UNIVERSITAS INDONESIA

Veritas, Probitas, Iustitia

FACULTY OF

ENGINEERING

Profile 2019

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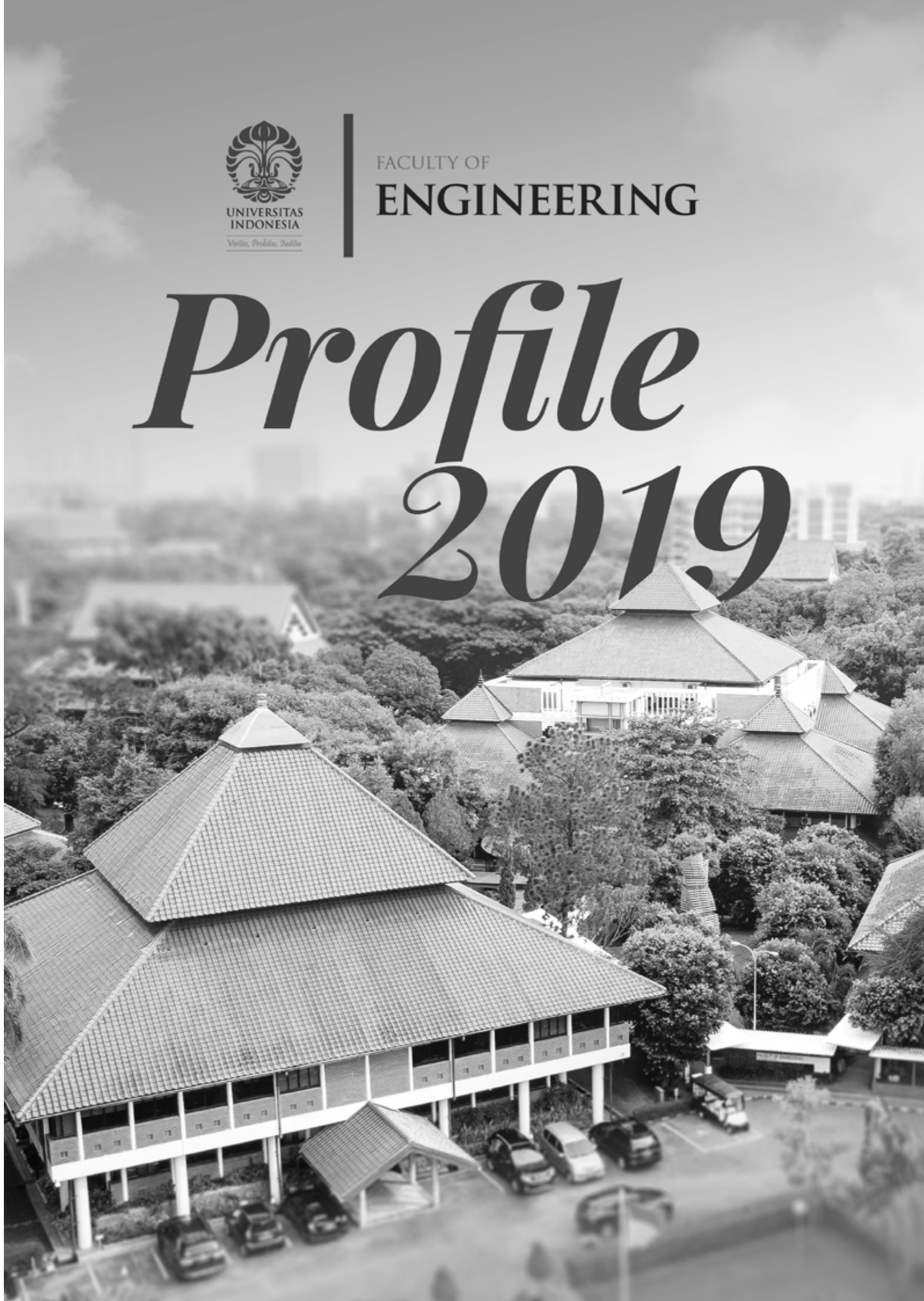


Contents

UNIVERSITAS INDONESIA
Veritas, Probitas, Iustitia

FACULTY OF
ENGINEERING

Welcome *from* The Dean

Within the academic, research and community service, Faculty of Engineering Universitas Indonesia has developed rapidly into a well-known institution, both domestically and internationally. Various achievements have been achieved by the academics staffs and the students. As one of the nation's top public engineering institutions, Faculty of Engineering Universitas Indonesia is now setting the standard for excellence in the classroom, the laboratory, and public service.

In order to boost the performance of the academic staffs and the students even better, and to provide a clearer picture for the stakeholders who might be interested in an intensive collaboration, as well as to attract prospective students in various courses that we offer here in Faculty of Engineering, it is necessary to provide this brief profile that we do hope would be able to convey the necessary information.

To our prospective students, engineering represents a challenging and rigorous course of study, but many have gone before you and succeeded in creating deeply satisfying careers. Our alumni recall a friendly and safe campus with a sense of family, caring professors, academic variety and challenge, and extracurricular activities that helped them develop both professionally and personally. As one of FTUI engineering graduate, I count myself among them and invite you to join us on this exciting and fulfilling road. I believe it is a choice you will never regret.

Dr. Ir. Hendri D.S. Budiono, M. Eng.
Dean

Overview

History

Faculty of Engineering at Universitas Indonesia was established through a decree by Minister of Higher Education and Science on July 17, 1964. The history of Faculty of Engineering began with the first three Undergraduate Study Programmes, Civil Engineering, Mechanical Engineering, and Electrical Engineering. Undergraduate Study Programmes of Metallurgical Engineering and Architecture were established the following year.

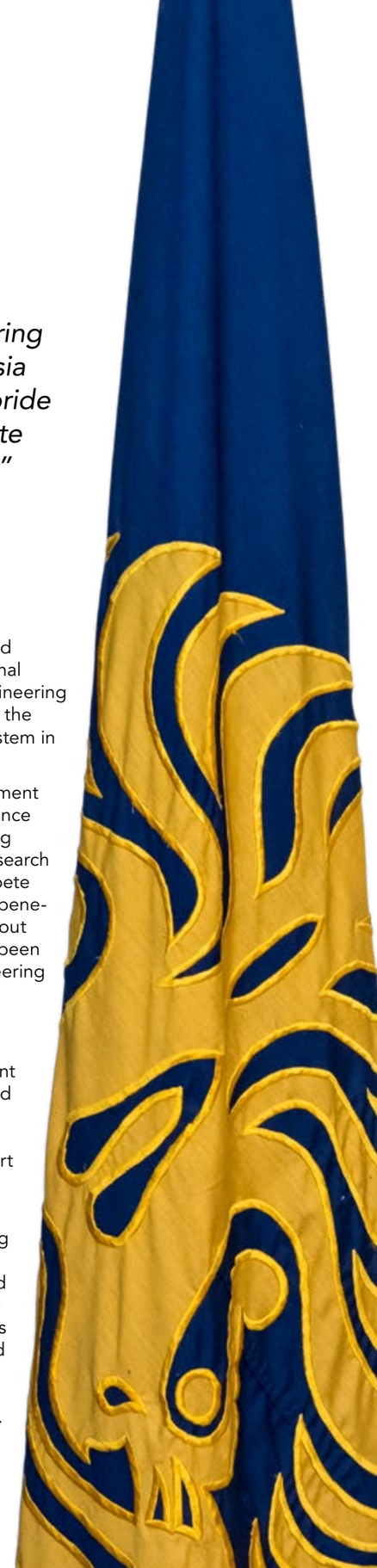
In its early activities, Faculty of Engineering was supported by 30 lecturers and 11 non-academic employees offering 32 course subjects within the curriculum. The first class of UI Faculty of Engineering consisted of 199 students. In five and a half years, 18 of them had successfully completed their study and graduated as certified engineers. In 1985, Undergraduate Study Programme of Gas Engineering originally under Study Programme of Metallurgical Engineering, merged with Undergraduate Study Programme of Chemical Engineering, originally under Study Programme of Mechanical Engineering, and established a new Undergraduate Study Programme of Gas and Petrochemical Engineering. Undergraduate Study Programme of Industrial Engineering, the youngest department in Faculty of Engineering, was established in 1999. The term Study Programme was later changed to Department after this year and is still being used today.

Vision

"Faculty of Engineering Universitas Indonesia as excelled nation's pride and able to compete in South East Asia."

Mission

- Prepare Undergraduate, Master and Doctoral graduates with international insight by using Cutting-Edge Engineering Education & Management which is the benchmark of higher education system in South East Asia region.
- Organize research for the development of the nation's technology and science by focusing on Applied Engineering Research. Applied Engineering Research is a type of research that can compete in the international scene but also benefited the Indonesian's people, without disregarding researches that have been the back bone of Faculty of Engineering Universitas Indonesia.
- Encourage the professional and adaptive Engineering Enterprises system and community engagement towards the need of the society and industry. Engineering Enterprises must have an active role in solving the global demand with the support towards sustainable and humane development.
- Building and preparing engineering institution based on Integrated Information Technology (Integrated IT Based Institution) with efficiency and professionalism demand that is the national benchmark. Integrated IT Based Institution must be able to keep up with the trend in FTUI or future technology development.



Management

Dr. Ir. Hendri D.S. Budiono, M.Eng.
Dean, Faculty of Engineering

Prof. Dr.-Ing. Nandy Putra
Vice Dean for Resources, Venture and General Administration

Dr. Ir. Muhamad Asvial, M.Eng.
Vice Dean for Academic, Research and Student Affairs

Dr. Ir. Rahmat Nurcahyo, M.Eng.Sc.
Head of UPMA and P2SM

Dr. Eng. Arief Udhiarto, ST., M.T.
Associate Dean for Academic and Head of PAF

Badrul Munir, Ph.D.
Associate Dean for Student Affairs & Alumni

Dr. Eng. Muhamad Sahlan
Associate Dean for Research and Community Engagement

Dr. Ir. Imansyah Ibnu Hakim, M.Eng.
Associate Dean for Cooperation & Venture

Dr. Dwi Marta Nurjaya, ST., M.T.
Associate Dean for General Affairs & Facilities

Jos Istiyanto, Ph.D.
Associate Dean for Human Resources & General Administration

Prof. Ir. Sutrasno Kartohardjono, M.Sc, Ph.D.
Course Coordinator of FTUI Salemba Campus & Coordinator for International Program

Why Faculty of Engineering?

Career Opportunities

Engineers enjoy diverse and challenging career opportunities in existing and new growth areas within research, development, design, manufacturing and operations that provide valuable products, processes and services. New materials technologies and infrastructure are being developed all the time, creating a high demand for engineers.

Contribute to Society

An UI Engineering degree is challenging. It provides a strong foundation in mathematics, science and engineering design, and prepares you with the knowledge and skills to make significant contribution to the society and our community.

More Options

With large range of engineering specializations, UI Engineering gives you exceptional opportunities in engineering. In several departments you have the option to undertake a fast-track program once you in senior year, in which you can integrate program combining the Bachelor of Engineering with Master of Engineering.

Academic Programmes

Undergraduate Program

Regular Class

- Civil Engineering,
- Environmental Engineering,
- Mechanical Engineering,
- Naval Architecture and Marine Engineering,
- Electrical Engineering,
- Computer Engineering,
- Biomedical Engineering,
- Metallurgical and Materials Engineering,
- Architecture,
- Interior Architecture,
- Chemical Engineering,
- Bioprocess Engineering,
- Industrial Engineering;

Paralel Class

- Civil Engineering,
- Environmental Engineering,
- Mechanical Engineering,
- Electrical Engineering,
- Metallurgical and Materials Engineering,
- Architecture,
- Chemical Engineering,
- Industrial Engineering;

International Class

- Civil Engineering,
- Mechanical Engineering,
- Electrical Engineering,
- Metallurgical and Materials Engineering,
- Architecture,
- Chemical Engineering,
- Industrial Engineering;

Post-Graduate Program

Magister Program

- Civil Engineering,
- Mechanical Engineering,
- Electrical Engineering,
- Biomedical Technology,
- Metallurgical and Materials Engineering,
- Architecture,
- Chemical Engineering,
- Industrial Engineering;
- Energy System Engineering

Doctoral Program

- Civil Engineering,
- Mechanical Engineering,
- Electrical Engineering,
- Metallurgical and Materials Engineering,
- Architecture,
- Chemical Engineering,
- Industrial Engineering;

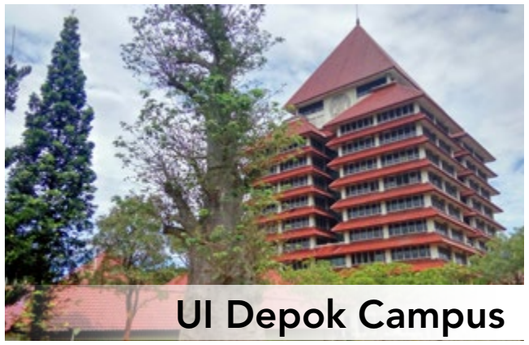
Professional Program

- Engineer Professional Education
- Architect Professional Education

Motivation of Research

Urban Issues


UI Salemba Campus


UI Depok Campus


Depok City


Jakarta City


Air Pollution


Waste


Declination of Fossil Fuels


Clean Water & Health


Transportation

Research Focus

The research strategic plan at the Faculty of Engineering UI is formulated to support Sustainable Development Goals (SDGs), National Strategic Plan as well as Vision and Mission of Universitas Indonesia. Therefore the focus theme of research at Faculty of Engineering UI has been defined as :

"Integrated design in urban smart eco-technology based on indigenous knowledge towards innovative products for sustainable human life and environment"

This theme covers all the research strength in engineering fields and provides spacious room for integrating multidisciplinary research with other faculties in UI as well as partner institutions both at national and international level.

There are three key components that have been developed and strengthened to support the above mentioned research central focus:

- Human Resources
- Infrastructure and Facilities
- Institutional Capacity

Research Area

In order to carry out the Vision, the following areas have been determined as the strategic central research areas being carried-out at Faculty of Engineering UI.

- New & Renewable Energy
- Urban Planning & Transportation
- Clean Water and & Food Resilience
- Waste treatment & Environment Conservation
- Health and Biomedical Applications
- Maritime

The current and future research at our faculty are aimed at bringing high impact on:

innovative products for society and international recognition through reputable publications

Department of
Civil Engineering

Department of Civil Engineering consists of two undergraduate study programs, which are Civil Engineering and Environmental Engineering. There are also two graduate programs including master and doctor of Civil Engineering. For Master and Doctoral Program

Ir. R. Jachrizal Sumabrata, M.Sc., Ph.D.
Head of Department

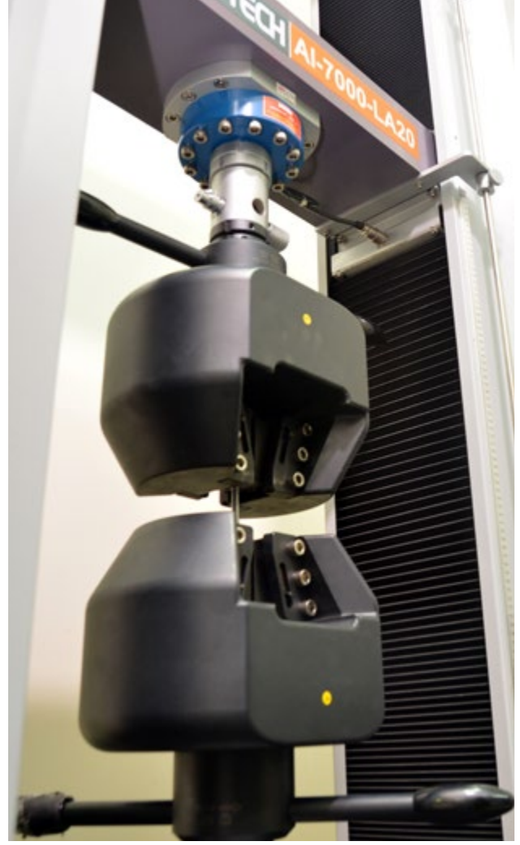
Dr. Cindy Rianti Priadi, S.T., M.Sc.
Vice Head of Department

Civil and Environmental Engineering is the oldest engineering discipline and encompasses many specialties. It applies engineering principles to the design, construction and maintenance of the built environment including road, bridges, canals, dams, water supply, wastewater treatment, solid waste management as well as deteriorating and resilient infrastructures, complex environmental issues and sustainable transport system. In a wider scale, civil and environmental engineering addresses climate change, population dynamics, natural hazards, material conservation, energy and water resources challenges. It brings together the latest development in science and technology to the application of engineering to the civil society and to the environment. Civil and Environmental Engineering at Faculty of Engineering, Universitas Indonesia is dedicated to master our students addressing complex, multidisciplinary problems to improve the quality of life with critical academic thinking and problem solving skills. Civil engineering education prepares students to be master planners, designers, constructors, and managers of various civil engineering works. The graduates may work.

