



**Department of Biomedical Engineering  
National Cheng Kung University  
Tainan, Taiwan**



## About Us

The Institute of Biomedical Engineering (BME) at National Cheng Kung University (NCKU) was founded in 1988. The BME aims to develop multi-disciplinary programs that integrate biomechanics, medical electronics, biomedical materials, bioinformatics, and rehabilitation technology. In 2011, a major milestone was achieved with the establishment of the undergraduate program. The expansion enables the BME to offer a more comprehensive curriculum at the undergraduate and graduate levels for students.

Biomedical engineering is a multidisciplinary science that covers subjects from mechanical engineering, electrical engineering, material engineering, and chemical engineering to those related to nano- and micro-electromechanical technology. Applications include life sciences, basic medicine, clinical medicine, regenerative medicine, stem cell research, and tissue engineering.

NCKU is a world-renowned university with extensive research resources supported by the College of Engineering, the College of Electrical Engineering and Computer Science, the College of Medicine, and the Medical Center. The integrated environment provides a center for cultivating specialists of biomedical engineering in southern Taiwan. The establishment of the Medical Device Innovation Center, one of the four research centers on campus funded by the Taiwan Ministry of Education, was approved in 2011. Medical devices have become one of the featured developments at NCKU. In summary, the BME aims to become an incubation center for developing human-oriented technology in the new century.

