



國立臺灣科技大學 機械工程系

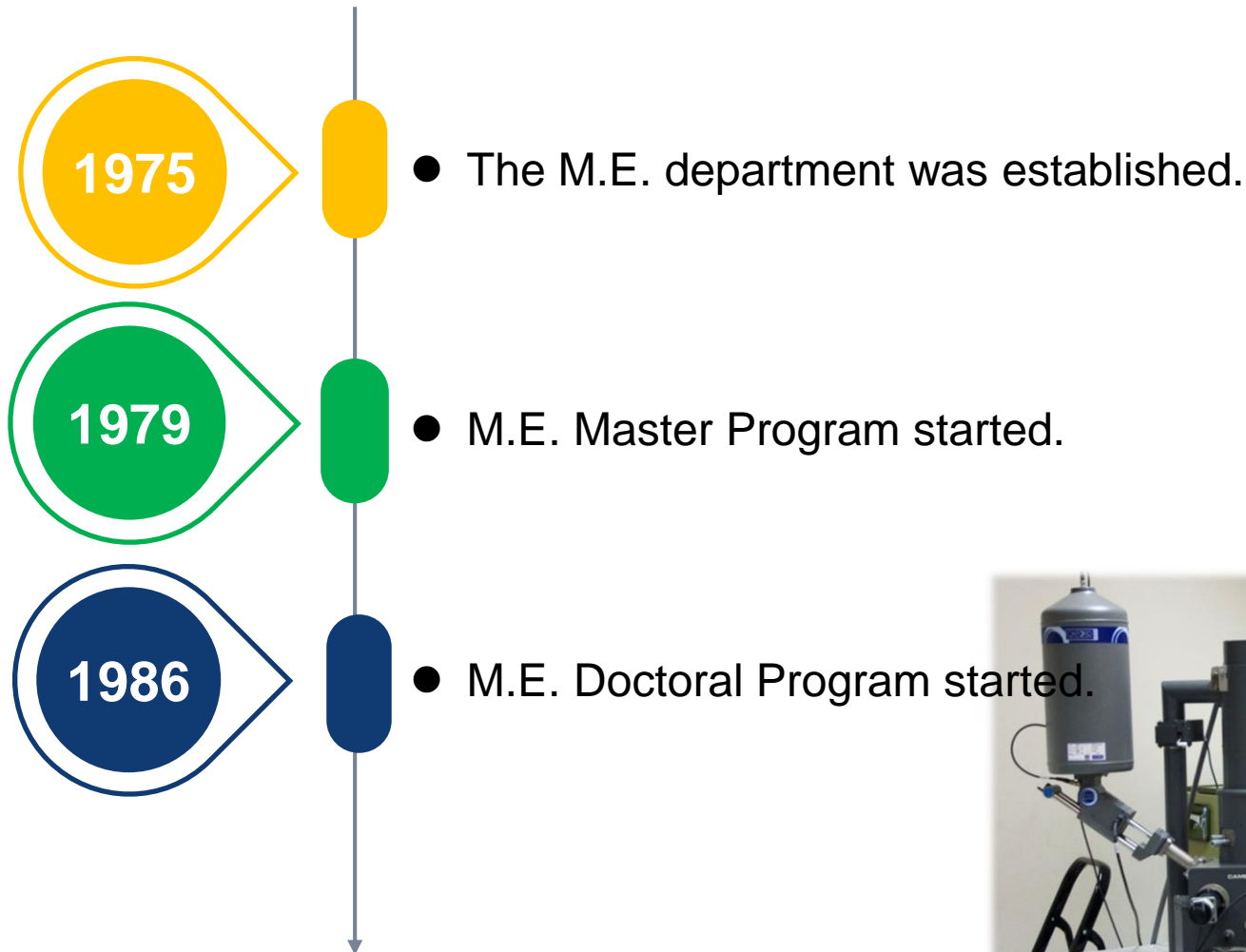
Department of Mechanical Engineering, National Taiwan University of Science and Technology



# TAIWAN TECH

Department of Mechanical Engineering

# Founding of M.E. Department



NTUST is one of the top 11 universities in Taiwan, which receive the grant of “Aim for the Top University Plan” sponsored by the Ministry of Education.