Environmental Engineering is a branch of engineering concerned with the application of scientific and engineering principles for protection of human populations from the effects of adverse environmental factors; protection of environments, both local and global, from the potentially deleterious effects of natural and human activities; and improvement of environmental quality. Furthermore, tasks of environmental engineers may include evaluation of environmental quality of water, air, soils by developing strategies, methods, design of facilities or programs, evaluation of results and assessment of the economics and efficiency of processes and facilities of:

- Pollution and public health risk prevention and reduction,
- Improvement, protection, or remediation projects.

To ensure the quality, all study programs are regularly accredited by the national accreditation board, BAN-PT (Badan Akreditasi Nasional Pendidikan Tinggi) with the highest grade of "A". The undergraduate program of Civil Engineering was accredited internationally in 2001 by The Joint Board of Moderators of the Engineering Council consisting of Institution of Structural Engineers (ISE), Institution of Civil Engineers (ICE), and Chartered Institution of Building Service Engineers of the United Kingdom. In 2008, undergraduate program of Civil Engineering was assessed by ASEAN University Network – Quality Assurance Program (AUN-QA). In order to maintain the quality in education, AUN-QA reassessment was conducted in 2015. The undergraduate program of Environmental Engineering will be assessed by AUN-QA on April 2018.



Vision

To become a center of knowledge and technology in Civil Engineering and Environmental Engineering and to play an important role in global market

Mission

- To improve the quality of graduates in mastering Civil and Environmental Engineering knowledge with solid foundation, internationally standardized with environmental insight
- To actively contribute ideas through research including direct involvement in community service that is oriented to the development of facilities and infrastructure in Civil and Environmental Engineering discipline, yet reflect upon the balanced relationships of humans and nature.
- To shape and build students that conveys leadership and independent personality, along with the ability to socialize, effective communication and uphold profession ethics.

Research Areas

In line with the central focus by Faculty of Engineering UI concerning on urban eco-technology, the research theme at Department of Civil Engineering is:

> “Green Infastructure by Design”

Structural Engineering

- Concrete technology and engineering
- Fiber-reinforced concrete
- Polymer concrete
- Waste and recycled concrete
- Public building
- Structural studies and design
- Advanced structural analysis with finite element
- Masonry materials and structure.

Water Engineering

- Rainwater management in urban environment
- Water related green infrastructure
- Integrated and ground and surface water management
- Water related disaster management
- Water resources management
- Sediment contaminant and transport.

Transportation Engineering

- Public transportation planning and development;
- Traffic impact, management, and safety;
- Transportation master plan and policy.

Geotechnical Engineering

- Peat soil;
- Pavement geotechnical;
- Geo-synthetic-reinforced earthwork;
- Earthquake;
- Landslide;
- Unsaturated soil behavior; and
- Bio-grouting of sandy soils.

Project Management and Value Engineering

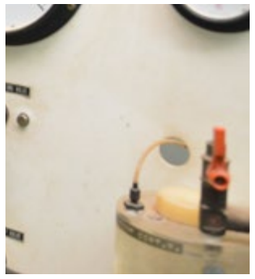
- Time and cost Management
- Quality Management system in construction projects
- Safety, Health and Environmental Systems Policy and Implementation
- Risk Management System in Construction Enterprise and projects
- Construction methods
- Project financing policy and implementation
- Project scope and integration management

Environmental Engineering

- Water Supply and Management
- Wastewater treatment
- Solid and Hazardous Waste Management
- Air Pollution
- Water Quality Management

Laboratories

To support both teaching and research activities, there are six main laboratories at Department of Civil Engineering servicing the lecturers and students:



- Structure and Materials Laboratory
- Soil Mechanics Laboratory
- Hydraulics, Hydrology and River Laboratory
- Transportation Laboratory
- Mapping and Surveying Laboratory
- Environmental Engineering Laboratory
- Microbiology sub-Laboratory
- Environmental sub-Laboratory
- Solid Waste and Wastewater sub-Laboratory

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Department of
Mechanical Engineering

Department of Mechanical Engineering consists of two undergraduate study programs, which are Mechanical Engineering and Naval Architecture and Marine Engineering. There are also two graduate programs including master and doctor of Mechanical Engineering for Master and Doctoral Program.

Dr. Ario Sunar Baskoro, S.T., M.T., M.Eng.
Head of Department

Dr. Agus S. Pamitran, ST., M.Eng.
Vice Head of Department

Department of Mechanical Engineering was previously known as Mechanical Engineering Study Program. The department was established together with the launch of the Faculty of Engineering Universitas Indonesia in November 27th 1964 at Salemba campus, Jakarta. Right now there are two study programs within the department, which are: Mechanical Engineering and Naval Architecture and Marine Engineering.

The Mechanical Engineering study program provides the knowledge which focuses into: Energy conversion,Mechanical Design and Sytem Dynamics, Manufacturing and Automation

The Naval Architecture and Marine Engineering study program provides the education focusing into: Ship design and manufacturing process, Ship maintenance and machinery installation, The rules and laws of marine.

The graduates of the mechanical engineering have worked in several areas such as automotive industry, oil and gas industry, heavy industry, educational intitution, research institution, and other industries. The department of mechanical engineering organizes several programs which are: Bachelor Degree (Regular, Parallel, and International Class), Master Degree, and Doctoral Degree. Since August 2007, the department of mechanical engineering has received the ISO 9001: 2000 for quality management system in Mechanical Engineering Study Program. In 2011, the department of mechanical engineering once again received the ISO 9001: 1008 for quality management system. Certification by international agencies is one of management's commitments in quality management, to ensure and enhance academic quality and stakeholder satisfication.

The mechanical engineering study program also received the highest academic accreditation point according to the National Accreditation Board in 2005. Department of Mechanical Engineering gained international recognition and accreditation from ASEAN University Network (AUN) in 2008 for Mechanical Engineering and in 2016 for Naval Architecture and Marine Engineering.

This again shows the commitment of the Mechanical Engineering Departement to develop international education and excel in their fields, as stated in the firm through the vision, mission, and goals.

Vision

To Become the Center of the Excellent Research and Education Service in Mechanical Engineering

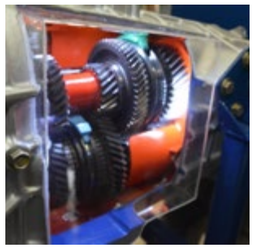
Mission

- To conduct research and research-based education for the development of science and technology in the field of mechanical engineering.
- To conduct research and education efforts and its use to improve the quality of life and humanity.

Research Areas

The research theme at Department of Mechanical Engineering is:

> "Energy Conservation through Efficient Design & Manufacturing"



Advanced Manufacturing Technology and Automation

Micro-fabrication and intelligent manufacturing systems including:

- Advanced CAM-system development based on Discrete Models;
- Knowledge-based Manufacturing System;
- E-manufacturing System;
- Feature-Image Processing and Identification for Fast
- Manufacturing Process and Planning Automation. Water Engineering.

Thermal and Fire Safety Engineering

- Fundamental study of lifted flames
- Downdraft biomass gasification
- Biofuel for automotive applications
- Fire safety engineering such as spontaneous combustion, fire calorimetry, smoke detection, flame spread and development of water-mist technology.

Advanced Refrigeration System and Technology

Design and construction for high efficiency refrigeration and air conditioning including

- Cold storage, vacuum and freeze drying,
- Methane storage, low temperature cascade and green building technology.

High Efficiency Fluid Engineering

- Advanced turbulent control for manufacturing processes and vehicle aerodynamics
- Micro-bubbles application
- Advanced drag reduction techniques
- Micro-turbo machinery.

Advanced Heat Transfer Technology

- Heat and relevant mass transfer in spray drying, forced and natural convection of nanofluids
- Thermophoretic force, thermal measurement techniques and thermo-acoustics
- Evaporation in small tubes and several applications in heat exchanger, thermoelectric cooler, and cryosurgery.

Naval Architecture and Marine Engineering

- Ship resistance and power effectiveness for small ship;
- Ship structural design and novel ship materials;
- Marine transportation.

Laboratories

Several main laboratories at Department of Mechanical Engineering have been developed to support both teaching and research activities.

- Mechanical and Biomechanics Design Laboratory
- Mechanical Technology Laboratory
- Thermodynamics Laboratory
- Heat Transfer Laboratory
- Fluid Mechanics Laboratory
- Manufacture and Automation Laboratory
- Air-conditioning Engineering Laboratory
- Ship Design Laboratory

Department of
Mechanical Engineering FTUI

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Department of
Electrical Engineering

Department of Electrical Engineering consists of three undergraduate study programs, which are Electrical Engineering, Computer Engineering and Biomedical Engineering. There are two graduate programs including master and doctor of Electrical Engineering for Master and Doctoral Program.

Dr. Ir. Aries Subiantoro, M.Sc.
Head of Department

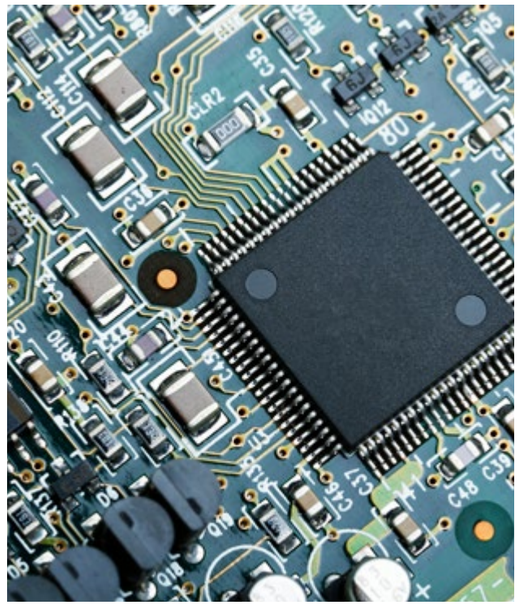
Dr. Abdul Halim, M.Eng.
Vice Head of Department

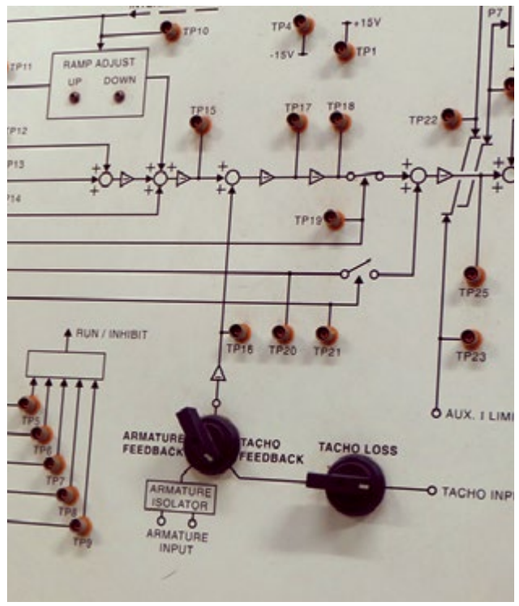
Department of Electrical Engineering Faculty of Engineering Universitas Indonesia was established at the same time with the establishment of Faculty of Engineering on November 27th 1964. Even though the classes had been started since October 17th 1964. At the beginning of the establishment, the Department of Electrical Engineering was named as "Jurusan Listrik" consisted of two fields of studies: Electrical Power and Electronics & Telecommunication. Since 1984, "Jurusan Listrik" has been changed to "Jurusan Elektro", which has been named again as the Department of Electrical Engineering in 2004.

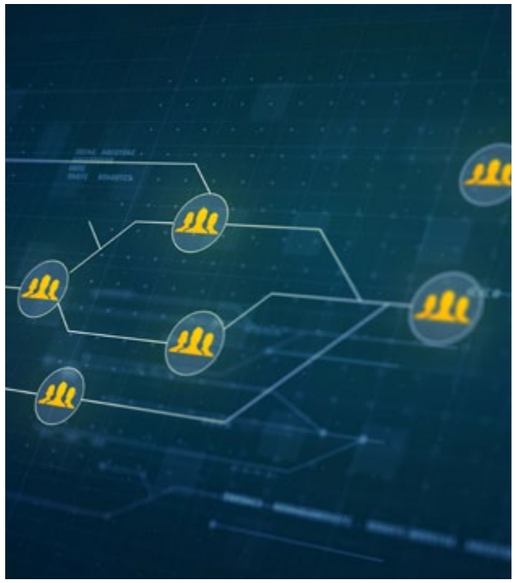
Under this department, there are five streams available in this department, namely: Electrical Power Engineering, Control Engineering, Computer Engineering, Electronics Engineering, and Telecommunication Engineering. Since 2006, computer engineering stream has turned into a new study program called Computer Engineering Study Program in the Department of Electrical Engineering.

The objective of the Electrical Engineering bachelor education in this globalization area is to be able to analyze engineering problems, propose a logical engineering solution, both systematically and practically, supported by the right and proper method. The students are also required to have capabilities in designing and developing software and hardware, and always improved to new technology in electrical engineering.

Department of Electrical Engineering is aiming to produce Electrical engineering graduates who are able to compete beyond the national labor market, and capable to respond to the vast growing engineering technology development through the support of excellent educational process, excellent management and organization, international standard of competence of the teaching staff and international reputation in spesific research activities.







Vision

To Become a High Standard of Excellence in Education and Research in the Field of Electrical Engineering

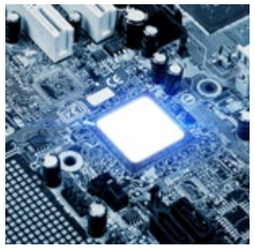
Mission

- To provide education and research collaboration with other universities, research agencies, and institutions, either local or overseas.
- To provide high quality and accountability in management and organization.
- To provide funding resources, which are sufficient to achieve the targets in point (1) and point (2), by conducting researches, consultations, trainings, and other business activities.

Research Areas

Department of Electrical Engineering has set up its research focus as:

> “Renewable Energy Electronics & ICT for Urban Communities”



Power and Renewable Energy

Energy system such as solar cell, wind turbine, micro-hydro, micro-turbine, and diesel generators.

Sensor and Electronic Devices

Micro-electro mechanical systems (MEMS), photonics, communication electronics, medical sensors, nano-devices, optical sensors, and corrosion sensors devices.

Multimedia and Network

- Design and realization of distributed multimedia system architecture to convey multimedia information over networks.
- Optoelectro technique and Remote Sensing: focuses on optics, remote sensing, and image processing.

Digital Signal Processing

Array processing, pattern recognition, radio software, spectral analysis, coding and modulation, and wireless applications.

