Objectives:

• Ensure proper **correlation** between academic programs and industry required skills
• Promote **continuous interaction** between schools and companies
• Anticipate **future skills** at all levels of manufacturing labor environment.
• Manage **talent incubation** projects for younger students
Chihuahua highlights:

• + 98% of region industry engineers and technicians are local

• International agreements in place with Universities for student mobility

• New programs design periods usually takes from 6 to 12 months

• Specialized training options are available for all organizational levels
Index /Cluster entailment strategy:

- Diagnosis (every 3 years)
- Soft Skills
  Hard Skills
  Current Requirements GAP
  **Future Requirements**
- Visits to Educational Institutions / Results of the Diagnosis
- **Immediate Remediation**
- **Dedicated workshops**
- Soft Skills
- Hard Skills / Technical Skills
Programs reviewed 2015-2018

- INDUSTRIAL ENGINEERING (INDUSTRIAL DESIGN)
- AERONAUTIC ENGINEERING
- SPECIAL CERTIFICATE FOR MECHATRONIC ENGINEERS
- AEROSPACE CERTIFICATIONS
- MANUFACTURING PROCESS ENGINEERING
Programs to be reviewed 2019-2020

- MECHATRONIC ENGINEERING
- LOGISTICS AND SUPPLY CHAIN
- MECHATRONIC ENGINEERING
- FINANCE AND PUBLIC ACCOUNTANT CAREERS
Industry requirements short term for the academia

- Sensor Technologies
- Model Simulation
- Embedded Software
- MEMS
- Robots Programming
- Nanostructured Materials
- VR, AR Technology
- 3D printing
Special project 2019
Triple Helix Model
Chihuahua Educational Capabilities in a Nutshell
Trained employees 2007 - 2019: 35,538

FROM 2007 TO 2019 AEROSPACE

<table>
<thead>
<tr>
<th>COMPANIES</th>
<th>GRADUATES</th>
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<tr>
<td>HONEYWELL</td>
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<td>CESSNA</td>
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<td>BELL HELICOPTER</td>
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<td>ZODIAC AEROSPACE</td>
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</table>

Programs:
- Electrical Wiring
- PLC Logics 5000
- Sheet metal assemblies
- NDT testing of aircraft assemblies
- Aerospace metals and alloys
- AS9100
- AutoCAD, CATIA V5, Mastercam, NX, Solid works
- Design
- CNC machining and turning (3,4 and 5 axis)
- Welding
- Plastic Injection
- Composites

Collaboration Agreements:
- Train employees 2007 - 2019: 35,538
Chihuahua State University
Engineering School

Aerospace Engineering Program
Mining Engineering
Software Engineering
IT Process Engineering
Mathematics Engineering
MD Sciences, IT, Engineering, Structures, MD Software
PHD Engineering:

Current students: 2870

Laboratory:
• Water tunnel 6In
• Wind tunnel 12 In
• PIV La vision
• Prototypes 3D printer

Collaboration Agreements:
Chihuahua Polytechnic University

Aeronautic Engineering
Environmental Engineering
Automotive Engineering:
• Aerospace regulations
• Aerodynamics, Thermodynamics
• Navigation Systems
• Flight mechanics
• Materials Resistance
• Structural design
• Design
• French language program
• MD Engineering Industrial Processes

Current students: 922
Laboratory:
• Hangar
  • Flight simulator
  • Aircraft (King Air 200)
  • Wind Tunnel (1 x 1.5 mts, 60Hz turbine)
• CAD,CAM
• 3D Printing
• CNC
• Pneumatics
• Hydraulics
• Design PC stations
• PLC’s
Chihuahua Technologic Universities

Mechatronics
Industrial Process
Renewable Energy
Supply Chain and Logistics
Nanotechnology

French language program
English language program

Collaboration Agreements:

Current students: **6088**

Laboratory:

- Plastic injection
- CAD, CAM
- 3D Printing
- CNC
- Pneumatics
- Hydraulics
- Design PC stations
- PLC’s

Laboratory equipment:
- Plastic injection
- CAD, CAM
- 3D Printing
- CNC
- Pneumatics
- Hydraulics
- Design PC stations
- PLC’s
Advanced Materials Center (R&D)

Structural Integrity Program (MD & PhD):
- Fatigue Analysis
- Limit & Ultimate tensile strength
- Joint strength
- Patran Nastran
- DTA methodologies
- Material testing

Laboratory:
- Metal Atomization
- Nanotech
- Residual Stress
- NDT
- Thermal Analysis
- Metal Integrity

Collaboration Agreements:
Chihuahua Technological Institute

- Electric Engineering
- Electronic Engineering
- Electro mechanics Engineering
- Materials Engineering
- Industrial Engineering
- Mechanics engineering
- MD electronic sciences
- MD mechatronics
- MD manufacturing process

Current students: 4749
Laboratory:
- CNC
- 3D printer prototype
- Metrology
- Materials Analysis
- AutoCAD
- Solid works
- Embedded programming

Collaboration agreements:
Industrial Design Engineering
IT Engineering
Industrial Engineering:
• Virtual modeling
• Material resistance
• CAD
• Innovation process
• Thermodynamics
• Design testing
• Eco-design

Collaboration Agreements:

Current students: 3506
Laboratory:
• CNC
• 3D printer prototype
• Metrology
• Materials Analysis
• AutoCAD
• Solid works
Aerospace Inspection Technicians:
- NADCAP
- AS9100
- Inspection process
- Aerospace process manufacturing
- Lean manufacturing

MRO Technicians:
- Aeronautics normativity
- Hydraulics
- Preventive and corrective maintenance
- Pneumatic
- Ventilation and pressurization systems

Collaboration Agreements:

Current students: 3200
Laboratory:
- CNC
- Pneumatics
- Hydraulics
- Design PC stations
- Welding
- PLC’s
“Industry and education institution physical limits are not given by the fences and walls, both are part of the same system and must coexist within their spaces to add value to the community”

Juan Carlos Romero Hicks
Mexican Senator
José Nuñez Leos
Education Counselor
jonunez@aiig.com

Index Chihuahua
Asociación de Maquiladoras y Exportadoras de Chihuahua, A.C.
Av. William Shakespeare No. 157
Complejo Industrial Chihuahua
Tel. +52 (614) 442 8450