# M.E. Department Statistics

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- ❑ 708 undergraduates (57.3%)
- ❑ 527 graduates (42.6%)
  - 445 Master students (36%)
  - 82 PhD students (6.6%)
- ❑ 50 full-time faculty members
- ❑ 50+ Labs
- ❑ 200+ Courses (accredited by IEET in 2008, Taiwan)  
(equivalent to ABET)
- ❑ **English Courses offered: >20 / year**
- ❑ 5 research divisions



# Faculty Profiles



## □ 50+ faculty members

- All with Ph.D. degree

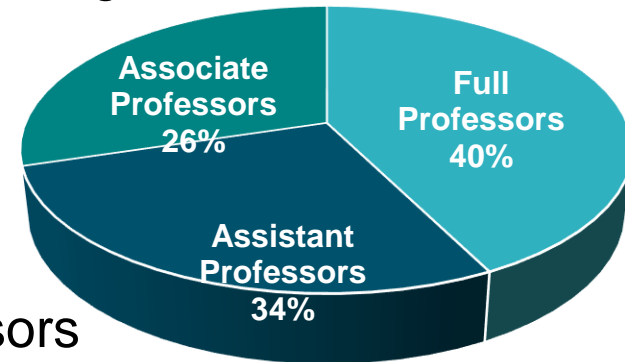
-33 USA/Canada graduated

-9 Europe

-7 Taiwan

-1 Japan

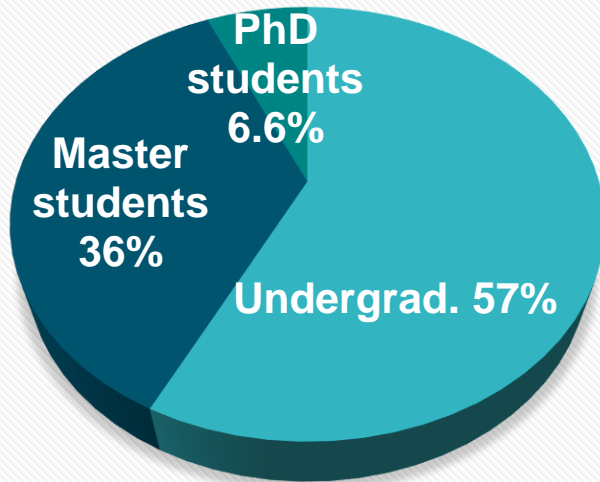
- 20 full professors
- 13 associate professors
- 17 assistant professors



# Students Profiles

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## Enrolled Students

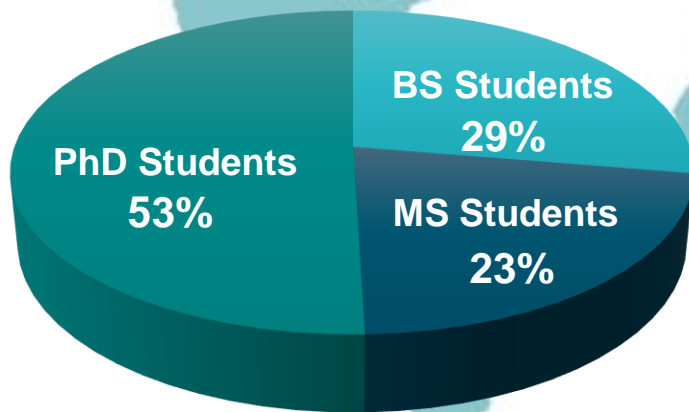


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# International Students

Currently up to **120** International students enrolled

- Mainly from **Vietnam, Indonesia** and **India**.
- Others from Thailand, Ethiopia, Kenya, Pakistan...












