- Integrated Center for Design and Engineering
- Center for Studies on Educational Policies and Practices
- Timber Development and Innovation Center
- Interdisciplinary Center for Global Change
- Center for Public Policies
- Center for the Atacama Desert
- Center for Nanotechnology and Advanced Materials (in creation)

Certificates by department
- Department of Computer Sciences
  - Certificate in Business Process Management
- Department of Construction Engineering and Management
  - GEPUC Certificates
    - Certificate in Construction and Leadership in Project Development
    - Certificate in Improvement of Operations Management
    - Certificate in Design and Administration of Integrated Management Systems
    - Certificate in Virtual Design and Construction
- UCYC Certificates
  - Contract Administration
  - Organizational Process Management based on Kaizen
  - Quality Management and Organizational Excellence
  - Project Administration and Management
  - Integrated Management: Quality, Environment and Safety
- Department of Industrial and Systems Engineering
  - Executive Certificates
    - Certificate in Coaching
    - Certificate in Leadership
    - Certificate in Human Resources
    - Certificate in Sales Skills
    - Certificate in Marketing
    - Certificate in Innovation
    - Certificate in Finance
    - Certificate in Economics
    - Certificate in Mining Management
    - Certificate in Logistics
    - Certificate in Corporate Law
    - Certificate in Negotiation
    - Certificate in Strategy
    - Certificate in Management Control
    - Certificate in Project Evaluation
    - Certificate in Business Administration
    - Certificate in Operations Management
    - Certificate in Construction Management
    - Certificate in Project Management
    - Certificate in Financial Statement Analysis
    - Certificate in Strategic Communication
    - Certificate in Mining Entrepreneurship
    - Certificate in Environmental Management
    - Certificate in Industrial Energy Management
    - Certificate in Advertising Management
- Department of Mechanical and Metallurgical Engineering
  - Certificate in Nuclear Energy
  - Certificate in Sustainable Energy
- Department of Mining Engineering
  - Certificate in Physical Assets Management and Maintenance

Global indicators of results
- Research results
  - 170 Current research projects
  - 190 ISI publications in 2012
  - 1.68 ISI publications per professor
- Publications with foreign researchers

53% PUBLICATIONS WITH FOREIGN RESEARCHERS

1.69 Publication impact

Latest National and International Recognitions
- Aguilera, José Miguel: International Association for Engineering and Food Lifetime Achievement Award 2011 and 2008 National Award for Applied and Technological Sciences
- Alarcón, Luis Fernando: Member of the Plan American Academy of Engineering, 2012
- Arenas, Marcelo: Best Research Article at the 2012 WAW Conference and 2012 Ramón Salas Edwards Award
- Casas, Ignacio: Best Paper Award at the iSociety Conference, London
- Cluefentes, Luis: Fellow of the Society for Risk Analysis
- Cipriano, Aidos: 2012 AIE-IEEE Outstanding Engineer
- De la Llera, Juan Carlos: 2011 Endeavor Award as World Entrepreneur of the Year
- De Solminihac, Hernán: Distinguished for his contributions to Engineering by the University of Texas, 2012
- Dominguez, Bernardo: 2011 Raúl Devís Award by the Institute of Engineers
- Hurtado, Daniel: “Taylor & Francis Prize for Best Poster Presentation”, CBMIE 2013
- Leatherbee, Michael: “Dreaming Chile by California” by the Chile/California Council 2012
- Nussbaum, Miguel: 2011 Avanti Award, GOrCCE 2012, Taiwan, and member of the Council of the Agency for Education Quality

- Ortizar, Juan de Dios: IATBR Lifetime Achievement Award
- Rudnick, Hugh: IEEE Chile Haradin Pratt Award
- Valenzuela, Loreto: Young Scientist Award of the 5th World Biomaterials Congress, China 2012

Innovation and results
- Patents (1979-2012):
  - Chile: 30 requested, 14 granted
  - Abroad: 26 requested, 3 granted
- 6 Technology licensed (2007-2012)
- 10 Spin off companies
  - Napisa (2010)
  - Takiemi (2010)
  - Desert King (2005)
  - YK Media (2004-2012)
  - Sinve (2003)
  - Video y Asociados (2001)
  - SPS (1997)
  - Cortázar y Schwartz (1998)
  - Solax (1993-1999)
- Natural Response (1996-2012)