Propagation and Microwave Antenna

Novel micro strip antenna design for cellular and satellite communications and ultra wide band (UWB)components and systems.

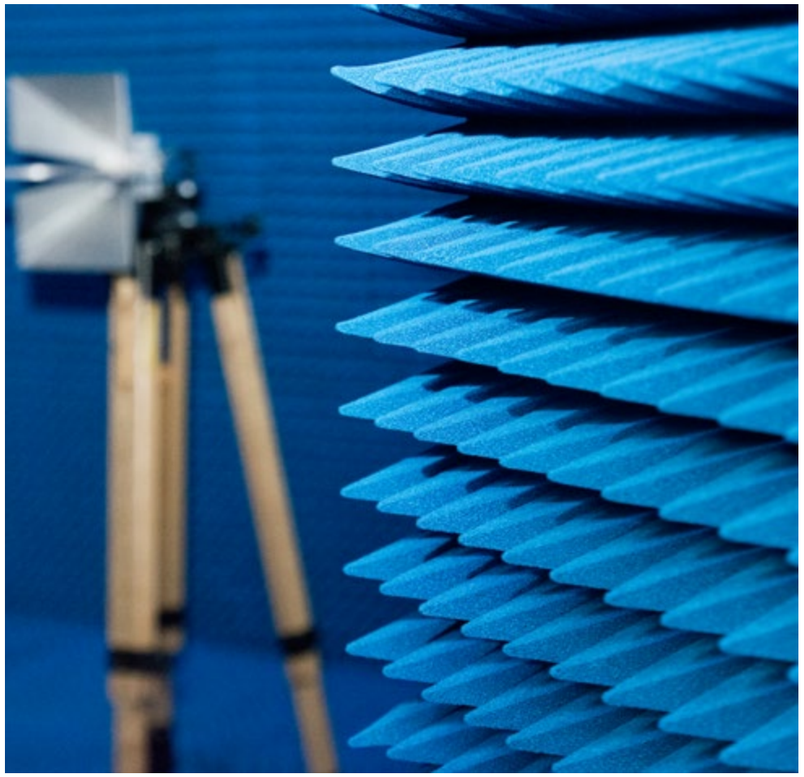
Mobile Communication

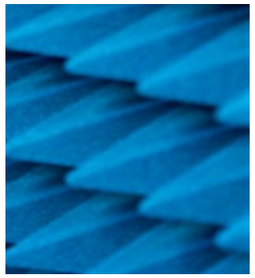
- Telecommunication engineering;
- Satellite constellation design and high altitude platform (HAP), integration of satellite and terrestrial networks;
- Mobility and traffic management for cellular and maximum segment size (MSS) networks, cross layer optimization, network dimensioning;
- Broadband wireless access (BWA) and UWB communications systems.

Real Time Measurement and Control

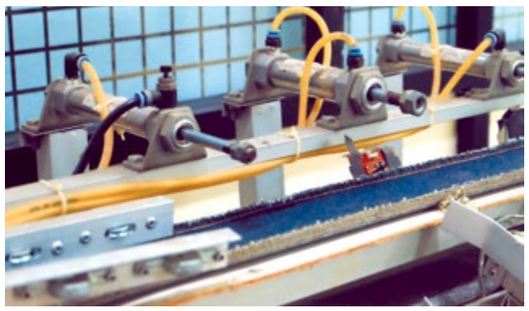
Nonlinear systems and control, robust control for time delay systems, neural networks, fuzzy logic, control and embedded system and decision making.

Laboratories





Research and education activities at Department of Electrical Engineering are supported by the following laboratories: .



- High Voltage and Electrical Measurement Laboratory
- Electrical Power Conversion Laboratory
- Electrical Power System Laboratory
- Electronics Laboratory
- Control Laboratory
- Digital Laboratory
- Telecommunication Laboratory
- Optoelectronics Laboratory
- Computer Networks Laboratory

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Department of

Metallurgical & Materials Engineering

Department of Electrical Engineering consists of three undergraduate study programs, which are Electrical Engineering, Computer Engineering and Biomedical Engineering. There are two graduate programs including master and doctor of Electrical Engineering for Master and Doctoral Program.

Prof. Dr. Ir. Akhmad Herman Yuwono, M.Phil.Eng.
Head of Department

Nofrijon Sofyan, Ph.D
Vice Head of Department

Department of Metallurgical Engineering was originally established as a study program under Faculty of Engineering, Universitas Indonesia in 1965. Due to the lack of qualified lecturers and infrastructure, the first academic activity was only attended by 25 students. For almost 6 years since 1969, the department had stopped accepting new students and focusing te activity to the existing students. In 1975, the department began to accept students again, and in the same year produced the first 7 graduates. Ever since, the department kept continuing and developing its academic activities. As the science and technology progresses, especially for the engineering materials-based industries, also considering the availability of resources within the department, Department of Metallurgical consolidated its resources and studied the need to add "materials" to the name.

Following the idea, on November 5th 2002, Rector of Universitas Indonesia then decreed Department of Metallurgical and Materials Engineering as one of the departments within the Faculty of Engineering.

The curriculum in Metallurgical and Materials Engineering is structured to address problems associated with the metallurgy and design of materials and materials processing to meet the specific needs for a variety of industries. Emphasis is on the basic sciences and principles of engineering with applications of these principles to metallurgy and materials behaviors.

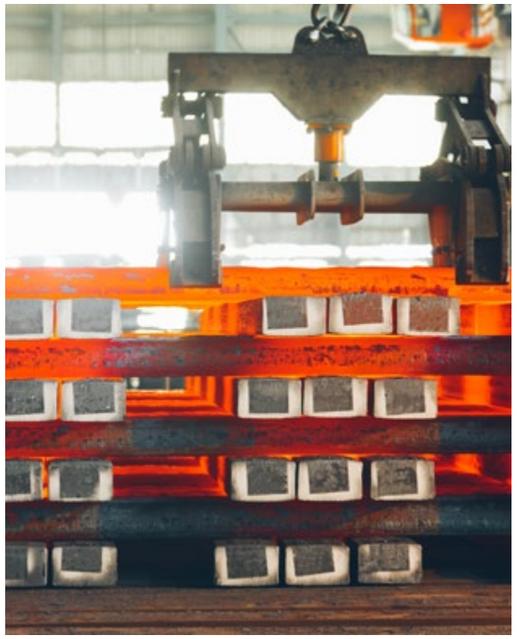
The students must obtain abroad foundation in chemistry, physics, and mathematics, which is applied in engineering courses. Within metallurgy and materials engineering courses, students obtain a foundation in the major areas of metallurgical and materials science and to the major classes of engineering materials, which is applied in courses in materials properties and selection, computational methods and in capstone design course. Students gain in-depth experience in another engineering discipline through coordinated technical elective sequences.

In 2011, the department has totally graduated almost 2000 graduates with a degree in bachelor of engineering, 81 graduates with a degree in master of engineering, and 11 graduates with a doctoral degree.

At the beginning of first semester of 2011/2012, the department has actively 426 undergraduate students, 71 master students, and 24 doctoral students. Considering the high demand to produce qualified graduates and following current trends towards the global competition, Department of Metallurgical and Materials Engineering is committed to continuously improve its academic activities including teaching and learning process as well as research activities. As a part of national education system, which has the objective to develop the intellectual life of the nation through human resources development by conducting three main activities known as tridharma ("three duties"), the department is also committed to carry out higher level educations, to conduct scientific research, and to provide community services.

During its development stage, the Department of Metallurgical and Materials Engineering has achieved several milestones, such as:

- Grade A Accreditation for Undergraduate Program from National Accreditation Board, Ministry of National Education (Year 2013 and 2018).
- Establishment of master (1995) and doctoral (2008) programs.
- Grade B Accreditation for Master Program from National Accreditation Board, Ministry of National Education (up to 2013).
- Grade A Accreditation for Doctoral Program from National Accreditation Board, Ministry of National Education (Year 2012-2017).
- Establishment of "Dual-degree" International Program with Monash University (2003).
- Grant awards from the Government of Republic Indonesia for:
- Internal improvement for o non-metallic field competence - PHK-A4 (2004).
- Improvement for external and regional competence PHK-A2 (2004-2006).
- Internationalization of academic and research activities in information technology, energy, and nonmaterial - PHKI (2010-2013).
- Establishment of Center for Materials Processing and Failure Analysis (CMPFA), a venture unit to support the materials engineering community and industry (2001).
- Intensive academic and research collaborations with international institutions, such as Monash University
- (Australia), Kagoshima University (Japan), Nanyang Technological University (NTU, Singapore), Yeungnam University, and KITECH (Korea) (since 2006).
- Materials Testing Laboratory was accredited ISO 17025 (2011).



Vision

To Become a Metallurgical and Materials Engineering Center of Excellence in Education, Research, and Community Services

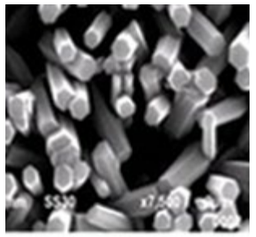
Mission

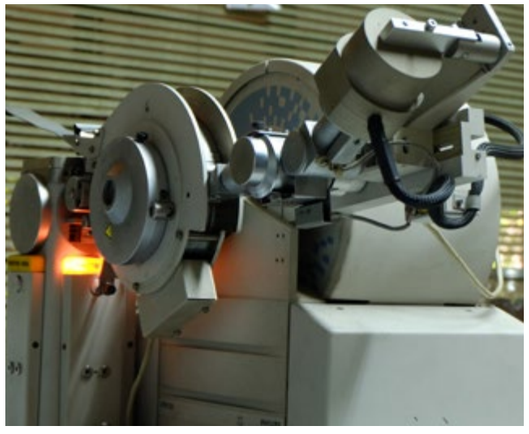
- To produce high quality graduates with strong academic basis and a comprehensive ability in metallurgical and materials engineering and technological processes.
- To provide active and dynamic roles in national, regional, and international community.

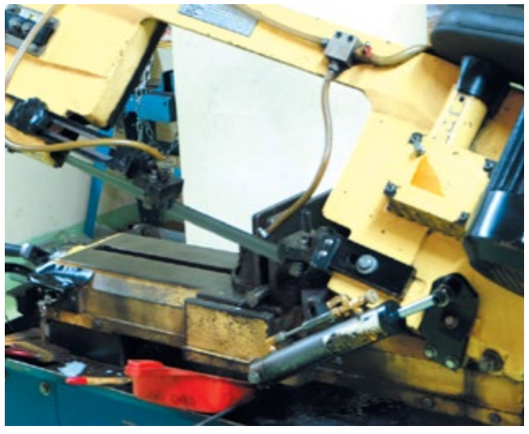
Research Areas

Department of Metallurgical and Materials Engineering has set up its research theme as:

"Eco-Based Materials Design & Processes"







Advanced Materials

- Nanostructured and mesoporous materials for energy applications: dye sensitized solar cell, and high capacity battery for electric car;
- Geo-polymer for conventional Portland cement replacement in building and pavement constructions;
- Bipolar plates made of polymer matrix composites (PMCs) for fuel cell applications;
- Ceramic matrix composites (CMCs) and metal matrix composites (MMCs) for automotive engine;
- Polymer matrix composites (PMCs) with local Indonesia natural fiber for automotive interior structure applications;

Materials Chemistry and Corrosion Protection

- Corrosion prevention through materials selection process and materials engineering, including development of natural product inhibitors;
- Ores processing by utilizing local energy resources and reducing agents such as low grade coal and charcoal.

Materials Manufacture

- Development of a more efficient method in materials processing such as casting, forming, and welding to support manufacturing industries in Indonesia;
- Materials processing and simulation; development of high strength zero-defect nano-precipitates; highstrength low alloys development through heat treatment; and processing-properties-microstructu relationship in metallic materials;
- Development of light alloys used for body armour and combat vehicle as well as failure analysis of component and structures.

Laboratories

The following laboratories at Department of Metallurgy and Materials Engineering have been developed in order to support both teaching and research activities:

- Chemical Metallurgy Laboratory
- Physical Metallurgy Laboratory
- Mechanical Metallurgy Laboratory
- Processing Metallurgy Laboratory
- Metallography & Heat Treatment Laboratory
- Corrosion & Metal Protection Laboratory

Department of Metallurgical and Materials Engineering FTUI

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Department of
Architecture

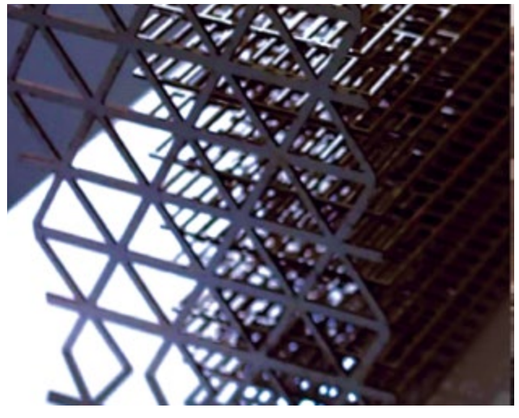
Department of Architecture consists of two undergraduate study programs, which are Architecture, and Architecture Interior. There are two graduate programs including master and doctor of Architecture for Master and Doctoral Program.

Dr. Ing. Ir. Dalhar Susanto
Head of Department

Joko Adianto, ST., M.Ars., Ph.D.
Vice Head of Department

Department of Architecture Universitas Indonesia (formerly known as the Architectural Engineering Major) was established in Jakarta in 1965 as part of the Faculty of Engineering Universitas Indonesia (FTUI). A year after this FTUI was founded by Presidential Decree No. 76 on July 17, 1964. Since its inception, Architectural Education at FTUI was conducted as a full professional education degree program for a duration of 5-7 years. The average completion time was 7 years for an Engineering (Ir.) degree. In 1978, the ministry of Education introduced Credit Semester Units (CSU, widely known as Sistem Kredit Semester or SKS) and the Engineering (Ir.) degree, including the one for the Architecture Major requires 160 CSUs. The average duration of the study was for 5 years, and the title was Engineer (Professional Degree). Since 1996, the four-year bachelor program was implemented which requires 144 CSUs to complete, with the degree of Bachelor of Engineering (Sarjana Teknik). In the same year, after 31 years of existence, the Architecture Study Program at UI received its decree from the Director General for Higher Education No. 215/DIKTI/KEP/1996 dated July 11, 1996.

In 2000, the Department of Architecture streamlined the curriculum by implementing the 2000 Curriculum (a streamlined version of the 1996 Curriculum) along with the application of Problem-based Learning Method (PBL), Collaborative and Student Centered Learning (SCL). The 2000 Curriculum established more clearly that the direction for our program is professional, and not a professional one.



The Department of Architecture opened the Masters of Architecture program in 2001 with 2 specializations in the fields of Architectural Design and Urban Design. Over the years, the Master program added 4 more specializations: Urban Housing and Settlements; Real Estate; History and Theories of Architecture and Urbanism; and Building Technology. At this time, through the new curriculum (2012 Curriculum), the six specialization were grouped into three which are:

- Creative Process: Architectural Design, Urban Design, Property;
- Humanities: History and Theories of Architecture, Urban Housing and Settlements;
- Technology and Sustainability: Building Technology.

In 2004, the name of the Architecture Major changed to the Department of Architecture. The degree for its graduate was also changed from Sarjana Teknik (ST) to Sarjana Arsitektur (SArs) for the Bachelor and Masters of Architecture (MArs) for the Masters program.

In 2008, the Department of Architecture established the Undergraduate Program in Interior Architecture. The program emphasized interiority in architecture.