# International Cooperation (College/Department Level)

MoU & Dual Degree Agreement	Country		University		Level
	Japan		Kyushu Institute of Technology		College-level
	Japan		Kyushu University		College-level
	Japan		University of Tokushima		College-level
	Switzerland		The University of Applied Sciences and Arts of Southern Switzerland		College-level
	Iran		Isfahan University of Technology		College-level (under negotiation)
	Indonesia		Institut Teknologi Sepuluh Nopember		Department-level (under negotiation)
MoU / General Agreement	Indonesia		Politeknik Manufaktur Bandung		College-level
	Indonesia		Bali State Polytechnic (Politeknik Negeri Bali)		College-level Department-level
	Japan		Kobe University		College-level
	Thailand		National Metal and Materials Technology Center (MTEC, NSTDA)		Department-institution level
	Japan		Osaka University		College-level (under negotiation)
MoU & Agreement for Academic Interchange Program	Thailand		Chiang Mai University		College-level
	Italy		University of Parma		Department-level
	Indonesia		Universitas Pertamina		Department-level (under negotiation)

# Where are we in the World?









## Ranking # 5 in Taiwan

2020 ▼	University search	Q	Taiwan
69	 National Taiwan University (NTU)	<a href="#">More</a>	Taiwan
=173	 National Tsing Hua University	<a href="#">More</a>	Taiwan
225	 National Cheng Kung University (NCKU)	<a href="#">More</a>	Taiwan
=227	 National Chiao Tung University	<a href="#">More</a>	Taiwan
=251	 National Taiwan University of Science and Technology (Taiwan Tech)	<a href="#">More</a>	Taiwan
=287	 National Yang Ming University	<a href="#">More</a>	Taiwan
=331	 National Taiwan Normal University	<a href="#">More</a>	Taiwan
=379	 Taipei Medical University (TMU)	<a href="#">More</a>	Taiwan
	 Yatsen University	<a href="#">More</a>	Taiwan



Updated on Jan. 2, 2020

## # 151~ 200 in QS M.E. Ranking

2019 ▼	University search	Q	Taiwan
151-200	 King Fahd University of Petroleum & Minerals	<a href="#">More</a>	Saudi Arabia
151-200	 Kyung Hee University	<a href="#">More</a>	South Korea
151-200	 Leibniz University Hannover	<a href="#">More</a>	Germany
151-200	 Middle East Technical University	<a href="#">More</a>	Turkey
151-200	 National Chiao Tung University	<a href="#">More</a>	Taiwan
151-200	 National Taiwan University of Science and Technology (Taiwan Tech)	<a href="#">More</a>	Taiwan
151-200	 New York University (NYU)	<a href="#">More</a>	United States
151-200	 North Carolina State University	<a href="#">More</a>	United States

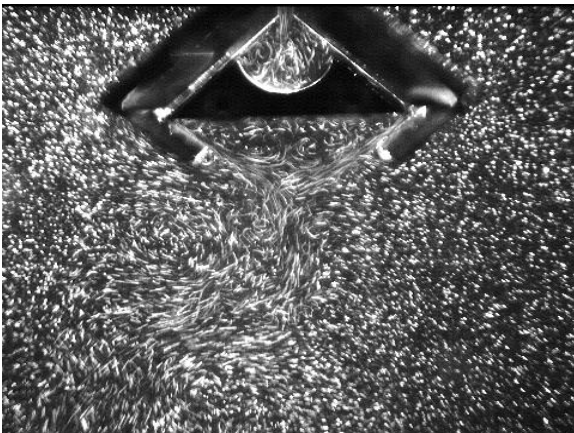
Same tier with The University of North Carolina at Chapel Hill (USA), Nagoya University (Japan), Dresden University of Technology (Germany)

# Research Divisions

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- ❑ Design and Solid Mechanics
- ❑ Manufacturing Engineering
- ❑ Thermal and Fluid Mechanics
- ❑ Control Engineering
- ❑ Materials Science & Engineering



# Courses

## Solid Mechanics and Design:

Vibration, Robotics, Fracture Mechanics, CAD, Solid Mechanics, Mechanical Design, Kinetics, Gear Designs...

## Thermal & Fluidic:

Fluid Mechanics, Aerodynamics, ICE, Fluidic Machines, Acoustics, Energy, Numerical Analysis, Micro-fluidic Analysis...

