

المعهد العالي

للعلوم التطبيقية والتكنولوجيا

Higher Institute for Applied Sciences
and Technology

HIAST

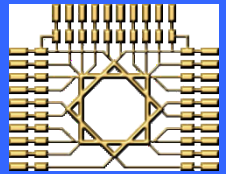
For highly qualified engineers

Dr. Maher Suleiman

19th Meeting of COMSATS Coordinating Council
Islamabad, Pakistan, 17-18 May 2016



Outlines

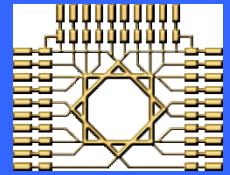


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- Research & Development
- Scientific Collaboration





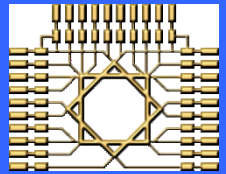
About HIAST



- Established in 1983
- Selecting students with top High School marks.
- Limited number of students.
- Graduating highly qualified engineers in many applied science fields .
- A highly qualified teaching staff.
- Best teacher/student ratio: $\sim 1/5$.
- Regular assessment and evaluation of students progress.
- Up-to-date and flexible program



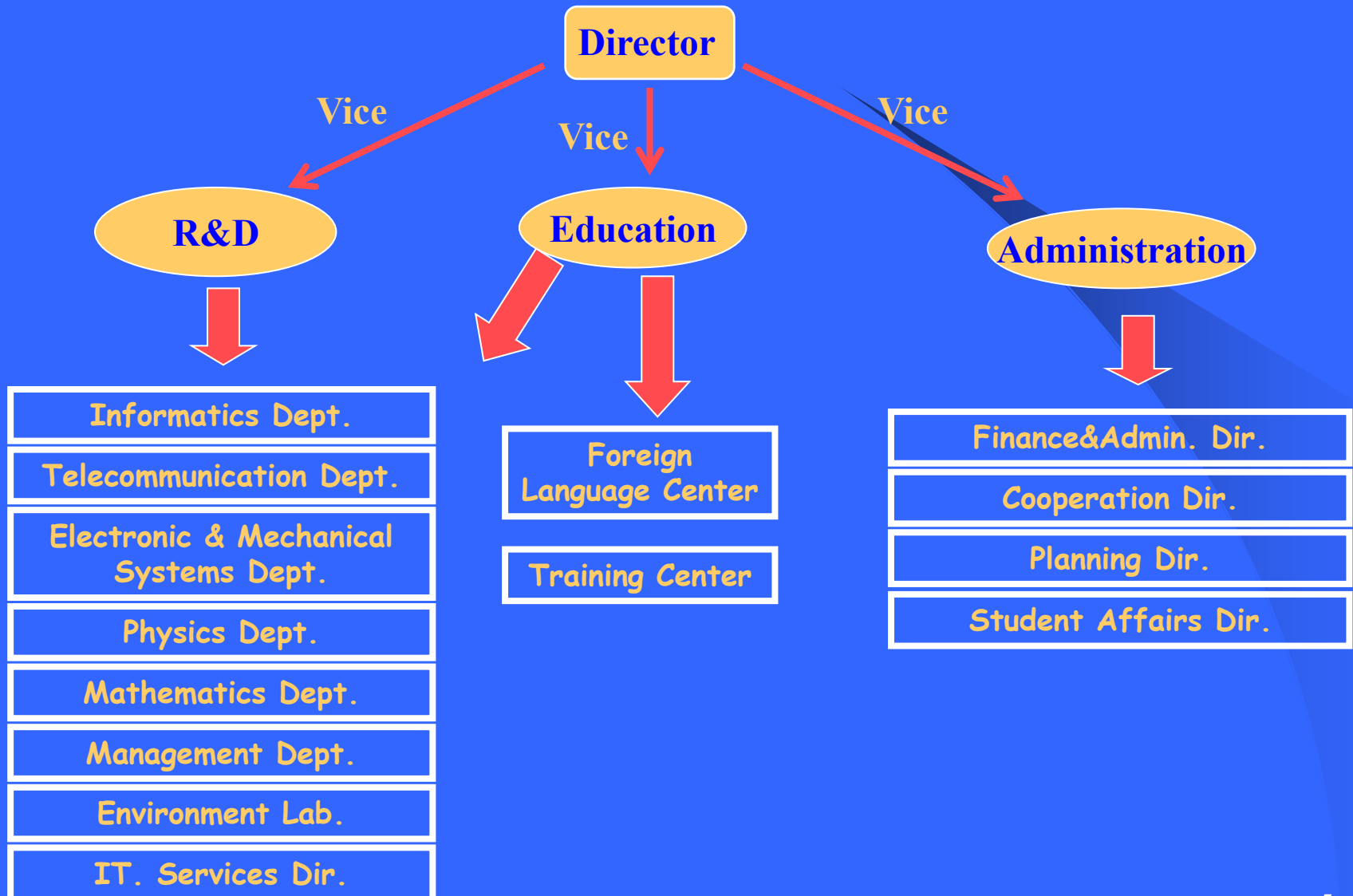
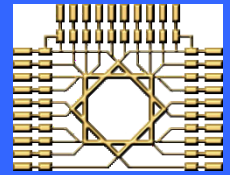
Key Figures