In 2009, the Depatment of Architecture opened a Ph.D program and a one-year Architectural Professional Program (Progam Pendidikan Profesi Arsitek/PPArs). The Ph.D program is intended to strengthen the Department of Architecture as one of the leading architectural research-based institutions. Ph.D students' research are focused in two areas: (1) Major research areas (research based on architectural issues) and (2) Minor research areas (related to a specialized area of study). In the minor research areas, Ph.D students have the opportunity to take course outside the discipline of Architecture, to gain knowledge, thoughts, and methods, in order to support their research in Architectural major. One year PPArs produce graduates who are ready to enter the world of professional practice in architecture. Graduates of PPArs could apply for credit transfers when pursuing a Masters degree at UI.

Department of Architecture also has an International Program (KKI): (1) Single degree undergraduate (8 semesters at UI), or in the form of (2) Double degree (4 semesters at UI + 4 semesters abroad) in collaboration with leading universities abroad. In addition, S1 students who have superior academic achievement are able to get into three-year Fast-Track program (Bachelor) + 2 years (Masters), a total of 5 years, to get a Masters of Architecture at UI or partner universities abroad. The Undergraduate and Maters program in the Department of Architecture UI have received accreditation from the Higher Education BAN with a score A (Very Good). In addition, the Bachelor Department of Architecture program has received its "Assessment" from the ASEAN University Network (AUN) in 2010.

Vision

To Established an Excellence in Higher Education Institutions in Architecture and Interior Architecture with National and International Recognition, in order to Nurture Future Leaders Who are Creative, Think Critically, and Act Prudently with Global Insights with Respect to Local Wisdom and Environmental Sustainability

Mission

- To produce excellence graduates that master a particular competence with respect to their degrees (Bachelor, Masters, Doctoral, and Professional).
- To promote research excellence with international recognition.
- To promote the application of practical and applied knowledge for community enablement.

Research Areas

Department of Electrical Engineering has set up its research focus as:

"Eco Architecture"

Ethno Atchitecture

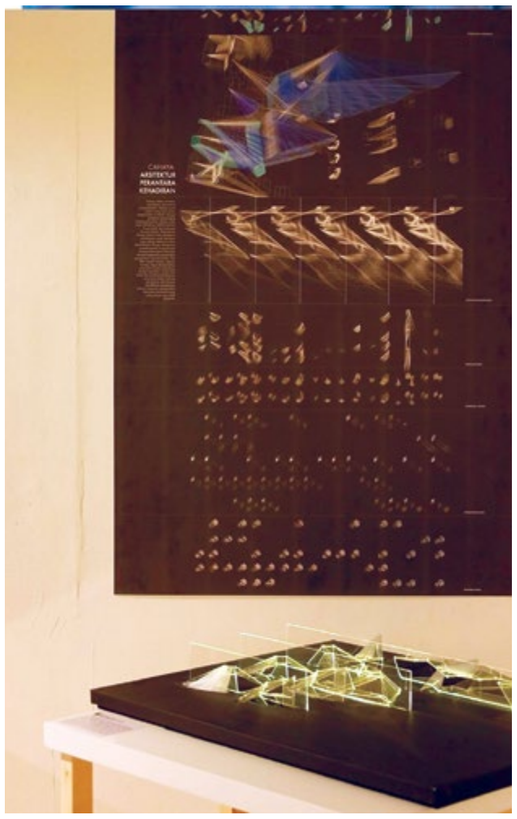
- The social, cultural, and technological aspect of hinterland indigenous building.
- Housing and Settlement: Living transformation pattern of kampong and high rise living structures as well as coastal and archipelagic settlement problems.

Building Science and Technology

Alternative building materials and tropical sustainable building and urban space problems.

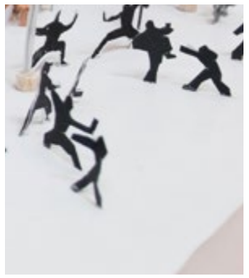
Architectural History and Theory

- Urban history and heritage conservation.
- Urban Design and Plan: Spatial patterns caused by migration, tropical spatial distribution of livable space and design activism for empowering local community.
- Environmental Psychology: Crowding and sustainability of alternative utilization of space.



Laboratories

Department of Architecture has developed the following laboratories in order to support the teaching and research activities carried out by lecturers and students:



- Building Physics Laboratory
- Fabrication Laboratory
- Photography Laboratory

Department of Architecture FTUI

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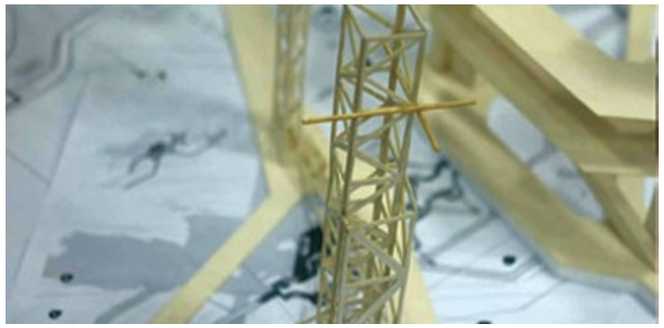


Department of
Chemical Engineering

Department of Chemical Engineering consists of two undergraduate study programs, which are Chemical Engineering, and Bioprocess Engineering. There are two graduate programs including master and doctor of Chemical Engineering for Master and Doctoral Program.

Dr. Ir. Asep Handaya Saputra, M.Eng.
Head of Department

Dr. Bambang Heru Susanto, S.T., M.T.
Vice Head of Department

The main mission of the Chemical Engineering Department is to provide the highest education quality so that graduates have the necessary knowledge, skills, and experience conducting research with current topics in the field of chemical engineering and biochemical engineering. Starting from the opening of the Gas and Petrochemical Engineering Program back in 1981, then this program became Chemical Engineering Program in 2006. Chemical Engineering Department at Universitas Indonesia is now one of the leading chemical engineering departments in Indonesia having excellent accreditation from National Accreditation Board of Indonesia (BAN) and the ASEAN University Network (AUN). Chemical Engineering Department has two study programs; Chemical Engineering Study Program and Bioprocess Engineering Study Program with 30 permanent academics staff, and about 800 undergraduate and graduate students. In order to enhance the role of the department in the era of biotechnology and life sciences, Bioprocess Engineering Study Program was opened in 2008.

Chemical engineering department offers five academic programs: undergraduate program (regular, parallel, international), master program (regular and gas management at Salemba campus), and doctoral program. The chemical engineering department has been adhering to competency-based principles starting in curriculum 2000 up to the recently updated curriculum 2016. The present graduate competencies are based on recommendation from ABET and the Bologna Process and on feedbacks from graduates and industry representatives, that focused on producing graduates who are educated and able to contribute

effectively to their communities wherever they choose to live and work. The chemical engineering department is conducting international classes in collaboration with three Australian universities: Monash University, Curtin University, and University of Queensland.

Students in this international class spend their first four semesters at UI, and spend the subsequent four semesters in Australia. At the end of their study, students will get a Sarjana Teknik degree from UI and a Bachelor of Engineering degree from the partner university.

Since 2011, international program students are able to choose and enrol in a single-degree program at UI following curriculum that is equivalent to the regular undergraduate curriculum. The department also has established double degree master programs with National Taiwan University of Science and Technology (NTUST) and Curtin University. In this double degree programs, students spend their first year at UI and the second year at NTUST or Curtin University. At the completion of their studies, students will be awarded a Master of Engineering degree from NTUST or Curtin University.

Take updated curriculum is now more streamlined and integrated allowing students to take elective courses previously only available in a study program (Chemical Engineering Study Program or Bioprocess Engineering Study Program) or available for a certain level (undergraduate or graduate). It means that the students could choose courses that are more suitable to their interest. For those who qualify, there is a fast-track program that allows undergraduate students to obtain both bachelor and master degrees in ten semesters instead of in twelve semesters. Chemical engineering master's program has also prepared a special curriculum for those without an educational background not in chemical engineering. By adopting this special curriculum, applicants with a non-chemical engineering degree are recommended to take the chemical engineering undergraduate core courses to master the fundamentals of chemical engineering before taking more advanced core graduate courses. Graduates of doctoral programs are expected to contribute to the development of science by conducting independent research, usually under supervision of a qualified professor.

Vision

To become a World Class Center of Excellence for Education and Research in Chemical Engineering

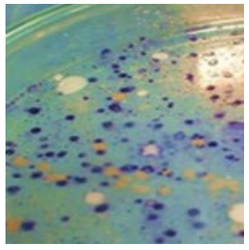
Mission

- To provide the best quality of undergraduate and postgraduate education with a broad-based education and design experience, enabling students to address chemical engineering problems.
- To provide students with fundamental elements: (1) to develop in the profession in response to rapidly changing technology and societal needs and expectations, and (2) to develop important soft skills such as problem solving, communication, and group skills.

Research Areas

Department of Chemical Engineering has clearly defined its research focus as:

> “Sustainable Chemical & Bioprocess Engineering for Energy & Product Development”



Chemical and Natural Production

Natural based product, design of various chemical reactors, and performance of various chemical reactionsthrough experimentation as well as computer based modeling and simulation

Sustainable Energy Technology

The sustainability of energy supply, greenhouse effect, energy efficiency, green and renewable energy resources; development of novel materials for energy, clean combustion, hydrogen production and fuel cells, energy storage, clean fossil fuels/coal-bed methane, bioenergy; and sustainable energy systems and policy.

Bioprocess Technology

Conversion of biological materials into other useful forms, bioenergy, environmental biotechnology, functional food, molecular modelling, bio-catalysis and biomass.

Process Intensification

Development of smaller, cleaner, and more efficient technology that leads to lower energy and materials use in the bulk chemical industry.

Laboratories

In order to provide facilities for teaching and research activities, Department of Chemical Engineering has developed the following laboratories:

- Chemical and Natural Product Design Laboratory
- Chemical Process Intensification Laboratory
- Sustainable Energy Technology Laboratory
- Bioprocess Engineering Laboratory
- Basic Chemical Process Laboratory
- Chemical Process System Laboratory
- Basic Process and Operation Laboratory

Department of Chemical Engineering FTUI

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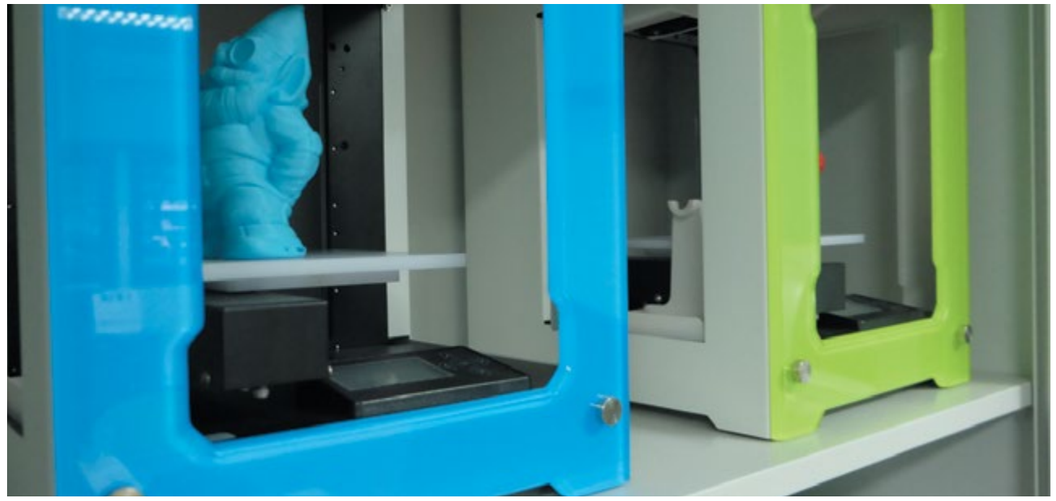
Department of
Industrial Engineering

Department of Chemical Engineering consists of two undergraduate study programs, which are Chemical Engineering, and Bioprocess Engineering. There are two graduate programs including master and doctor of Chemical Engineering for Master and Doctoral Program.

Dr. -Ing. Amalia Suzianti S.T., M.Sc.
Head of Department

Dr. Komarudin, ST., M.Eng.
Vice Head of Department

Industrial Engineering Education in Universitas Indonesia offers unique blends of skills and knowledge in designing, improving, and installing complex integrated systems of people, materials, information, equipment and energy to deliver value to its users. This kind of complex systems are commonly named "Industry". Our graduates are developed to have strong problem finding and problem solving capabilities using process based, systems thinking and design-oriented approaches. With an integration of engineering and management science principles, our graduates are welcomed almost in any industrial sectors, whether in service systems or manufacturing systems. You will find our graduates in the service sectors such as banking, government, health sector, consulting, quality management, technology services, and others. In the manufacturing sector, our graduates have several roles, as in operations/ productions, human resources, maintenance, logistics and distributions. Our research focuses on the problems faced by our urban communities, due to the facts that UI's location is in the first urban city of Indonesia, our capital city of Jakarta. We want to make sure that we can continuously contribute in developing a sustainable city that are balanced in the economic growth, social inclusiveness, and environmental awareness.



Vision

Industrial Engineering UI will become a forefront Industrial and Systems Engineering education in Indonesia through excellent and sustainable value-adding research and innovations

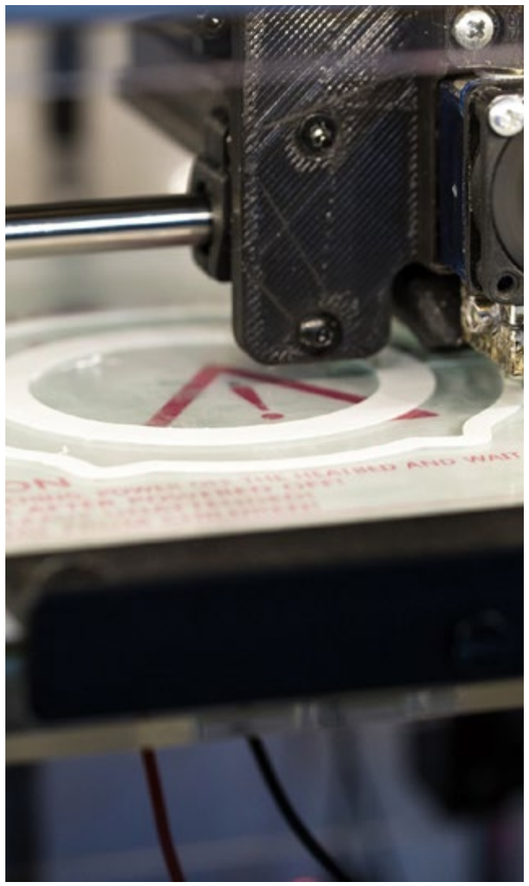
Mission

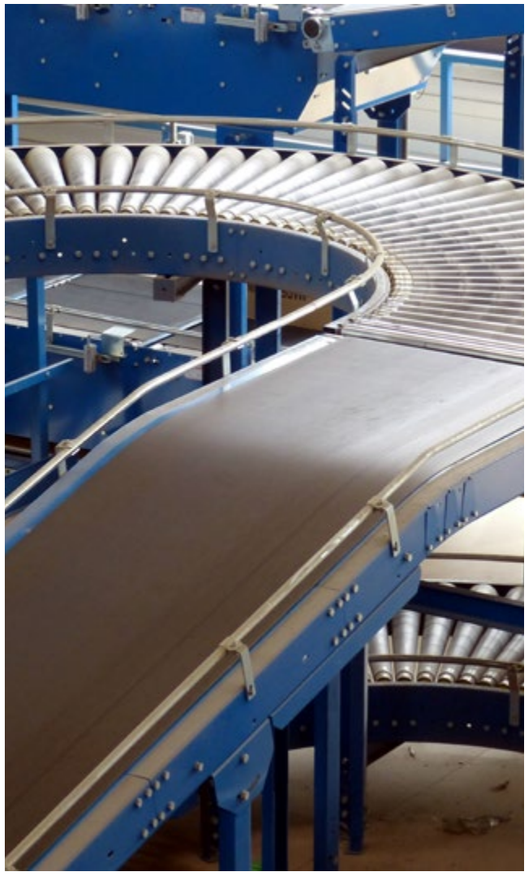
Providing excellent industrial engineering education, supported with internationally recognised competitive research, and community engagement activities that are adaptive, beneficial and professional to support Indonesia's sustainable development

Research Areas

The research focus at Department of Industrial Engineering has been clearly stated as:

> “Designing Sustainable Service for Increasing Our Urban Communities Quality of Life”





- Applied Ergonomics and Work Systems
- Logistics & Supply Chain
- Lean Manufacturing
- Modeling & Simulation
- Systems Engineering
- Operations Research
- Quality & Reliability Engineering
- Sustainable Development
- Computer & Information Systems
- Energy Systems
- Health Systems
- Innovation and Systems Design

Laboratories

Our education and research are supported with 6 modern equipped laboratories and one of them, our ergonomic center, is the first comprehensive Human Factors Research Lab in South East Asia.