## Control:

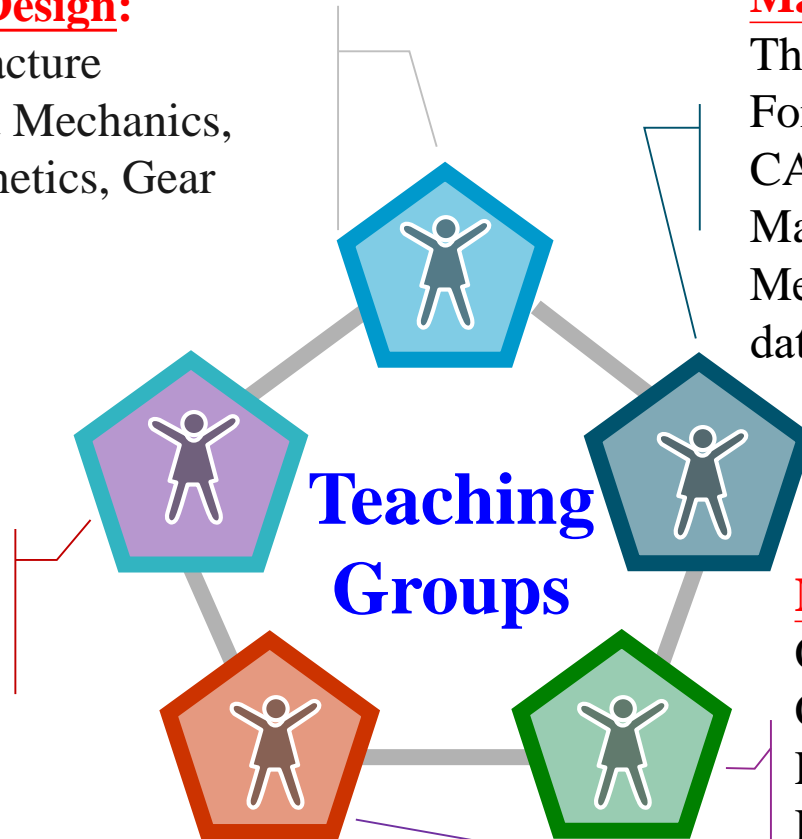
System Dynamics and Control, Mechatronics, Hydraulic and Pneumatic Control, Robust Control, Precision Motion Control, Vehicle Dynamics, Computer Vision ...

## Manufacturing:

Thermal-Plastic Mechanics, Forming, Opto-Mechatronics, CAD/CAM, Fatigue, Precision Manufacturing and Measurement, Engineering database, MEMS ...

## Materials:

Corrosion, Defect Analysis, Casting, Functional Ceramics, Laser Machining, Welding, Electronic Microscopy, Electro-Ceramic, Non-destructive Inspection, Fuel Cell and Green Energy...



# Research Groups

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- ☐ High Speed 3D Printing Research Center
- ☐ Intelligent Robot Center
- ☐ Biomechanics Research Team
- ☐ Precision Molding Research Team
- ☐ Opto-Mechatronics Technology Center
- ☐ Piezoelectrics and Ultrasonics Research Team
- ☐ Atmospheric-pressure Plasma Research Team
- ☐ ThermoFluid Lab

**Faculty Information Page:**

<https://www.me.ntust.edu.tw/p/412-1005-2246.php?Lang=en>



# High Speed 3D Printing Research Center

Director: Prof. Jeng-Ywan Jeng

[Jengjeng@mail.ntust.edu.tw](mailto:Jengjeng@mail.ntust.edu.tw)



## Laboratory 1F

Jet Fusion 3D Processing Station



Sand blasting machine

Compressor for  
Air conditioner



Air compressor



Air dryer and storage tank



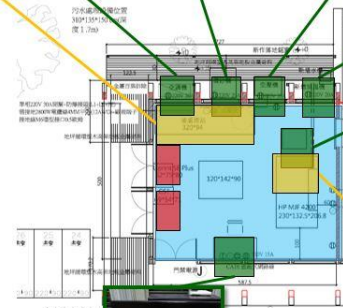
Industrial vacuum cleaners  
(ATTIX 995 H/M TYPE 22)