- Staff:
 - 104 Ph.D (33 part-time employees)
 - 132 Engineers (11 part-time employees)
 - 90 Technicians.
 - 90 Administrative staff
 - 100 Service Workers.
- Students:
 - 356 undergraduates
 - 75 postgraduates (38 Master + 37 PhD)

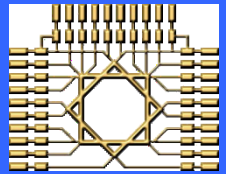


Organizational Structure





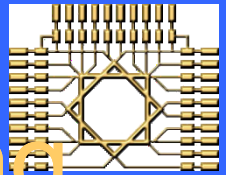
Study at HIAST



- Limited number of students from two categories:
 - Students financed by public institutions
 - Self-financed students
- Offered degrees:
 - Bachelor Science in Engineering
 - Masters
 - PhD



Study at HIAST

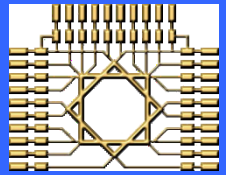


Bachelor Science in Engineering

- Five years study
- Common Core: 2 years
 - Basic subjects : Mathematics, Physics, Chemistry, Engineering sciences, Languages (English & French)
- Specialization 3 years
 - Informatics Systems
 - Electronic Systems
 - Telecommunication
 - Mechatronics
 - **Materials Science (new)**
 - **Aeronautics: (in Aleppo)**



Study at HIAST

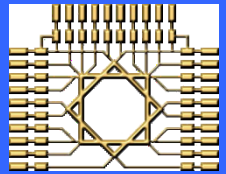


Masters and PhD

- Master: 2 years (1y courses + 1y project)
- PhD: 3 years
- Specialization
 - Materials Science
 - Telecommunication Systems
 - Informatics:
 - Decision Support Systems
 - Big Data Systems (new)
 - Electronic System
 - Mechatronics



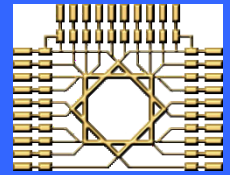
Training Activities



- Training Department
 - Provide in-house training courses to the employees to acquire knowledge and to enhance their professional skills
 - Training courses are also provided to external customers (public and private sectors)
 - Wide range of subjects: from office application to specialized industrial tools



Infrastructure & Facilities

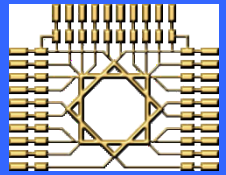


- Modern laboratories
 - 54 Laboratories and Workshop Facilities available for teaching, research and development.
- Student Computer Rooms
 - 13 rooms (240 PCs)
- Languages Laboratory.
- Rich Library
 - scientific & cultural references





Computer Network

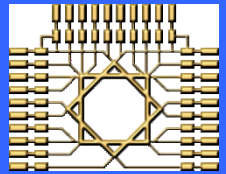


- Local Area Network:
 - Giga bit Ethernet backbone
 - Data Center
 - More than 800 PCs
 - 25 Servers
- 100 Mb/s Internet Connection
- Internet/Intranet Services:
 - Web Portal, E-mail, E-Learning, ...etc



Infrastructure & Facilities

Students Life



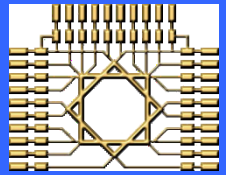
- Campus :
 - 467 student rooms
 - Apartments for teachers and visitors
 - Restaurant.