- Manufacturing Systems Laboratory
- Human Factors Laboratory – Ergonomic Center
- Systems Engineering Modeling and Simulation Laboratory
- Statistics and Quality Engineering Laboratory
- Product Development and Innovation Laboratory
- Management Information Systems and
- Decision Support Laboratory

Department of Industrial Engineering FTUI

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List of Professors

No.	Department	Professor	Research Interest
1	Civil Engineering	Prof. Dr. Ir. Budi Susilo Soepandji, DEA	
2	Civil Engineering	Prof. Dr. Ir. Sutanto Soehodho, M.Eng	
3	Civil Engineering	Prof. Dr. Ir. Irwan Kartili, DEA	
4	Civil Engineering	Prof. Dr. Ir. Tommy Ilyas, M.Eng	
5	Civil Engineering	Prof. Dr. Yusuf Latief, MT	
6	Civil Engineering	Prof. Dr. Ir. Djoko M Hartono S.E., M.Eng.	
7	Civil Engineering	Prof. Dr. Ir. Sigit P Hadiwardoyo, DEA.	
8	Civil Engineering	Prof. Ir. Widjojo Adi Prakoso, M.Sc.,. Ph.D.	
9	Civil Engineering	Prof. Dr. Ing. Ir. Dwita Sutjiningsih, Dipl. HE	
10	Mechanical Engineering	Prof. Dr. Ir. I Made K Dhiputra, Dipl-Ing	
11	Mechanical Engineering	Prof. Dr. Ir. Tresna P. Soemardi, SE	
12	Mechanical Engineering	Prof. Dr. Ir. Raldi Artono Koestoer	
13	Mechanical Engineering	Prof. Dr. Ir. Bambang Sugiarto, M.Eng	
14	Mechanical Engineering	Prof. Dr. Ir. Yanuar MSc, MEng	
15	Mechanical Engineering	Prof. Dr. Ir. Budiarso, MEng	
16	Mechanical Engineering	Prof. Ir. Yulianto S. Nugroho, MSc, PhD	
17	Mechanical Engineering	Prof. Dr.Ing. Nandy Setiadi D. Putra	
18	Mechanical Engineering	Prof. Dr. Ir. Harinaldi, M.Eng	
19	Mechanical Engineering	Prof. Dr. Ir. R. Danardono Agus Sumarsono DEA. PE.	
20	Mechanical Engineering	Prof. Dr. Ir. Muhammad Idrus Alhamid	
21	Mechanical Engineering	Prof. Dr. Ir Adi Surjosatyo, M.Eng.	
22	Mechanical Engineering	Prof. Dr. Ir. Gandjar Kiswanto, M.Eng	
23	Mechanical Engineering	Prof. Dr. Ir. Sunaryo, M.Sc.	
24	Electrical Engineering	Prof. Dr. Ir. Harry Sudibyo S, DEA	
25	Electrical Engineering	Prof. Dr. Ir. Dadang Gunawan, M.Eng.	
26	Electrical Engineering	Prof. Ir. Rinaldy Dalimi, M.Sc, Ph.D	
27	Electrical Engineering	Prof. Dr. Ir. Nji Raden Poespawati, MT	
28	Electrical Engineering	Prof. Dr. Ir. Eko Tjipto Rahardjo	
29	Electrical Engineering	Prof. Dr. Ir. Rudy Setiabudy	
30	Electrical Engineering	Prof. Dr. Ir. Iwa Garniwa MK, MT	
31	Electrical Engineering	Prof. Dr. Ir. Riri Fitri Sari,MSc., MEng	
32	Electrical Engineering	Prof. Drs. Benyamin Kusumoputro, Meng. Sc., PhD	
33	Electrical Engineering	Prof. Dr. Ir. Kalamullah Ramli, MEng	
34	Electrical Engineering	Prof. Dr. Fitri Yuli Zulkifli, S.T., M.Sc.	

List of Professors

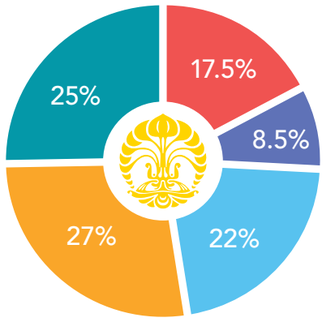
No.	Department	Professor	Research Interest
35	Metallurgical and Materials Engineering	Prof. Dr. Ir. Eddy Sumarno Siradj	
36	Metallurgical and Materials Engineering	Prof. Dr. Ir. Johny Wahyuadi S, DEA	
37	Metallurgical and Materials Engineering	Prof. Dr. Ir. Anne Zulfia Syahrial, M.Sc	
38	Metallurgical and Materials Engineering	Prof. Dr.-Ing. Bambang Suharno	
39	Metallurgical and Materials Engineering	Prof. Dr, Ir. Bondan T. Sofyan, MSi	
40	Metallurgical and Materials Engineering	Prof. Dr. Ir. Dedi Priadi, DEA	
41	Metallurgical and Materials Engineering	Prof. Dr. Ir. Muhammad Anis M.Met.	
42	Metallurgical and Materials Engineering	Prof. Dr. Ir. Akhmad Herman Yuwono, M.Phil.Eng.	
43	Metallurgical and Materials Engineering	Prof. Dr. Ir. Winarto, M.Sc.	
44	Architecture	Prof. Ir. Triatno Judo Harjoko, M.Sc.Ph.D	
45	Architecture	Prof. Yandi Andri Yatmo,S.T., M.Arch., Ph.D.	
46	Architecture	Prof. Dr. Kemas Ridwan Kurniawan, ST., M.Sc.	
47	Architecture	Prof. Paramita Atmodiwirjo, S.T., M.Arch., Ph.D.	
48	Chemical Engineering	Prof. Dr. Ir. Mohammad Nasikin, M.Eng	
49	Chemical Engineering	Prof. Dr. Ir. Widodo Wahyu Purwanto, DEA	
50	Chemical Engineering	Prof. Dr. Ir. Anondho Wijanarko, MEng	
51	Chemical Engineering	Prof. Dr. Setijo Bismo, DEA	
52	Chemical Engineering	Prof. Dr. Ir. Slamet, MT	
53	Chemical Engineering	Prof. Ir. Sutrasno Kartohardjono, MSc, PhD	
54	Chemical Engineering	Prof. Dr. Ing. Ir. Misri Gozan M.Tech.	
55	Chemical Engineering	Prof. Dr. Heri Hermansyah S.T., M.Eng	
56	Chemical Engineering	Prof. Ir. Mahmud Sudibandriyo M.Sc., Ph.D	
57	Chemical Engineering	Prof. Dr. Ir. Nelson Saksono, M.T	
58	Industrial Engineering	Prof. Dr. Ir. Teuku Yuri M. Zagloel, MEng.Sc.	
59	Industrial Engineering	Prof. Ir. Isti Surjandari Prajitno M.T., M.A., Ph.D.	

Distribution of Academic Staffs

Currently, Faculty of Engineering has 219 staffs with the following composition:

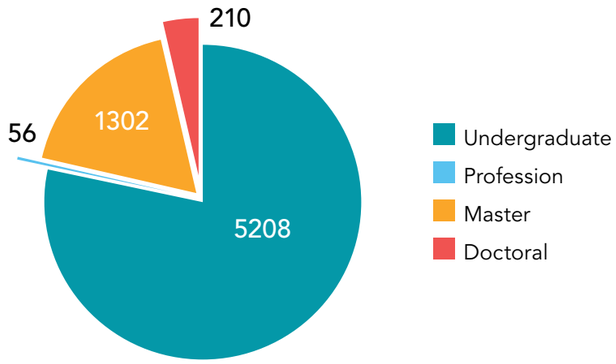
- 59 Full-professors
- 64 Associate professors
- 51 Assistant professors
- 20 Instructor
- 41 Lecturers

It should be noted that the number of full-professors will increase in the next few years since there are quite number of associate professors being promoted. The number is well-distributed and it has been providing good impact for the academic atmosphere in terms of teaching and research activities.



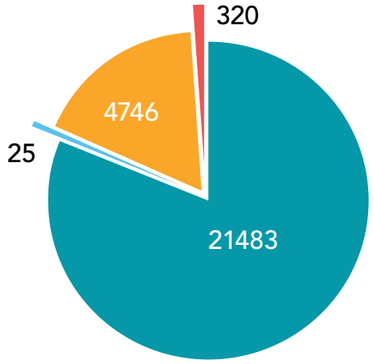
Student Body

in 2018-2019

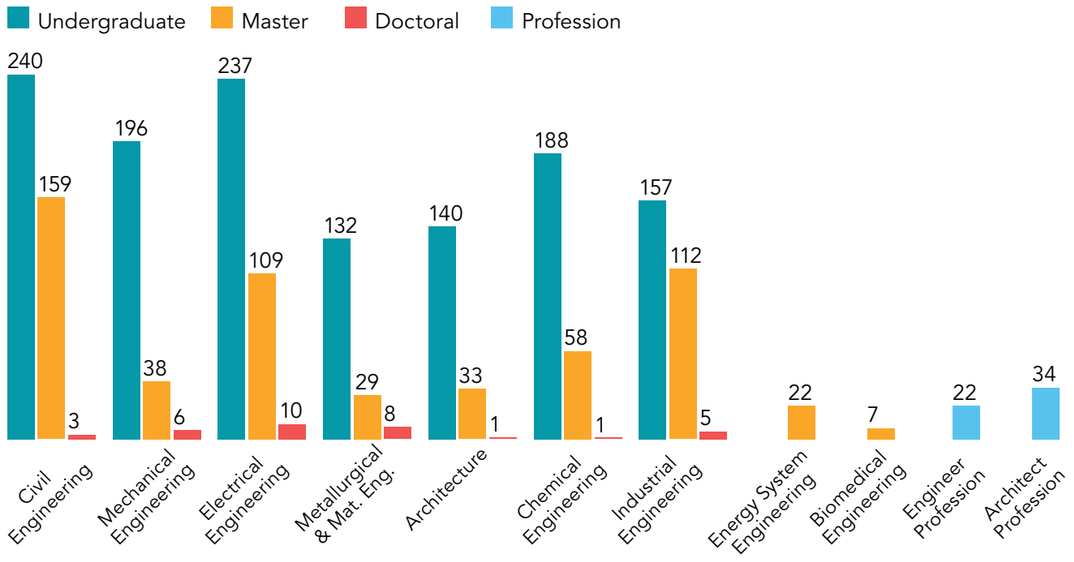


Degree Awarded

from 1967 to 2018

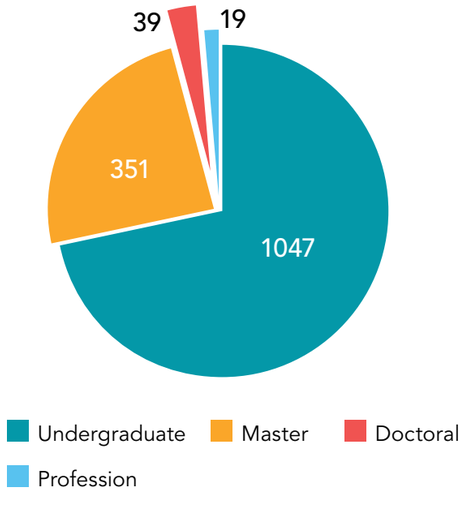


Student Enrollment by Major, in 2017-2018



Number of Graduates

in 2017-2018



National Accreditation

Undergraduate Programmes

Civil Engineering	A
Environmental Engineering	A
Mechanical Engineering	A
Naval Architecture and Marine Engineering	A
Electrical Engineering	A
Computer Engineering	A
Metallurgical and Materials Engineering	A
Architecture	A
Interior Architecture	A
Chemical Engineering	A
Bioprocess Engineering	A
Industrial Engineering	A
Biomedical Engineering	

Master Programmes

Civil Engineering	A
Mechanical Engineering	A
Electrical Engineering	A
Metallurgical and Materials Engineering	A
Architecture	A
Chemical Engineering	A
Industrial Engineering	A
Biomedical Engineering	B

National Accreditation

Doctorate Programmes

Civil Engineering	A
Mechanical Engineering	A
Electrical Engineering	A
Metallurgical and Materials Engineering	A
Architecture	A
Chemical Engineering	A
Industrial Engineering	B

International Assesment

Faculty of Engineering is the only faculty in Universitas Indonesia that has the international assessment from ASEAN University Network (AUN) for all of the departments, Japan Accreditation Board for Engineering Education (JABEE), and Indonesian Accreditation Board for Engineering Education (IABEE) specific study programs.

AUN

2010	• Electrical Engineering, • Metallurgical & Materials Engineering, • Architecture • Chemical Engineering.
2013	• Industrial Engineering
2015	• Civil Engineering
2017	• Naval Architecture & Marine Engineering • Bioprocess Engineering
2018	• Environmental Engineering • Computer Engineering

JABEE

2017	• Chemical Engineering.