Sinterit Lisa 1



Sinterit powder sieve



HP Jet Fusion 3D Printer



Computer



# Intelligent Robot Center

Intelligent Robot Center is focused on optimal design of intelligent robot, structure design of robot arm and integration with computer vision to develop different kinds of robot applications and realization of robot theater with professional robots

**Intelligent Robots   Humanoid Robots   Catcher Robots**



**Robot Theater**



**Painter Robots**

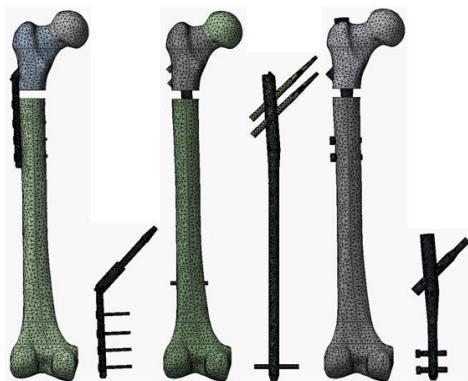


Various Robots developed by Intelligent Robot Center

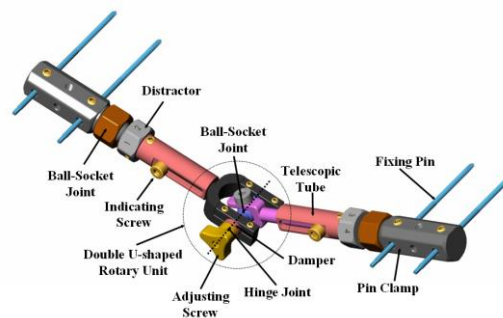
# Biomechanics Research Team

Biomechanics Research Team is focused on integration of faculties from different disciplines to develop biomedical engineering related products and technologies to improve the performances of current medical equipment and surgical tools

