Mechatronics Department
Philadelphia University, Jordan

Dr. Tarek A. Tutunji
Mechatronics Chairman

TEMPUS - JIM2L
Kick-off Meeting
Bochum, Germany
December 14-16, 2011
There are 32 universities in Jordan

Seven of them offer B.S. in Mechatronics

- Philadelphia University (PU)
  - private university
- University of Jordan (JU)
- Jordan University of Science and Technology
- Balqa Polytechnic University
- Hashemite University
- German Jordanian University
Philadelphia University, Jordan

*Philadelphia* is the ancient name of *Amman* named by Ptolemaeus Philadelphus in the year 285 B.C.
Philadelphia University

- Philadelphia University (PU) was established in 1991
- PU has a total of 7 faculties
- PU has around 5,000 students
- PU has around 1,300 engineering students
- PU has 7 engineering departments: Electrical, Mechanical, Computer, Mechatronics, Electronics & Communication, Civil, and Architecture.
Mechatronics Department at PU

- 2000 program initiated
- 2002 department established
- 2004 program accredited
  - by the Ministry of Higher Education in Jordan
Students at Mx / PU

Number of graduates 231
Mechatronics Staff at Mx / PU

![Bar chart showing the number of Academic Staff and Lab Engineers from 2002-2003 to 2011-2012.](image)
<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Circuits</td>
<td>CAD / CAM</td>
<td>DSP</td>
<td>Automation &amp; Robotics</td>
<td>Machine Intelligence</td>
<td>Mechatronics Senior Project</td>
</tr>
<tr>
<td></td>
<td>Hydraulic &amp; Pneumatic Syst.</td>
<td>Digital Control</td>
<td>Analog Control</td>
<td>PLC</td>
<td>Mechatronics System Design</td>
</tr>
<tr>
<td>Power Electronic &amp; Drives</td>
<td>Manufacturing Technology</td>
<td>Thermofluids</td>
<td>Digital Control</td>
<td>Simulation &amp; Interface</td>
<td>Reverse Engineering</td>
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<tr>
<td></td>
<td>Electrical Machines</td>
<td>Thermofluids</td>
<td>Machine Design</td>
<td>Microcontroller Systems</td>
<td>Mechatronics 3rd year Project</td>
</tr>
<tr>
<td>Analog &amp; Digital Electronics</td>
<td>Statics</td>
<td>Dynamics &amp; Vibrations</td>
<td>Sensors</td>
<td>Programming</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Statics</td>
<td>Statics</td>
<td></td>
<td>Logic Circuits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math + Physics + English + Arabic + Engr. Skills</td>
<td></td>
<td></td>
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**Mechatronics Module B.S. Curriculum at PU**
Mechatronics Labs at PU

- Microcontrollers and Sensors
- Automation and Control
- Power Electronics and Machines
Microcontrollers and Sensors Lab
Microcontrollers and Sensors Lab

- PIC Microcontroller Kits
  - Simulators: MPLab and Proteus
  - Downloaders
  - Emulators
- DSP Kits
- Actuators
  - DC / Servo Motors
  - Stepper Motors
- Sensors and Conditional Circuits
  - Temperature
  - Force
  - Proximity
Automation and Control Lab

- PLC
  - Seimens S-400 and S-200
- CNC
- Pneumatic System
- Hydraulic System
- Computer Station Interface
  - Matlab and Labview
  - DAQ
- Robot
- Conveyer Belt
Power Electronics and Machines Lab
Power Electronics and Machines Lab

- DC Motor
- AC Motor
- Power Drives and Control

- Vibration Kit
  - Computer Interface / DAQ
Student Project Awards

- National Technology Parade Award for best students project
  - Industry Theme 2011
  - Robotics Theme 2011, 2008

- Jordanian Engineering Association Award for best students project
  - Mechanical Engineering Branch 2009
1st Robotics University Competition in Jordan
Conferences Organization

- IEEE SSD 2008
  - International Conference on Signals Systems and Devices 2008
- IEEE SSD 2010
  - International Conference on Signals Systems and Devices 2010
- IEEE AECT 2011
  - Applied Electronics and Computer Technology
- JIMEC7 2010
  - 7th Jordanian-International Mechanical Engineering Conference
Research at Mx /PU

- Identification and Control of Mechatronic Systems
# Proposed Masters at PU

## 1. Compulsory Courses

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr. Hr.</th>
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</thead>
<tbody>
<tr>
<td>0640711</td>
<td>Mechatronic Systems</td>
<td>3</td>
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<tr>
<td>0640741</td>
<td>Advanced Control Theory</td>
<td>3</td>
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<tr>
<td>0640751</td>
<td>Softcomputing for Mechatronics</td>
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<tr>
<td>0640742</td>
<td>Modeling &amp; Simulation of Dynamic Systems</td>
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<tr>
<td>0640752</td>
<td>Real-Time DSP Systems</td>
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<tr>
<td>0640721</td>
<td>Industrial Electronics &amp; Drives</td>
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## 2. Elective Courses

<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>0640743</td>
<td>Advanced PLC and Automation.</td>
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<tr>
<td>0640712</td>
<td>Advanced Robotics</td>
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<tr>
<td>0640722</td>
<td>Smart Sensors &amp; Actuators.</td>
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<tr>
<td>0640713</td>
<td>Automated Manufacturing Systems.</td>
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<tr>
<td>0640730</td>
<td>Engineering Project Management</td>
<td>3</td>
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<tr>
<td>0640714</td>
<td>Special Topics in Mechatronics</td>
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## 3. Thesis

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Cr. Hr.</th>
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<tbody>
<tr>
<td>0640715</td>
<td>Thesis-Part1</td>
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</tr>
<tr>
<td>0640716</td>
<td>Thesis-Part2</td>
<td>6</td>
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Website

www.philadelphia.edu.jo


Thank You