IABEE

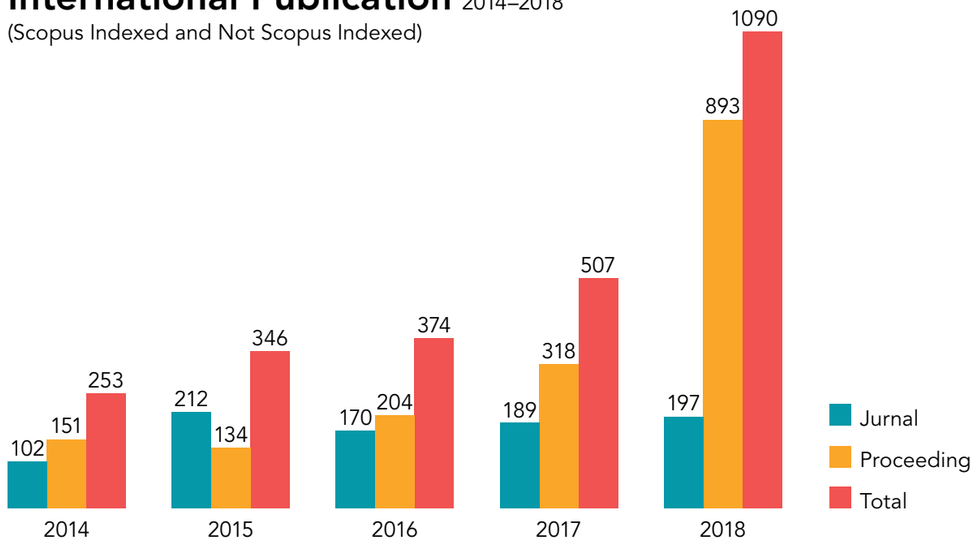
2018	• Chemical Engineering • Bioprocess Engineering • Mechanical Engineering

International Publication

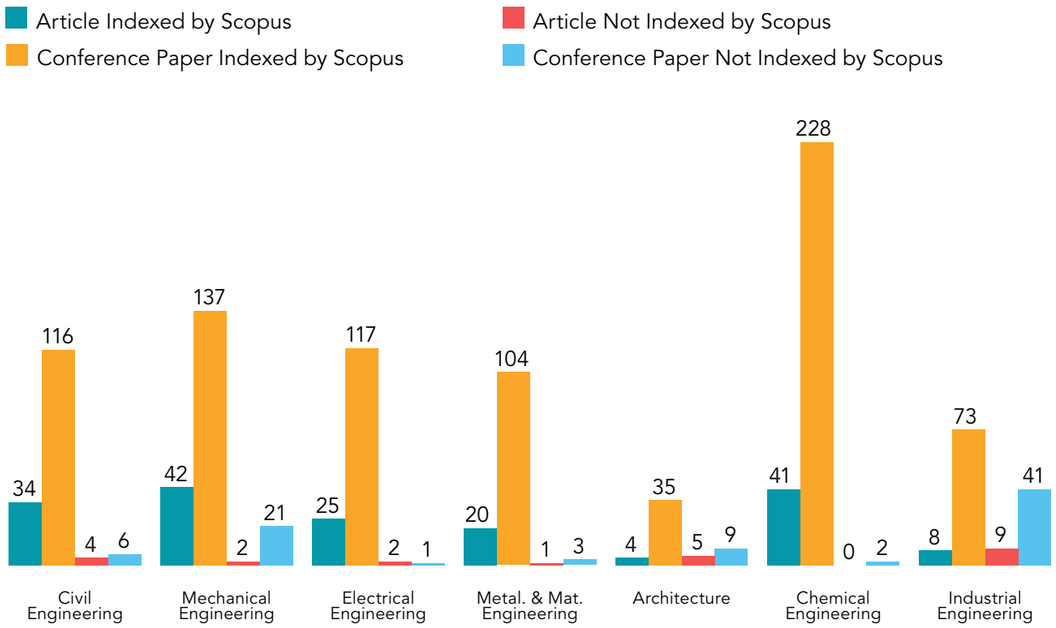
The academic staffs and students of Faculty of Engineering Universitas Indonesia are actively disseminating their research in the internationally recognized journals, and the trend of these published papers has increased significantly in the last three years.

International Publication 2014–2018

(Scopus Indexed and Not Scopus Indexed)



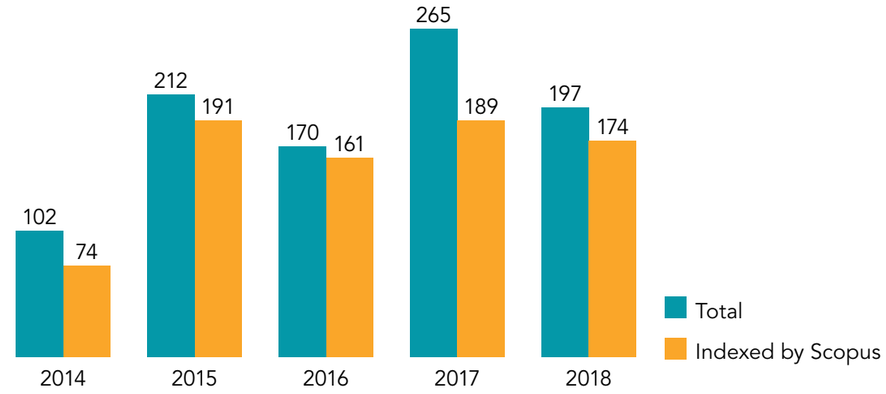
International Publication by Department in 2018



Number of

Scopus Indexed Papers

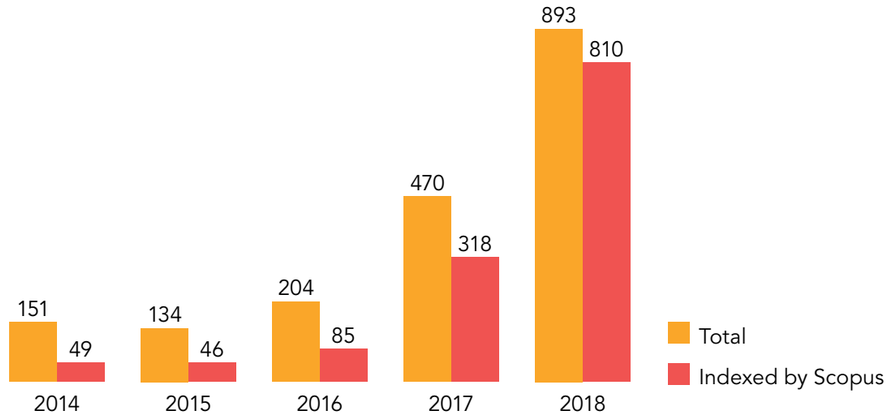
Among The Total International Journal Publication 2014–2018



Number of

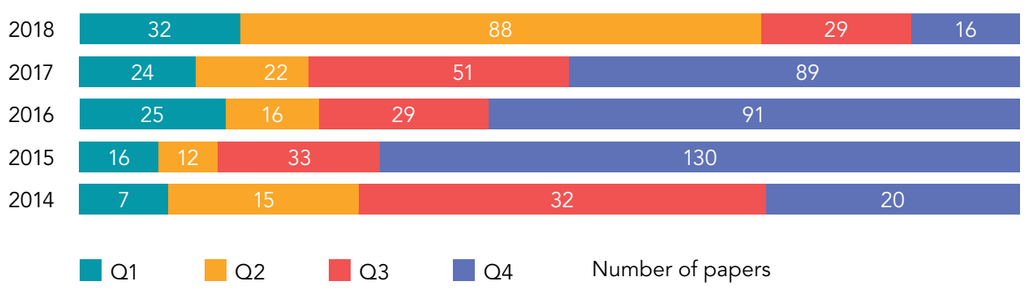
Scopus Indexed Papers

Among The Total International Proceeding Publication 2014–2018



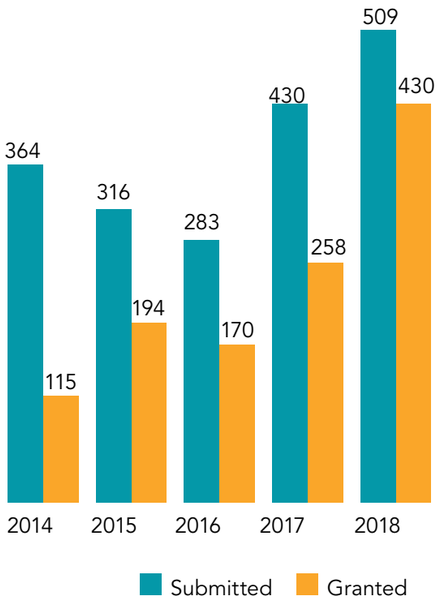
Distribution of Published Journals

by Quartile Rank (2014-2018)



Research Proposals

2014-2018

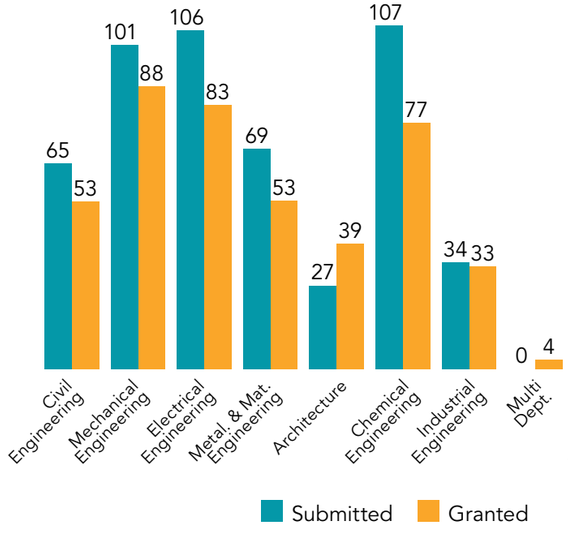


Research Funding Obtained

2014-2018

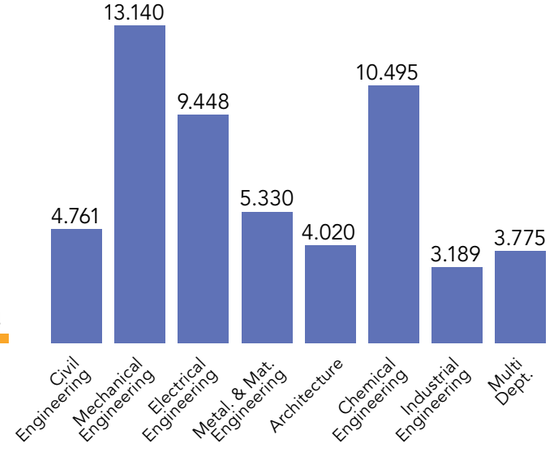
Research Proposals

by Department in 2018



Research Fund

by Department in 2018



Amount in Million Rupiahs

Faculty of Engineering UI

Research Centers

Center for Sustainable Infrastructure Development

Pusat Kajian Wilayah Pembangunan Infrastruktur Berkelanjutan

Overview

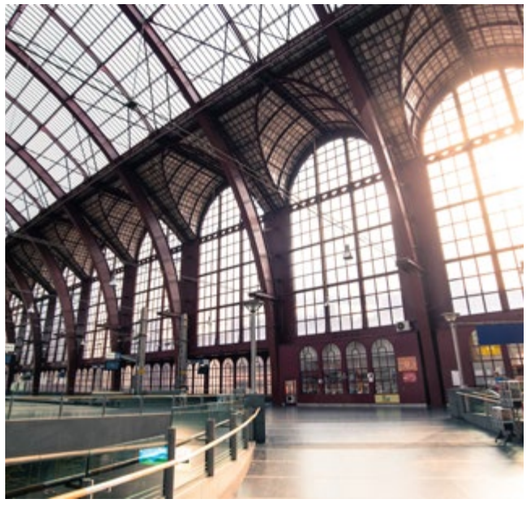
Having established a solid reputation and recognition of its members, Center for Sustainable Infrastructure Development (CSID) focuses on infrastructure design and planning, financial and business management and innovative use of technologies, coupled with emerging best practice approaches applied to infrastructure development. By having well-planned infrastructure research, we believe that potential breakthroughs will make infrastructure project development more efficient and effective, and therefore, more beneficial for both public and private sectors

Ongoing Research Works

1. Finance and Asset Management Cluster

This cluster conducts research activities that focus on engineering (design), infrastructure financing management and asset management. Multi-disciplinary research developed in this cluster include: concept design and planning based on value creation, cost effectiveness and economic feasibility; operational management and asset management; the role and impact of government policies and regulations; as well as the development of project financing based on public private partnership schemes.

The research has the objective to accelerate infrastructure development in the fields of transportation, water, and energy resources.



2. Sustainable Mobility Cluster

The Sustainable mobility research cluster is a multi-disciplinary field of research involving expertise in transportation, architecture, and urban planning. The research activities focus on the development and sustainability of urban planning, the development of rail-based public transport infrastructure along with airports and seaports in order to improve accessibility and logistics efficiency.

3. Sustainable Water Management Cluster

The Sustainable water management research cluster is a field of research that is concerned with the development of water infrastructure and water resources management. The research activities focus on the development of water infrastructure and other infrastructure projects to produce clean water supply as well as projects to secure the infrastructures required to support food security, controlling flooding and treating waste as an effort to improve quality of life.

4. Sustainable Energy Cluster

The Sustainable energy research cluster focuses on the infrastructure of energy management and development. This cluster conducts activities to improve the sustainability of energy supply, reduce energy subsidies and greenhouse gases emissions, and increase the use of renewable energy as an alternative energy by means of sustainable infrastructure projects. This cluster works closely with TREC (Tropical Renewable Energy Cluster)

Contact

Jachrizal Soemabrata, Ph.D.
Executive Director
Email : rjs@eng.ui.ac.id
: info@csidui.org
Web : www.csidui.org

Faculty of Engineering UI

Research Centers

Tropical Renewable Energy Center (TREC-UI)

Pusat Riset Energi Terbarukan Wilayah Tropis

Overview

Tropical Renewable Energy Center (TREC) at Faculty of Engineering UI is a research center focusing on the empowerment of the renewable energy sources in Indonesia for supporting the national energy security and sustainability. The objective of this research center is lifting up renewable energy role in sustainable development through applying science and technology to develop methods and design an efficient of renewable energy system, encouraging intensive collaboration with government, policy makers, industries and research institutions at all levels and regions, designing better prototypes, concepts and policies of renewable energy system, and promoting renewable energy applications in all sectors.

TREC consists of 7 research cluster and led by experienced researchers: Solar Thermal Cooling and Refrigeration, Renewable Energy System Engineering, Biological Energy Conversion, Nanostructured Energy Materials, Fluid and Thermodynamics, Power Electronics and Control, and Energy Storage Technology.

Ongoing Research Works

1. Energy Storage

Development of active materials used in lithium-ion battery systems. One of the energy storage technologies is by using lithium-ion battery, which is rated as the best solution to ensure the efficiency of the alternative energy resources in addition to its high energy rate, environmentally friendly and long service durability.

2. Biomass and Gasification

Development of thermo-chemical conversion system through Gasification and Fluidized Bed Combustor (FBC) in combusting solid fuel optimally and in sustainable mode

3. Environment Protection

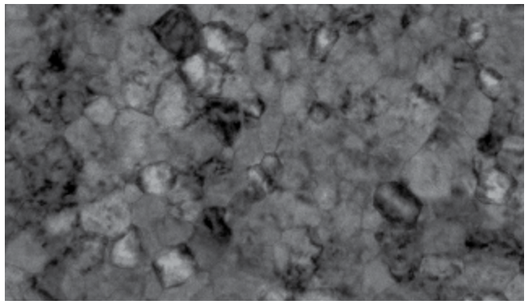
Set-on assessment of water quality and quantity, carbon emission inventory, waste water and solid waste management in engineering-based activities.

4. Renewable Energy System Engineering

Assessing the applicability of renewable energy (RE) as a reliable energy source for Indonesia and preparing RE utilization.

5. Power Electronnic and Control

Designing and Optimizing of Hybrid System, Future



Grid Concept: Smart Microgrids (on and off grid), Developing Online Monitoring of Energy System (web based) -Smart House for Smart Grid-Wireless Power Transfer Energized by Photovoltaic System, Modeling and Testing PV System Performance.

6. Nanostructure Energy Materials

Development of nano-structural materials to be used in the photovoltaic devices. Exploring the potential of Indonesia local minerals as resources for semiconductor nanostructure materials and designing the feasible fabrication techniques.

7. Solar Thermal Cooling and Refrigeratory

Designing, manufacturing and testing some of solar thermal cooling and refrigeration components and system which suitable for Indonesian climate.

Contact

Dr.-Ing Eko Adhi Setiawan
TREC Director

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: trec@eng.ui.ac.id
Web : www.uitrec.com

The 3rd International Tropical Renewable Energy Conference 2018

The 3rd i-TREC 2018 (International-Tropical Renewable Energy Conference) aims to promote an opportunity and challenge tropical renewable energy integrated with environmentally safe and economically sustainable, to create theoretical base of the development, utilization, implementation for further application of tropical renewable energy sources. This is also to promote research in the field of development of tropical renewable energy and to facilitate exchange of new ideas in these fields and to create a dialogue between scientists, professor, industrial and also practitioners. The main theme of 3rd i-TREC 2018 is "Sustainable Development of Tropical Renewable Energy".