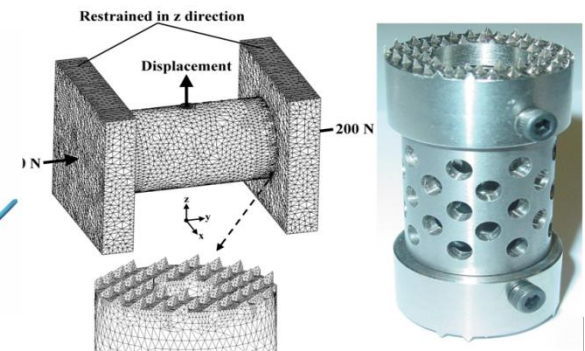
**Long Bone Fracture Fixator**



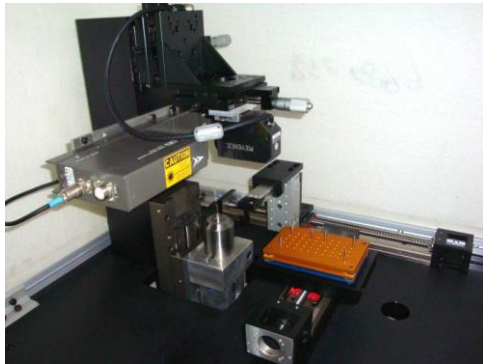
**Elbow External Skeleton Fixator**



**Spine Interbody Fusion Cage**



# Opto-Mechatronics Technology Center

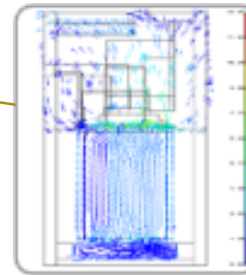


**Opto-Mechatronics component  
design & manufacturing**



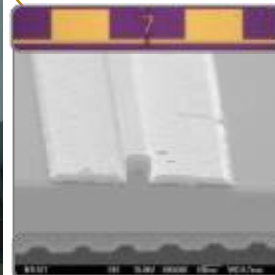
Low db Plastic Optical Fiber

**Opto-Mechatronics  
sub-system**



Disk Array heat transfer analysis

**Opto-Mechatronics system  
design & integration**



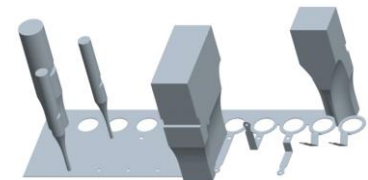
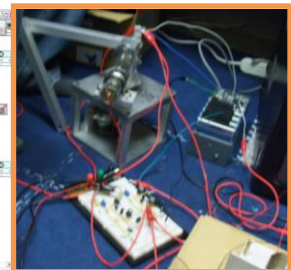
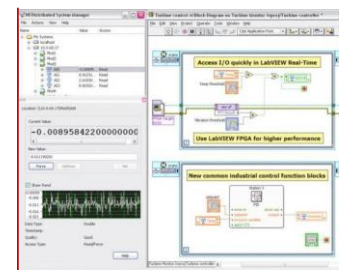
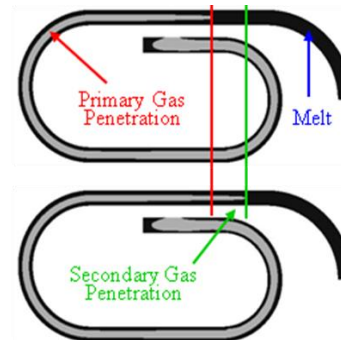
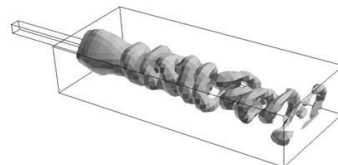
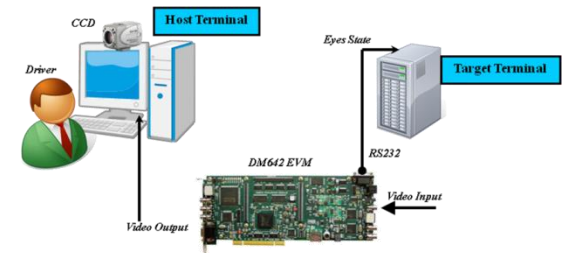
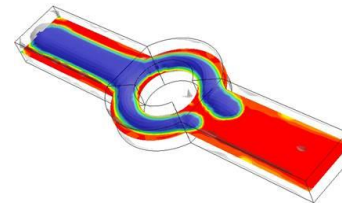
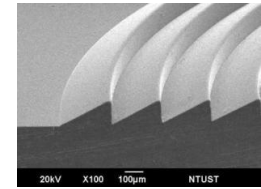
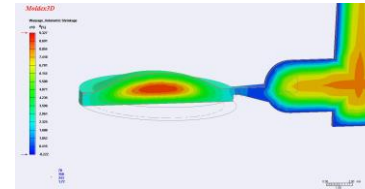
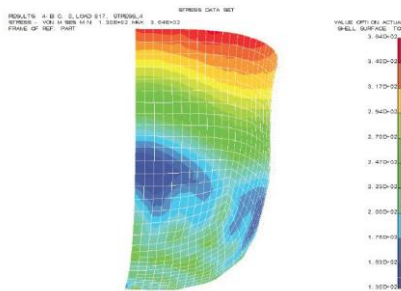
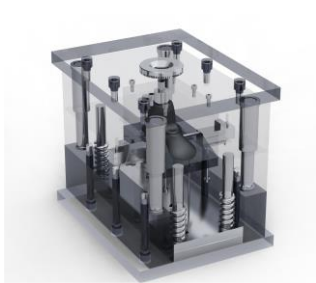
**Double-wave length  
laser light**



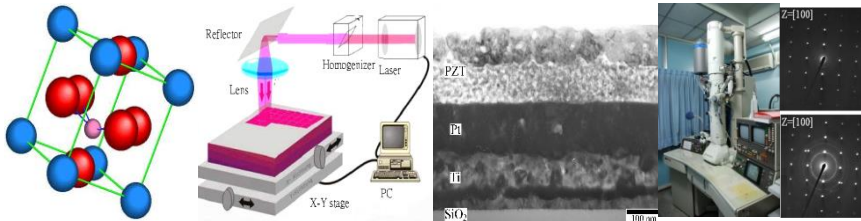
**Microdrill Laser  
Inspection System**



