



UKRIDA Engineering and Computer Science

www.ukrida.ac.id



UKRIDA
Universitas Kristen Krida Wacana

UKRIDA ENGINEERING AND COMPUTER SCIENCE

Where Character Meets Innovation

UKRIDA Engineering and Computer Science (FTIK-UKRIDA) provides students with a rigorous curriculum, industrial relevant training, and career-advancing degree study programs. Over the past years, FTIK-UKRIDA had built up a wide industry network to link its study programs' curricula with well renowned enterprises and higher learning institutions. The aims are to enhance highly industry-relevant trainings and a rigorous education process for our students. Our inclusive, immersive, and in-employment education transforms FTIK-UKRIDA graduates into professionals equipped with relevant knowledge, employable hard skills, and inspirational soft skills.

The FTIK-UKRIDA offers various **accredited** study programs in **Electrical Engineering, Civil Engineering, Industrial Engineering, Informatics, and Information Systems**. Our study programs leverages on technology to empower students with flexible interactions and learning with their tutors and lecturers. Moreover, our study programs encourage students to work closely with industry and academics through internships, research collaborations, and society empowerment programs.

The academic year comprises two semesters, February to July and September to January. Students are required to complete 144 credits minimum within eight semesters (four years). Students with excellent grades are eligible to take up to 24 credits in one semester and can finish their study within seven semester (3.5 years).

About UKRIDA

 Established since **1967**



TOP 5% Best Universities
in Indonesia 2020 by
The Ministry of
Research, Technology
& Higher Education



TOP 4 Best Private Universities with Superior Quality
in Indonesia 2020
Recommended by
Quipper Campus



100% Free Drugs Campus based on
the census by The
National Anti-narcotics Agency
since 2018

Inspiring the Future of Engineers and Computer Scientists

Dean's Message

Welcome to UKRIDA Engineering & Computer Science...

In the beginning of 2021, we celebrated the 54th Anniversary of UKRIDA, as well as the 54th Anniversary of Electrical Engineering Department, one of our oldest and most experience study programs at UKRIDA. We are now on the journey of our sixth decade providing excellent education to our students.

At the FTIK-UKRIDA, as we call our school with this name, we highlight Quality, Interdisciplinary, Innovation, and Internationalization (Q3I) through our education process, research programs, and service to students. Q3I are the core mission of our school. Faculty, staff, and students conduct our daily activities with these mission in mind.

Many FTIK-UKRIDA graduates have been inspiring their workplaces, organizations, and societies, by showing their excellent hand-on skills, hard working culture, technopreneurship capability, and well attitude. **We are very proud of them...**

We would like to invite you to join our FTIK-UKRIDA, the place where Inspiring Engineers & Computer Scientists are born...



Dr. Oki Sunardi, IPM, ASEAN Eng.
Dean

MISSION, VISION, AND VALUE

Mission Statement

The mission of the UKRIDA School of Engineering and Computer Science (FTIK) is to develop students with strong character and global mindset, who care about their society and environment. FTIK believes that through good education and research, we have the opportunity to empower the society and contribute to the quality of life.

Vision

The UKRIDA School of Engineering and Computer Science (FTIK) is dedicated to be a leading school committed in education and research in engineering and computer science driven by Christian values and leadership.

Value

The People of UKRIDA School of Engineering and Computer Science (FTIK) believe that:

- We are existed because of GOD, and therefore , we live to **Love** our GOD. We love our GOD by caring, supporting, collaborating, and empowering human being and nature.
- We are the blessed and the best, and therefore, we live to shine amongst others. We are trustworthy and we **Enlighten** others through our words and acts.
- We are friend with change, and therefore we are committed to learn with enthusiasm, to make friend with changes, and to **Advance** with our creativity and innovativeness.
- We are born to be great, and therefore, we are **Determined** to have better life and to outshine our performance.