## Research Fields

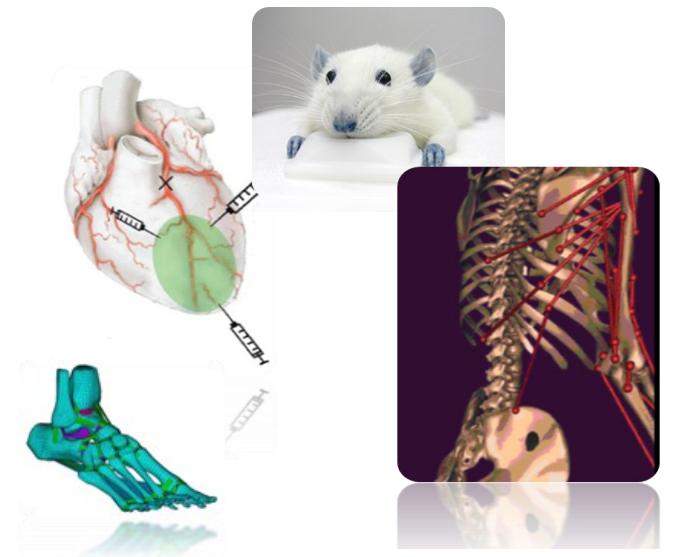
BME Faculty Directory			
Name	Position	Education Background	Expertise
Fong-Chin Su	Distinguished Prof.	Ph.D., Mech. Eng., Uni. Rochester	Biomech. of Human Movement; Gait Analysis; Musculoskel. Dynamics; Rehab. Eng.; Motor Control
Hsien-Chang Chang	Distinguished Prof.	Ph.D., Applied Chem., Tohoku Uni.	Electrochemistry; Biosensor; Analytical Chem.; Biomaterials & Tissue Eng.; Nanometrology
Jia-Jin Chen	Distinguished Prof., Chair	Ph.D., BioMed. Eng., Vanderbilt Uni.	Neural Eng.; Biomedical Eng.; Neural Interface; Integration of Cortical
Chih-Han Chang	Professor	Ph.D., Mech. Eng., Rice Uni.	Medical Eng.; Orthopaedic Biomechanics, Dental Biomech.; FEM; Comp. Aided Eng.
Kuo-Sheng Cheng	Professor	Ph.D., Elec. Eng., National Cheng Kung Uni.	Bioimpedance Technol. & Imaging; Biomed. Inst. & Meas.; Med. Image Processing & Analysis
Tain-Song Chen	Professor	Ph.D. Elec. Eng., Uni. Michigan	Med. Ultrasound; Osteoporosis; Wireless Physiological Signal Monitoring; Eye Movements Research
Jin-Jia Hu	Assoc. Prof.	Ph.D., BioMed. Eng., Texas A&M Uni.	Soft Tissue Mech.; Cardiovas. Mech.; Tissue Eng.; Bioreactor; Mechanobiol.
Ming-Long Yeh	Assoc. Prof.	Ph.D., BioMed. Eng., Texas A&M Uni.	Orthopedic Biomech.; Cartilage Tissue Eng.; AFM; Cell Mechanics; Mechanobiol.
Han-Sheng Chuang	Assoc. Prof.	Ph.D., Mech. Eng., Purdue Uni.	Biomicrofluidics; NEMS/MEMS; Optical Diagnostics; Biomechanics of Microorganisms
Chih-Chung Huang	Assoc. Prof.	Ph.D., BioMed. Eng., Chung Yuan Christian Uni.	Biomed. Electronic Equipment Design; Medical Ultrasound Imaging; Medical Image Processing
Wen-Tai Chiu	Assoc. Prof.	Ph.D., Basic Med. Sci., National Cheng Kung Uni.	Calcium Signaling; Molecular Imaging; Cell Apoptosis; Cancer Metastasis
Yu-Hua Fang	Asst. Prof.	Ph.D., BioMed. Eng., Case Western Reserve Uni.	Image Processing; Biomed. Eng. Methods; Biomed. Informatics
Ting-Yuan Tu	Asst. Prof.	Ph.D., Mechanobiol., National Uni. of Singapore	Microfluidics; Tumor Microenvironment; 3D Cell Culture; Circulating Tumor Cells; Rapid Prototyping
Faculty in Medical Device Innovation Center			
Chou-Chin Lin	Professor	Ph.D., BioMed. Eng., Case Western Reserve Uni.	Neuro-physiology; Neuro-biomechanics; Neuro-regeneration
Rung-Fu Kuo	Assoc. Prof.	Ph.D., BioMed. Eng., Iowa Uni.	Patent & Regulation in Med. Dev.; Technique Innovation; Dental & Orthopedic Dev.
Bing-Chin Wu	Asst. Prof.	Ph.D., Basic Med. Sci., National Cheng Kung Uni.	Nanobiol.; Cellular & Molecular Biol.
Peng-Ting Chen	Assoc. Prof.	Ph.D., Technol. Mgmt., National Chiao Tung Uni.	VC & Entrepreneur.; Technol. Commercialization; Biotechnol. & Drug Eng.; Syst. & Synthetic Boil.
Che-Wei Lin	Asst. Prof.	Ph.D., Electrical Eng., National Cheng Kung Uni.	Biomed. Signal Processing, Inertial Signal Processing, Embedded Syst. Design, Neural Network IC
Tai-Hua Yang	Asst. Prof.	Ph.D., M.D., BioMed. Eng., Natl Cheng Kung Uni.	Orthopedic Biomed. Res.; Applied Med. Image Processing; Med. Dev. & Rehab. Research; Orthopedic Mol. Biol.
Joint Faculty			
Tzer-Min Lee	Professor	Ph.D., Mat. Sci. & Eng., Natl. Cheng Kung Uni.	Biomaterials; Biomedical Engineering; Medical Implants
Cheng-Chien Chiu	Professor	Ph.D., A.A.E., National Cheng Kung Uni.	Vascular Biol.; Cell & Molecule Biol.; Experimental Biol.; Fluid Mech.; Tissue Eng.
Chia-Ching Wu	Assoc. Prof.	Ph.D., BioMed. Eng., National Cheng Kung Uni.	Tissue Eng. & Regenerative Medicine; Cell Mech.; Vascular Plasticity
Adjunct Faculty			
Ming-Shih Tsai	Asst. Prof.	Ph.D., BioMed. Eng., National Cheng Kung Uni.	Neuro-Surgery; Brain Trauma; Intracranial Bleeding; Brain Tumor
Chih-Kun Hsiou	Asst. Prof.	Ph.D., Civil Eng., National Cheng Kung Uni.	Biomechanics; Biomechanics of Materials
Y.-P. Jou	Expert	B.S., Laws, Fu Jen Catholic Uni.	Transnational Management; IPs; M&A
Emeritus Faculty			
You-Li Chou	Prof. Emer.	Ph.D., Mech. Eng., Tennessee Uni.	Biomech.; Exp. Biomech.; Clini. Eng.; Motion Analysis; Orthopedic Biomech.; Arthroplasty



## Course Information



The scope of biomedical engineering research is broad. In the BME, the core curriculum is categorized into three areas, namely (1) bioelectronics and medical imaging, (2) biomechanics and medical devices, and (3) biomaterials and tissue engineering. In the undergraduate program, laboratory practices are highly emphasized. Therefore, undergraduate students have the same opportunities as those of their graduate counterparts to use advanced equipment. The laboratory experience strengthens the technical as well as design abilities of our students. Moreover, the BME constantly seeks collaborations with medical centers in southern Taiwan and NCKU Hospital to offer students more clinical practice and knowledge. Senior students are offered specialized training according to their area of study. For those who favor an academic career, advanced engineering knowledge is offered. First-hand information regarding industry and entrepreneurship is offered to those who favor an industrial career.



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