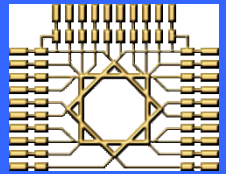
Infrastructure & Facilities

Students Life



- Sport compound: xballs, swimming pool, body building...
- Clubs: Robotic, ACM, Music, Sport, Astrophysics, Painting, etc
- Social activities: Exhibitions, parties, Trips



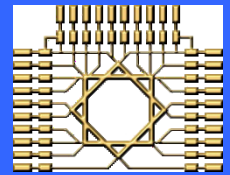


Research and Development

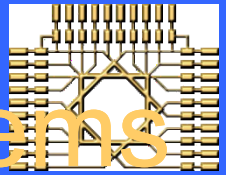


R&D activities

Informatics



- ERP Systems for public institutions (Banks, Hospitals, Ministries, Universities, etc)
- Arabic Language Processing
 - Interactive Arabic Dictionary, Arabic Morphological Analyzer, Arabic Text to Speech System, ...
- High Performance Computing
- Information & Decision Support Systems
- Big Data Systems
- E-Learning



Electronic and Mechanical Systems

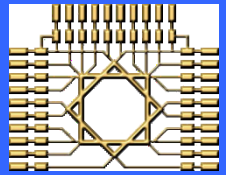
- Automatic Control
 - Non Linear, Fuzzy, Robust
 - Stochastic filtering for Control and Navigation applications
- Robotics
 - Manipulators: SCARA, Four degrees of freedom serial robot
 - Parallel Robots: Hexapod, Delta robot, Five bars robot.
 - Mobile Robots: Hybrid robots, Trajectory planning and control
- Power Management
 - Pilot platform for PFC Power Factor Correction and testing
 - Renewable energy sources management
 - Control of bidirectional multilevel grid connected DC-AC
 - Control of grid connected PV system





R&D activities

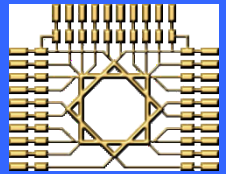
Physics



- Materials Science:
 - Polymers, Magnetic materials, Nano-materials and nano-fibers, Ceramic, Metallurgy
- Optics and laser:
 - Laser applications, Optics instrumentation
- Sensors
 - Chemical sensors (chemiresistors), Organic solar cells
- Renewable energy
 - Solar tracking, Alternative fuel



R&D activities

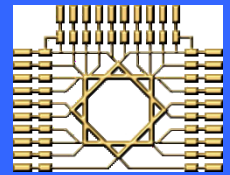


Telecommunications

- Radio, Optical and Digital communications
- Signal processing
- Communication networks and networking



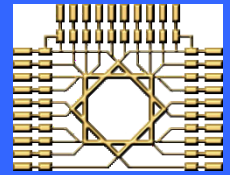
Environment



- Chemical pollutants analysis of water and soil
- Air pollution analysis: stack-gas emissions, indoor and outdoor air quality.
- Water microbiological analysis.
- Wastewater treatment stations (working with active sludge mode)



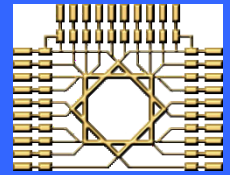
Scientific Collaboration



- HIAST has a large collaborative activities at national and international levels (The Syrian elite of scientific cooperation)
- At National level:
 - Universities and Institutes
 - Public Institutions
 - National Organization
 - ASST (Arab School of Science and Technology)
 - NGOs:
 - NOSSTIA (Network Of Syrian Scientists, Technologists and Innovators Abroad)
 - SCS (Syrian Computer Society)
 - Supporting National Initiatives
 - National Center for the Distinguished
 - National Commission For The Syrian Science Olympiad



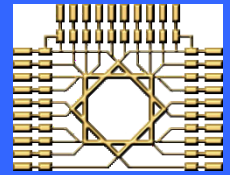
Scientific Collaboration



- At International level:
 - Universities
 - French Universities and High Schools for Engineers
 - World wide Universities: Germany, Italy, Russia, Iran, China, Malaysia
 - International Organizations
 - UNDP, ESCWA, UNESCO, ALECSO, AUF
 - European Union
 - HIAST was founded by collaborative efforts between Syria and France.
 - EU-HIAST Project (1988-2002)
 - 20 projects since 1988 under European Union European Framework Programs (EUMEDIS, Tempus, FP6, FP7)



In Summary



HIAST in Syria

- Center of Excellence for High Education and Research & Development.
- Focus on high level qualification of engineers.
- Pioneer in project implementation in many fields in Syria.
- Participation in decision making in Syria
- The Syrian elite of scientific cooperation with Foreign universities and organizations
- HIAST Suffers from **Brain Drain** because of the crisis

Thank You!