The 3rd i-TREC 2018 (International-Tropical Renewable Energy Conference) is held on September 6-8 (3 days) at Bali-Indonesia, with the following symposium topics:

- Symposium 1: Renewable Energy System and Regulation
- Symposium 2: Bioenergy
- Symposium 3: Multifunctional and Advanced Materials for Renewable Energy Applications
- Symposium 4: Eco Tropical Built Environment

The 3rd i-TREC 2018 was carried out successfully in Bali last year. The conference featured five Keynote Speakers, four Invited Speakers and 252 (two hundred and fifty two) participants comprising of various background (student, academician, researchers, government institution, and private companies). The participants come from Malaysia, Japan, UK, USA, Canada, Brunei Darussalam, and Indonesia. The papers from the 3rd i-TREC 2018 has been published in IOP and IJTECH.

The 4th i-TREC 2019 (International-Tropical Renewable Energy Conference) will be held on August 14-16 (3 days) at Bali-Indonesia.

Faculty of Engineering UI

Research Centers

Research Center for Biomedical Engineering

Overview

Research Center Biomedical Engineering Research Center (RCBE) is a newly developed research center at the Faculty of Engineering Universitas Indonesia, aimed at providing active contribution to solve real-world problems in communities related to the human health based on the competencies and expertise owned by engineering researchers. This area of research can be thought as the application of engineering principles or engineering instruments to the biological or medical systems. In running its activities, the center has been actively collaborating with colleagues from health related institutions such as Faculty of Medical, Faculty of Dentistry, Faculty of Pharmacy, Faculty of Nursing, and Faculty of Public Health in Universitas Indonesia as well as domestic industries and overseas institutions.

Vision

To become an excellent research center in biomedical engineering to contribute to the society in the field of health and medical applications.

Mission

- To be active in multidisciplinary research on human health for local and global needs based on engineering competency and expertise;
- To increase the utilization of the natural resources for enhancing the quality of human health;
- To design materials, devices, and technologies for medical applications;
- To collaborate with health related stakeholders including academics, communities, industries, and government to accelerate the implementation of research products in society.

Ongoing Research Works

1. Wireless Medical System research

The cluster focuses on the application of the electronic principles on the human body responses including : (i) RF & Microwave Medical Imaging; (ii) Microwave imaging array for human body imaging; (iii) Propagation characteristics for off-/on-/in-body communications; (iv) Implanted antennas for healthcare monitoring; (v) Design of MRI coils for medical imaging; (vi) Hyperthermia and RF ablation for cancer treatment; (vii) Pacemaker antennas.

Contact: Dr. Basari, S.T., M.Eng. (basyarie@eng.ui.ac.id)

2. Nanoencapsulation of Indonesian Herbs Extract by Casein Micelle

This cluster aims to modernize the traditional Indonesian herbs (jamu) by using several advanced techniques including nanoencapsulation. The traditional herbs are used for medical purposes, functional food and cosmetics. The research group has also successfully extracted much purer and higher ingredient propolis from the Indonesian bee cage by using a special bio-separation process. The extract has been integrated to the commercial products such as propolis candy and soap, and the clinical tests have been performed under collaboration with medical and dentistry faculties.

Contact: Dr.Eng Muhamad Sahlan, S.Si, M.Eng (sahlan@eng.ui.ac.id)

3. Development of Orthodontic Bracket by Using Investment Casting

The cluster focuses on the development of design and materials for orthodontic bracket which is specific for Indonesian people and affordable price. Various brackets orthodontic have been successfully fabricated by using investment casting and the clinical tests are under progress. Further research is focused on the finishing fabrication procedure to achieve smooth surface on the bracket. The group also designs orthopaedic devices needed by the spinal surgery patients upon orthopaedic treatments.

Contact: Sugeng Supriadi, S.T., M.S.Eng., Ph.D. (sugeng@eng.ui.ac.id)

4. Engineering Multi Material Scaffolds for Hard to Soft Tissue Regeneration

The research group is aimed at developing and testing extrusion system for tissue engineering application. As by its definition, the tissue engineering focuses on the creating or regenerating the damaged or diseased human tissue to recover it, and can be implemented with scaffold fabrication to be in vivo implanted and cell sheets with secreted ECM (organ printing). The resulted scaffolds are characterized mechanically prior to the clinical tests to evaluate the performance. The cluster also expand the research area into the development of "Lab-on-Chip" for bioMedical devices as case of tissue cultivation on a chip.

Contact: Dr. Yudan Whulanza, S.T., M.Sc. (yudan@eng.ui.ac.id)

5. Fabrication of Degradable Metallic Materials for Bone Implant and Coronary Stent

The focus of this cluster is to develop degradable metallic alloys which are suitable for bone implant and coronary stent. A novel Fe-Mn-C alloy is being fabricated due to its prospective biomedical applications such as biodegradable and compatible with magnetic resonance imaging (MRI). In the study, the corrosion behavior of the alloy fabricated by powder metallurgy and mechanical alloying techniques are purposely investigated. Addition of carbon is intended to obtain phase that hat ability to easily degradable in a specific intended duration but without reducing its mechanical properties in short term upon the instalment in the human body. The group also search for other candidates including magnesium (Mg) alloys.

Contact:
Dr. Ir. Sri Harjanto (harjanto@metal.ui.ac.id)
Yudha Pratesa, M.T. (yudha.pratesa@gmail.com)

6. Other Current Works

- Controlled Release of Drug and Bioactive Compounds
  Contact: Ir. Kamarza Mulia, M.Sc., Ph.D (kmulia@che.ui.ac.id)
- Herbs Processing for Human Health Benefits
  Contact: Ir. Dewi Tristantini, M.T., Ph.D (detris@che.ui.ac.id)
- Inorganic Coating Materials for Bio-implant
  Contact: Prof. Dr. Ir. Slamet, M.T (slamet@che.ui.ac.id),
  Dr. Ir. Praswasti P.D.K. Wulan, M.T (wulan@che.ui.ac.id)

The 3nd International Symposium on Biomedical Engineering

The International Symposium of Biomedical Engineering (ISBE) is annual event that started in 2016, organized by the Research Center for Biomedical Engineering Universitas Indonesia (RCBE UI) cooperated with Faculty of Engineering, Faculty of Medicine, and Faculty of Dentistry Universitas Indonesia which also involved researchers from engineering and medical sciences. The 3rd ISBE was held on August 6 – 8, 2018 at DoubleTree by Hilton, Jakarta, Indonesia with "Empowering Multidisciplinary Partnership for Healthcare Product Industry and Services" as the main topic. From ISBE 2018, 90 scientific works in Biomaterials and Medical Devices, Drugs Delivery and Development, Public Health, Hospital Management, and Bioinformatics were selected to be published in AIP Conference Proceeding.

Faculty of Engineering UI

Research Centers

Research Center for Advanced Vehicle (RCAVe - MOLINA-UI)

Overview

Universitas Indonesia as part of the Indonesia society is very willing to contribute to solve the problem faced by the nation. One of the most very challenging is the carbon emission due to the use of fossil fuels massively in transportation sector by conventional vehicles. On the other hand, the world fossil fuel reservation itself also declines significantly in the last few decades, making various difficulties in economic, social, political and other aspects for society and nation. Motivated by these strategic reasons, a team of Universitas Indonesia researchers involving lectures and students from Faculty of Engineering, Faculty of Economic and Business, Faculty of Literacy, Faculty of Social Sciences, Faculty of Law as well Faculty of Psychology has been working very hard under one vision to realize electric vehicles made by Indonesia.

The development project of UI electric vehicles (called as MOLINA-UI, stands for Mobil Listrik Nasional Universitas Indonesia) is part of national obligation and affirmative task set by Directorate General of Higher Education-Ministry of National Education Republic of Indonesia in 2012 (now Ministry of Research and Higher Education) together with the same assignment to Universitas Gadjah Mada, Institut Teknologi Bandung, Universitas Sebelas Maret Solo and Institut Teknologi Sepuluh November Surabaya. The project is financially supported by Ministry of Finance Republic of Indonesia through its Agency for Educational Fund Management (Lembaga Pengelola Dana Pendidikan, LPDP)

Universitas Indonesia itself has started research in electric vehicles earlier since 1997 with Kendaraan Angkut Listrik (KAL) and electric-converted Bajaj (Bajaj Langit Biru, BALABI). Further development in 1998 has resulted both vehicles driven purely by electric motor.

In running its current research project, the MOLINA-UI team is divided into several tactical sub-activities:

- Vehicle Mechanical and Driving System (Code: M1) :
- Vehicle Thermal Management System (Code: M2)
- Vehicle Electric Motor System (Code: E1)
- Vehicle Intelligent System (Code: E2)
- Vehicle Charging System (Code: MT1)
- Vehicle Battery System (Code: MT2)
- Vehicle Social Study (Code: K)

Research Center for Advanced Vehicle (RCAVe - MOLINA-UI)

What is the uniqueness of MOLINA-UI in comparison to electric vehicles developed by other institutions? In addition to the focus on the technical aspects for suitable city car development in urban areas, the MOLINA-UI team also carries-out a comprehensive study on the social aspect in Indonesia society and industries in terms of their acceptance level with electric vehicles. This is the reason why the team also involve researchers from various social-background faculties. Another strength point of MOLINA-UI is the development of electric commuter bus for the internal use in UI campus at Depok. This is the real application of a research project, where the impact of a green and environmental friendly product can function as a role model and penetrate directly to the academic society especially students. The electric bus developed by the team will substitute the conventional yellow bus in the short future around the UI Campus at Depok. This is also in line with the Universitas Indonesia role which initiates Green Metric World University Ranking. It is a big hope that the success of the use of comfortable, safe, affordable and environmental oriented electric bus can be adopted also for common transportation in Indonesia such as Trans-Jakarta buses.

Upon 52th Anniversary of Faculty of Engineering UI 0n 18 July 2016, MOLINA-UI team has launched the following impressive products:

- Conversion Bus Electric Vehicle (EV) for 60 passengers and maximum motor power of 220 kW and battery capacity of 300 Ah;
- City-urban car Makara Electric Vehicle (MEV) 01 as the first generation of converted car with the application of Brushless Direct Current (BLDC) electrical motor developed by the team with capacity of 25 kW;

- City-urban car Makara Electric Vehicle 02, the result of conversion from conventional car with induction alternating current motor having capacity of 7.5 kW battery capacity of 102 Ah;
- City-urban car Makara Electric Vehicle (MEV) 03 as a hybrid car with induction AC motor of 32 kW and battery capaicity of 102 Ah. With the hybrid system, the car be driven for longer distance.
- Integrated thermal system for cabin and battery cooling;
- Integrated synthetic jet system for vehicle aerodynamic enhancement;
- Power inverter and electric motor of 25 kW;
- Embedded computer devices and user interface, which will be combined with stability system and vehicle testing tools.
- Charging station using electric current form national electric power plant (PLN) as well as solar sell system;
- Comprehensive study on economy, law and socio-culture aspects for the acceptance level of Indonesian society towards electric vehicles use as the mass-transportation.

Faculty of Engineering UI

Research Centers

Indonesian Maritime Center (IMC)

Overview

Indonesia is the largest archipelago country in the world, with the second longest coastline and its vast ocean of nearly 6 million km2.

In this context, Indonesia wants to achieve its ideal goal as “Global Maritime Fulcrum” by:

- Rebuilding the maritime culture
- Building sovereignty over marine food
- Infrastructure development and maritime connectivity
- Cooperation in the field of maritime sectors
- Building maritime defence forces

Universitas Indonesia, in order to support the national goals, proposes the establishment of a forum for the development of various aspects in maritime fields, named “Indonesian Maritime Center” (IMC)

Vision

“To be a center for national and international flagship for education, research, and community services that, cuts across disciplines in the field of maritime to contributing to the national development strategy as “Global Maritime Fulcrum”

Mission

Actively carrying out educational activities, research, innovation, engineering design, and community services at the national and international level to contribute to the development of science, technology, and policies in the maritime field for the sustainability of environmental and natural resources, the national sovereignty, and the preservation of national culture, as well as in defending the equitable and sustainable human well-being (human security).

On Going Research Works

The researches gave been done by IMC fall into the following maritime related areas:

Economics & Fiscal | Science & Technology | Law | Health | Socio-Cultural | Politics & Security

Indonesian Maritime Center (IMC)

Science, Technology and Health researches on:

- Ship Production Technology,
- Utilization of Marine New and Renewable Energy,
- Water-sediment Quality Monitoring for Analysis on Biological, Physical, and Chemical Parameters of Marine Environment,
- Remote Sensing Applications for Mapping and Spatial Analysis (GIS),
- Carbon Stock in Coastal Ecosystem,
- Coral Reef Ecosystem,
- Utilization of Marine Natural Products for Human Health,
- Shipwreck and salvage on Indonesian water

Maritime Economic-Policy Studies on:

- (a) International Standards of Port,
- (b) Fiscal strategy for food security,
- (c) Fiscal strategy for sustainable port and
- sea transportation,
- (d) Maritime Projects,
- (e) Impact of Ship Building Industry in Indonesia,

Management studies on :

- Preparedness of Coastal Community on Natural Disaster The Convergence of Indonesian Maritime Fulcrum and Chinese Maritime Silk Road Policies,
- Practice and Issues of Marine Industry,
- Corporate governance in the marine-related companies,
- Competitiveness of Indonesian Shipbuilding and Sea Transportation Industry,
- Strategic Aspect of Maritime Supply Chain and Logistics;
- Marine Safety on the Busiest Sea Channels,
- Strategic Development of Maritime Entrepreneurship,
- Government Policy in Enforcing Law on the Sea

Arts, History, and Community Development studies on:

- Protection of Coastal Community,
- Coastal and Small Island Community
- Involvement in Maritime Spatial Development,
- Local Knowledge relating to maritime culture,
- Maritime archaeology and history,
- Naming and toponymy coastal areas and islands,
- Oral tradition of Nusantara maritime community,
- Indonesian maritime arts

IMC has constantly conducted a talkshow named "Maritime Talks". This talkshow is held every month and professional keynote speakers were invited to this event. Maritime Talks discuss problems about maritime conditions in Indonesia and the solutions for them.

Contact

Prof. Sunaryo (naryo@eng.ui.ac.id)
Director : Prof. Melda Kamil Ariadno

IESC 2018

UNIVERSITAS INDONESIA

3RD INTERNATIONAL ENGINEERING STUDENTS CONFERENCE

IESC 2018 is an international students conference held by the Engineering faculty of Universitas Indonesia, aimed at discussing and encouraging innovations through an annual conference held at Universitas Indonesia. We challenges engineering students from around the world to come up with solutions to solve real world problems. IESC 2018 held on 2-4 November 2018 at Faculty of Engineering, Universitas Indonesia, Depok. The 21 selected paper from IESC 2018 is being reviewed to be submitted in UI proceedings.

International Journal of Technology

About The Journal

International Journal of Technology (IJTech) is quarterly international referred journal with the objectives to explore, develop, and elucidate the knowledge of engineering design and technology, to keep practitioners and researchers informed on current issues and best practices, as well as serving as a platform for the exchange of ideas, knowledge, and expertise among technology researchers and practitioners.

IJTech is published by Universitas Indonesia, the best university in Indonesia (Times Higher Education-QS World University Rankings since 2006). Published papers in IJTech strongly represent the use of sustainable technology in product and service designs for tropical environment. Sustainable technology has been developed in various Asian countries that comply with the principles of social, economic, and ecological sustainability and is categorized into the following themes: conventional and renewable energy, sustainable architecture, construction and environment, advanced material and manufacturing technology, efficiency and productivity improvement.

IJTech is currently indexed in Google scholar, DOAJ, EBSCO, GISI, Index Copernicus, SCOPUS, SCImago, Emerging Sources Citation Index (ESCI) Thomson Reuters, Directory of Research Journal Indexing (DRJI), has been accepted for coverage in selected Elsevier product(s), and a member of CrossRef.