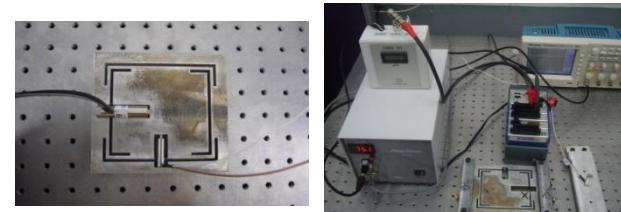
# Precision Molding Research Team



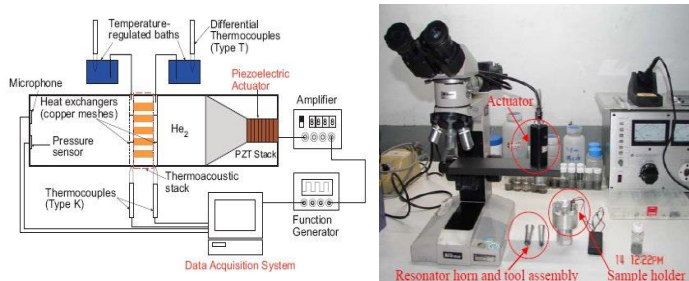
# Piezoelectrics and Ultrasonics Research Team



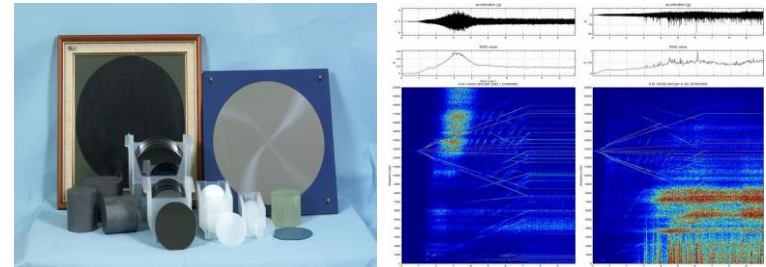
**Piezoelectric material design and characterization**



**Precision positioning control**

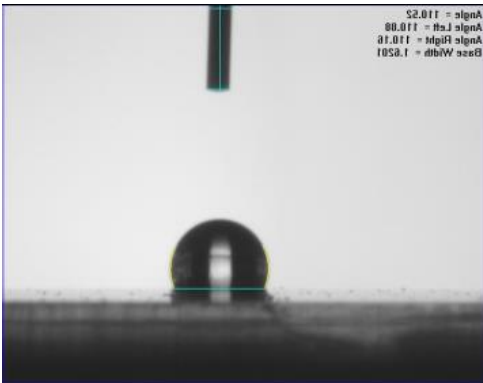


**Design of piezoelectric components and system integration**

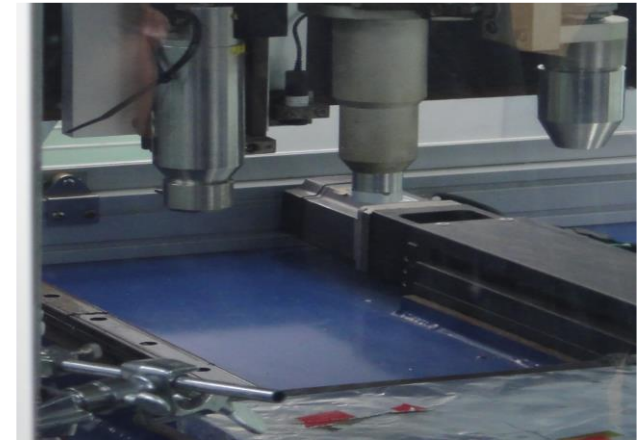
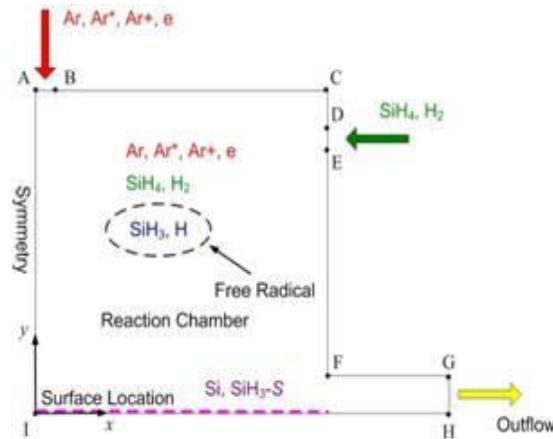
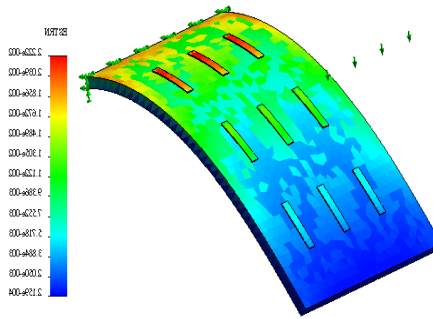