Areas of innovation and patenting
- Innovation project areas with government funding
  - Active in 2012
  - Sustainable Development and Infrastructure
  - Energy and Water
  - Biomedical Engineering, Bioengineering and Biotechnology
  - Engineering and Logistics Systems
  - Information Technology and Systems
  - Design in Engineering and Innovation
  - Mining, Automation and Robotics
- Patenting areas (2012)
  - 1 Health and Nutrition
  - 4 Structural Engineering
  - 1 Medical Imaging
  - 4 Mining
  - 1 Water Treatment and Purification

- Napsis (2010)
- Cortázar y Schwartz (1998)
- YX Media (2004-2012)
- 1.68 ISI publications per professor

1.69 Publication impact
• **International Academic Alliances**
  - Beijing Jiaotong University
  - Doctoral College of Belgium
  - Doctoral College of France
  - Colorado at Boulder
  - Columbia University
  - École Centrale
  - École Nationale Supérieure des Mines
  - École Nationale Supérieure des Mines de Saint-Étienne
  - École Polytechnique
  - Florida International University
  - Grenoble INP
  - INRIA
  - International Institute of Seismology
  - MIT
  - Paris Tech
  - Politécnico de Valencia
  - Politecnico di Milano
  - Politecnico di Torino
  - SRI – Stanford Research Institute
  - STVP – Stanford Technologies Ventures Program
  - Universita Degli Studi di Trento
  - University of Massachusetts Dartmouth
  - University of Notre Dame
  - University of Waterloo
  - Virginia Tech
  - Wageningen University

• **314 institutions with exchange program agreements, in 45 countries**
• UC Engineering exchange students 2012

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NUMBER OF STUDENTS</th>
</tr>
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<tbody>
<tr>
<td>Belgium</td>
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<td>Bolivia</td>
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<tr>
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<tr>
<td>Denmark</td>
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<td>Italy</td>
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<tr>
<td>Serbia</td>
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<td>Venezuela</td>
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<td><strong>Total</strong></td>
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• UC Engineering students abroad 2012

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<td>Brazil</td>
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<td>Italy</td>
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<tr>
<td>Venezuela</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
</tr>
</tbody>
</table>

• DICTUC
  - 68,995 Certifications
  - 4,196 Training Certificates
  - 41 Operating units that encompass all UC Engineering majors
  - 8 Companies launched, successfully positioned both nationally and internationally
  - 4 Main lines of business:
    - Certification and laboratories
    - Complete consulting
    - Innovation and business ventures
    - Training
  - IncubaUC (2011-2012)
    - 469 Business ventures evaluated
    - 76 Business ventures supported
    - 2nd and 3rd Version of Geek Fantasy Camp, First Bootcamp in Chile
    - High Tech Program, two calls in 2012

• Organizations
  - San Agustín Foundation
    Manages the Engineering School Endowment Fund, investing in capital markets. The revenue finances the School’s development.
  - FIUC – UC Engineering Foundation
    Provides scholarships and textbooks, and works to develop and strengthen UC Engineering.
    - 2,021 active members
    - 11,538 Graduating engineers 1892-2012
    - 168 students provided with financial aid for room/board

• Advisory Council
  - Rolando Carmona, General Manager of Drilco
  - José Luis del Rio, President of DERSA
  - Pauline de Vittis, Vice-President of Sustainable Development, SQM
  - Bernardo Domínguez, President of San Agustín Foundation
  - Jorge Ferrando, President of FIUC
  - Arnoldo Hax, MIT Professor Emeritus
  - Rodrigo Jordán, Vice-President of Vertical Inversiones S.A.
  - Andrés Kuhlmann, General Manager of TransElec
  - Arturo Nalco, International Manager of COPEC
  - Cristóbal Philips, CEO of SOFOFA
  - Hernán Rodríguez, General Manager of CMPC
  - Francisco Silva, President of Banco Security
  - Infantino Leonelli, General Manager of Tricoco
  - Arturo Natho, President of FIUC

• Student Council (CAI)
  - FIUC – UC Engineering Foundation
    The Engineering Student Council is made up of a Board of ten students and one Academic Counselor, all elected by their classmates.
    Its work is divided into different areas: Social Work, Teaching University Life, Contingency, Business Ventures, Sustainability, Culture and Sports.
    It is also supported by a group of Delegates who are elected by the classmates in their generations or major, in addition to one Graduate Councilor.
    The President of the CAI and the Academic Counselor work together with the School’s Director and participate in the School Council.