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Focus & Scope

IJTech aims to provide cutting-edge research and practices in the management and design of technology, a forum for debate, and reflection as well as an anchor point for many technology practicioners and academics programs.

Submissions are invited concerning any theoretical or practical treatment of technology design, development, and application (from various field of study such as: architecture, chemical, civil, electrical, industrial, material, and mechanical engineering). The subject of papers contributed may cover, but is not limited to:

- Discussion and exploration of new theory and knowledge of technology, innovation, and sustainable development.
- Industrial and service management, product and process design, and performance improvement.
- Proficiency in the understanding technology design development, and application derived from experimental data analysis.
- Case studies reporting insights and best practices regarding technology design and development drawn from practices.
- Technology tools, techniques, and other structured approaches to understand, measure, or provide value.
- Empirical observations resulting in original and significant conclu sions or application papers in the above areas are also welcome.

Community Services

Besides having teaching & learning and research activities, lecturers and students at Faculty of Engineering UI have actively contributed to fulfill the society needs by creating products that could support daily life and activities. Here are some examples of them:

Energy-Save Infant Incubator

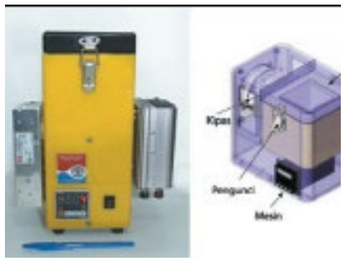
Prof. Dr. Ir. Raldi Artono Koestoer, DEA.

An infant incubator is used to keep babies born before they should be to stay alive. They are normally used in a neonatal intensive care unit. This baby incubator invented by Prof. Raldi has a temperature control, portable, and requires only 250 watts of energy to control the temperature. This infant incubator has been lent freely by the poor, hospitals, and local communities.

Motorcycle Cool-Box

Dr. Imansyah Ibnu Hakim, M.Eng.

A motorcycle cool-box is a cooler used to keep food or drink cool during transportation by using a motorcycle. This cool-box invented by Dr. Hakim is a development of motorcycle cool-box based on thermoelectric cooling system. The temperature can reach 10oC without using Freon making it environmentally friendly.



Portable Vaccine Cooler

Prof. Dr-Ing. Nandy Putra

This portable vaccine cooler invented by Prof. Nandy uses Thermoelectric Heat Pipe system capable of maintaining the temperature of the vaccine in their environment and protect the vaccine from the sun so as to minimize failure and damage that may occur during the distribution of vaccine especially in remote areas. Another advantage of this tools is that it is environmentally friendly (this tool does not use CFCs) and energy efficient (30 watt battery source)

Silicon Carbide Reinforced Aluminum Matrix Composites For Armor Material

Prof. Dr. Ir. Bondan T. Sofyan, M.Si.

In general, combat vehicle is usually covered with a protective mantle from hardened steel, yet this material is thick and heavy and thus reducing vehicle mobility and makes the vehicle as fuel-improvident. This research focuses on alternative materials for composite armour panels by using silicon carbide reinforced aluminium matrix composite, which is lighter but has the same strength as the steel does (with the capability to withstand 9 mm and 7.62 mm bullets)

Indonesia Indigeneous Propolis

Dr. Eng. Muhammad Sahlan, S.Si.,M.Eng.

Propolis is a resinous mixture that usually honey bees collect from tree buds, sap flows, or other botanical sources. This propolis developed by Dr. Sahlan contained Indonesian indigenous herbal material. It can be useful for antibiotics, herbs, as well as materials in liquid pharmaceutical preparations, candy, or powders. The advantage of this propolis is that it contains only active ingredient/pure flavonoids in which the wax has been removed.

Wind Turbine

Prof. Dr. Ir Adi Surjosatyo, M.Eng.

Wind turbine Universitas Indonesia is a team engaged in the utilization of renewable energy technologies, especially wind energy. The purpose of the establishment of this team is to answer the need for the development of green technology that can be utilized and suitable for the community. In part, this wind turbine for the community engagement has been implemented at Kampong Bungin, Muara Gembong, Bekasi. Empowering the community in Kampong Bungin included product branding (fisheries), clean water system (distillation), and improvement of product quality values of the local residents (fishery processing).

Talis (Tabung Listrik)

Ir. Chairul Hudaya, ST, M.Eng., Ph.D., IPM

TaLis has been designed to be a solution of electricity supply problem at underdevelopment regions. In the concept of TaLis, the energy for electronical usage is stored in battery. Therefore, the electricity requirement wiil not only depends on long-range transmission systems from giant power plant sources. One unit of TaLis can fulfill the electricity needs for 1 house in underdevelopment regions. TaLis is light weighted and has portable design. TaLis can stored Lithium-ion based electricity energy up to 630 Wh. In addition, TaLis has a cheaper price because it does not need kWh meter and power distribution network.

Renewable Energy Education for Kids

In order to promote the basic concept of science to the community, the students from Nano Research Society at the Department of Metallurgical and Materials Engineering and the researcher from Tropical Renewable Energy Center (TREC) are introducing the basic concepts of dye-sensitized solar cells based on natural dyes found in plants to the under fifth grade students during Science Project event at the School of Universe (SoU), Parung, Bogor, on April 18, 2015 and 9 April 2016. With the introduction of this basic concept of science to these enthusiastic students, it is expected that this will motivate their future interest in nature-based scientific approach, according to how they are encouraged to learn the natural phenomena around them at the school.

Industrial Services

Besides having teaching & learning and research activities, lecturers and students at Faculty of Engineering UI have actively contributed to fulfill the society needs by creating products that could support daily life and activities. Here are some examples of them:

Lembaga Teknologi Ftui (LEMTEK)

Currently LEMTEK FTUI function as a media for experts in the Faculty of Engineering UI to participate in implementing their skill professionally by using their expertise in fulfilling the community's needs and to act as one of financial resources for Universitas Indonesia to fulfill their Tri Dharma (Three Obligations) for Higher Education duties. LEMTEK FTUI have served government, community, and industry for more than 40 years in study, consultancy, and the development of human resources in engineering and management areas.

Pengkajian Energi Universitas Indonesia (PEUI)

The Center for Energy Studies Universitas Indonesia was initiated by academics with interest in energy issues during their first meeting on 30 April 1994. After thorough discussion and preparation, on 22 June 1994, the Rector of Universitas Indonesia approved the proposal for the initiation of the Center for Energy Studies (PE UI) on the university level which focuses on discussion and activities in Energy. From 2005, The Center for Energy Studies Universitas Indonesia (PE UI) has become a unit under the Faculty of Engineering Universitas Indonesia with over 15 expert staff with Ph.D and Master degrees in energy and related field.

Pusat Penelitian Sains & Teknologi (PPST)

Center for Research for Science and Technology Universitas Indonesia or PPST UI has been officiated with Rector decree number 108/SK/R/UI/1995 regarding to organizational comprehensiveness and methodology of research unit at Universitas Indonesia. Since 2005, PPST UI is managed under Faculty of Engineering according to Rector degree number 611/SK/R/UI/2005. The scope of services include academic activity related to research activity, training, scientific forum arrangement, community engagement and consultancy.

Continuing Education Program–Center for Computing and Information Technology (CEP-CCIT)

CEP-CCIT FTUI was established in 2002 to meet the demand of further development for professional and continuous education in Information Technology, engineering and its support. A collaboration was built with NIIT India in organizing a professional non-degree education in IT for the duration of two years, and all learning materials for this program is provided by NIIT: curriculum, syllabus, teaching methodology, presentation materials for teaching staff, courseware, training for trainer, certificate, and examination test bank. CEP-CCIT has also earned the title as one of NIIT center in Indonesia. With regards to CEP-CCIT consistency in implementing IT-NIIT program, since 2016, CEP-CCIT's status was changed from NIIT-Center to NIIT Master Center.

UP2M Civil & Environmental Engineering Dept

This unit aims to meet the community needs in obtaining expert assistance in the Civil and environmental engineering industry. UP2M Civil and Environmental Engineering utilize all the expertise in DTS FTUI, namely; structure, geotechnical, transportation, hydraulics, surveying, and construction management. Currently, the Department of Civil Engineering Faculty of Engineering University of Indonesia has 2 (two) Ventures that function to perform testing services: Laboratory Structure & Materials and Soil Mechanics Laboratory. Both units are part of UP2M Civil and Environmental Engineering which has been ISO certified.

P2M Mechanical Engineering Department

This unit was established on 1985 and has a role as a platform for academic and industry collaboration. The establishment of P2M is marked by Basic Design System AC training organizing cooperated with one of reputable air conditioning manufacture in worldwide. For more than two decades, P2M has been conducted continuing education program in form of mechanical and electrical (M/E) training specialization. Through this program, P2M has contributes by empowering the human resources for industry and institution. Beside training program, P2M is also supports private company and State-Owned Enterprises to conduct an engineering assessment namely in refrigeration (cooling), loss adjuster, oil and gas.

UP2M Electrical Engineering Department

Activities done by this unit directly involves the lecturers and students as means to contribute their knowledge and academic responsibility to the general society and related industries. Through this activities it is hoped that a community enrichment output can be achieved by the socialization of community in electrical engineering and several research and testing activities by involving strategic industrial partners. UP2M Electrical Engineering Department was established based on the Faculty of Engineering Universitas Indonesia's Dean's Decree No.: 005A/D/SK/FTUI/1/2009 and have contributed to the society.

CMPFA Metallurgy & Materials Engineering Depar

Center for Materials Processing and Failure Analysis (CMPFA) is a business unit under Metallurgy & Materials Engineering Department, Faculty of Engineering Universitas Indonesia and is fully acknowledge through the Rector's decree No. 1572/SK/R/UI/2017. CMPFA offers a full service materials research and testing facility serving manufacturers in a variety of industries. The firm specializes in chemical analysis, metallurgical evaluation, mechanical testing, corrosion simulation, failure analysis, and metallurgical course/training.

UPPM Chemical Engineering Department

UPPM Chemical Engineering Department is a business unit under Department of Chemical Engineering with the aims to support the department in fulfilling its stipulated vision and mission, by providing laboratory services, concultancy, training, and other engineering-related services to global society, which includes industries, governmental agencies, etc. UPPM DTK serves as a platform for the faculties in the department to share their knowledge and experiences and contribute to the improvement of society well-being and advancement of national development.

International Links

Undergraduate Program

Single and Double Degree

Since 1999, Faculty of Engineering has established an international undergraduate Programme in engineering (double-degree Programme) with some of renowned overseas higher education institutions, i.e. Queensland University of Technology (QUT), Monash University, Curtin University of Technology, The University of Queensland, The University of Sydney and University of Duisburg-Essen (UDE).

Graduates from this international undergraduate Programmes will be awarded a Bachelor's degree from Australian university partners and a Sarjana Teknik degree when they return to UI Faculty of Engineering and fulfil certain requirements.

The double degree Programme with, QUT involves the undergraduate programmes of Civil Engineering, Mechanical Engineering, Electrical Engineering and Architecture.

The double degree Programme with Monash University involves the undergraduate programmes of Metallurgical and Material Engineering and Chemical Engineering.

The double degree Programme with Curtin University involves the undergraduate programmes of Chemical Engineering, Architecture, Metallurgical and Material Engineering, and Electrical Engineering.

The double degree Programme with the University of Queensland involves the undergraduate programmes of Mechanical Engineering, Electrical Engineering, Chemical Engineering, and Metallurgical and Material Engineering.

This international undergraduate programme would provide high quality engineering education in the international level.

The double degree Programme with University of Duisburg-Essen involves the undergraduate programmes of Elecrical Engineering.

Since 2011, students will also have a choice to continue their final two years at UI Faculty of Engineering as part of newly opened Single Degree International Programme.

International Adjunct Professors

Prof. Dr.-Ing. Axel Hunger,
University of Duisburg, Germany.

Prof. Josaphat Tetuko Sri Sumantyo, PhD,
Chiba University, Japan, Remote Sensing

Prof. Dr. Fumihiko Nishio,
Chiba University, Japan, ICT

Prof. Chit Chiow (Andy) Tan,
School of Mechanical, Manufacturing and Medical Engineering, Queensland University of Technology, Australia, Mechanical Engineering

Prof. Kozo Obara,
Dept. of Nanostructure and Advanced Materials, Kagoshima University, Japan, Nanomaterial and Energy

Prof. Freddy Y.C. Boey,
Nanyang Technological University, Singapore, Nanomaterial and Biomedical Engineering

Prof. Kyoo-Ho Kim, Dr. Eng.,
School of Material Science and Engineering, Yeungnam University, South Korea, Nanomaterial and Energy

Prof. Bernard Cambou,
Ecole Centrale de Lyon, France, INRETS (French National Institute for Transport and Safety Engineering), Transport and Safety

Prof. Chia-Fen Chi,
Dept. of Industrial Engineering, National Taiwan University Science and Technology, Industrial Management

Prof. Dr. Katsuhiko Takahashi,
Dept. of Artificial Complex Systems Engineering, Hiroshima University, Japan, Artificial Complex System Engineering

Prof. Martin Betts,
Faculty of Built Environment and Engineering, Queensland University of Technology, Australia.

Prof. Tae Jo Ko,
Mechanical Engineering, Yeungnam University, South Korea

Prof. Masaki Nagatsu,
Graduate School of Science and Technology, Japan, Plasma Science and Technology

Prof. Hidenori Mimura,
Department of Nanovision Technology, Shizuoka University, Japan, Imaging Technology of X-ray, Gamma-ray and Neutoron

Prof. Michiharu Tabe,
Research Electronic Institute, Shizuoka University, Japan, Nano Electronics

Prof. Koichi Ito,
Electrical Engineering Department, Chiba University, Japan

Philantrophy

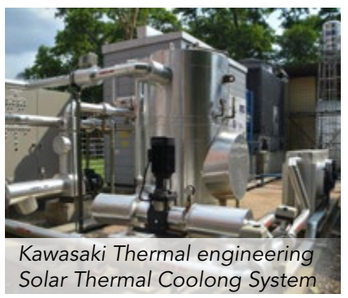
Donors

Some functional rooms and supporting facilities at Faculty of Engineering Universitas Indonesia were donored by various companies and industri


Mochtar Riady Plaza Quantum

Honeywell Smart Connected Engineering Campus


Chevron Texaco Room


Kawasaki Thermal engineering Solar Thermal Coolong System


Akuo Energy Solar Panel


Pertamina EP Cepu Wall Climbing

Students Achievements 2018

HTW Hydros – Runner Up HYDRO Contest 2018, France

IMTI - ASVF Gold Prize, South Korea

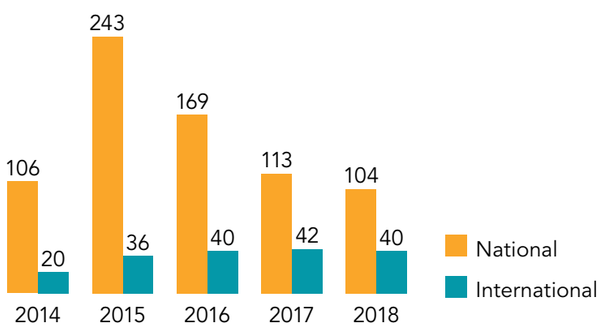
Rivaldo Gere & Clarissa Merry
Winner Go Green in the City - Asia Pacific

SIPLISTA - Sutan & Alfiora Winner NTU Bridge Design, Singapore

PIMNAS 2018, 3 Gold, 4 Silver Medals

SPE - Runner Up Petrobowl Asia Pacific, China

Number of Student Achievements 2014–2018



UNIVERSITAS INDONESIA

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