**Inspection and processing of brittle materials**

# Atmospheric-pressure Plasma Research Team



**Micro-sensors**

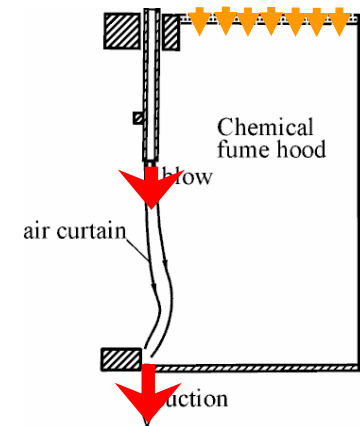


**Atmospheric-pressure system**

# Ventilation Engineering: ThermoFluid Lab

- ☐ Chemical Fume Hood
- ☐ Biosafety Cabinet
- ☐ Kitchen Range Hood
- ☐ Workstation Air Curtain
- ☐ Push and Pull Air Curtain

**Air-curtain Chemical Fume Hood**



**IQV-bsc Range Hood**



# Application Schedule & Required Documents

## Graduate Program (Master and Ph.D.)

Online application schedule	
Spring semester (Feb. entry)	Application: Late Aug. – Late Oct.
Fall semester (Sep. entry)	Application: Early Feb. – Late Mar.

Required Doc.	Optional Doc.
• Graduate Certificate	• Certificate of Proficiency in English
• Academic Transcript	• Referral Letter
• Resume	• Publication
• Statement of Purpose (Study Plan)	-
• Passport Scan	-

# Funding Opportunities

Type of NTUST Scholarship		Duration	Amount of Scholarship
Full Scholarship	Master Program	Maximum 2 years	NT\$12,000 (400 USD) / Month
	Ph.D. Program	Maximum 3 years	NT\$18,000 (600 USD) / Month
Partial Scholarship	Master Program	Maximum 2 years	NT\$9,000 (300 USD) / Month
	Ph.D. Program	Maximum 3 years	NT\$12,500 (400 USD) / Month
Tuition Waiver	Master Program	Maximum 2 years	
	Ph.D. Program	Maximum 3 years	
Master's Fast-track to Ph.D. Program		Maximum 4 years	

- [Ministry of Education](#), [Ministry of Foreign Affairs](#) and [Ministry of Science and Technology](#) also award scholarships for international students.

# How to Apply

## NTUST Graduate Program Application



<http://bit.ly/2HgISf>

General admission  
webpage of NTUST:  
<http://admissions.ntust.edu.tw/index/index>

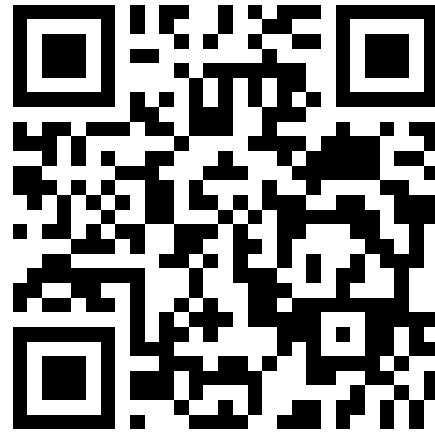


Guidelines for each  
department  
<https://admissions.ntust.edu.tw/brochure/index/index/sn/10>





# Welcome to ME !



<https://www.me.ntust.edu.tw/index.php>



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