Loving



Enlightening

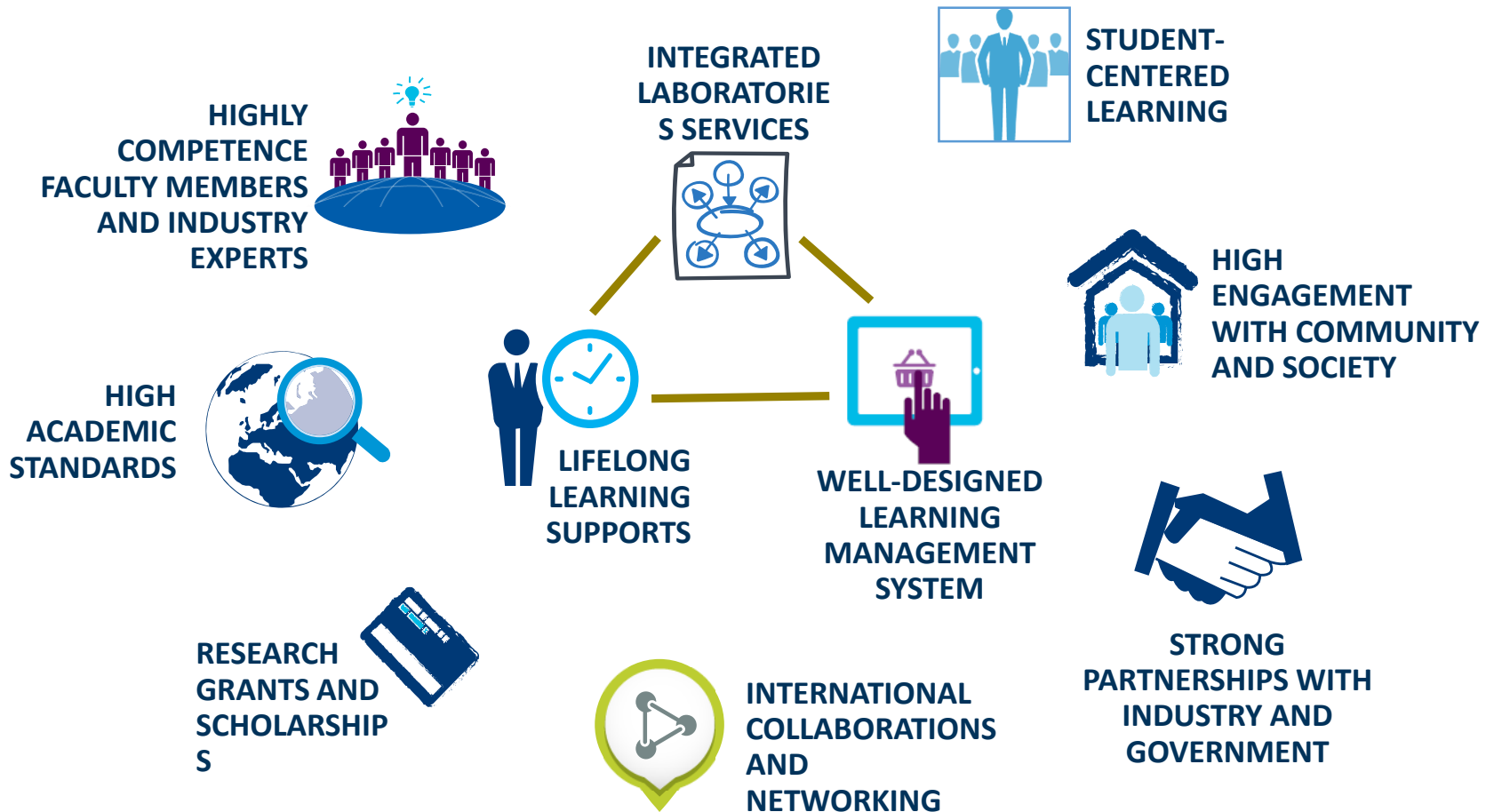


Advanced



Determined

10 GOOD REASONS TO STUDY AT UKRIDA ENGINEERING AND COMPUTER SCIENCE



Program Overview

BACHELOR OF ELECTRICAL ENGINEERING

Established 1967

The **Bachelor of Electrical Engineering (EE)** program provides a broad comprehension of the fundamental principles that are responsible for the remarkable advances in the technology of computers, micro-electronics, robotics, telecommunication, power systems, and biomedical engineering. This knowledge can be applied in many industries, including telecommunications, automotive, smart devices, control systems, microelectronics, energy, and biomedical instruments.

Under the EE, students are encourage to choose one of our new two specialization programs:

Bachelor's Program in Intelligent Systems and Robotics or Bachelor's Program in Biomedical Engineering

This program is accredited “**B**” in 2017 by the National Accreditation Agency of Higher Education (BAN-PT) of the Republic of Indonesia.



CURRICULLUM

FIRST YEAR

Social Studies (4 Subjects)
English for Academic Purposes
Physics
Mathematics 1 & 2
Basic Chemistry
Basic Electrical Engineering
Basic Electronics
Electrical Circuit 1
Measurement of Electrical Quantities
Telecommunication
Anatomy*

FOURTH YEAR

Entrepreneurship
Internship - Merdeka Belajar program
Professional Insights
Laboratory Research
Final Project

SECOND YEAR

Basic Computer & Programming
Digital Electronics
Engineering Math 1 & 2
Electrical Circuit 2
Modern Physics
Microprocessor & Microcontroller
Electromagnetic Field
Signals and Systems
Analog Electronics
Laboratory Works (6 Subjects)
Molecular Biology*
Physiology*
Biochemistry*
Bioethics*

* For Biomedical Engineering program

In House Electives

Internet of Things; Digital Image Processing; Artificial Neural Networks; Electromagnetic Applications; Microcontroller Applications; Biomedical Instrumentation; Digital System Designs; Advanced Control Systems; Communication of Data; Optics; Photonics; Advanced Programming; Advanced Neuroscience

THIRD YEAR

Probability & Statistic
Basic Electrical Energy Conversion
Basic Control System
Digital Signal Processing
Robotics
Artificial Intelligence
Industrial Electronics
Numerical Computation
Electronic System Design
Research Methods
Laboratory Works (3 Subjects)
Biostatistics*
Radiology*
Neuroscience*
Biophysics*
Biomedical Image Processing*

Program Overview

BACHELOR OF CIVIL ENGINEERING

Established 1978

The **Bachelor of Civil Engineering (CE)** program delivers a extensive understanding of the fundamental principles that are accountable for the design, construct, and maintain society's infrastructure – the highways, buildings, and water systems we use daily. CE-UKRIDA believes that Civil Engineering is about community service, development, and improvement. It involves problem solving, physics, statistics, information technology, and environmental studies. Our students are equipped with Information Modelling capabilities using the latest software. Many of our graduates work as contractors, consultants, and quantity surveyors.

Under the CE, students are encourage to choose one of our new two specialization programs:

Bachelor's Program in Infrastructure Design or Bachelor's Program in Infrastructure Management

This program is Accredited “B” in 2018 by the National Accreditation Agency of Higher Education (BAN-PT) of the Republic of Indonesia.



CURRICULUM

FIRST YEAR

Social Studies (3 Subjects)
English for Academic Purposes
Calculus 1
Physics
Introduction to Civil Engineering
Computer Programming
Building Construction 1 & 2
Probability & Statistic
Land Measurement
Statics

FOURTH YEAR

Environmental Engineering
Infrastructure Planning
Civil Building Planning
Case Studies in Infrastructure Projects
Elective (2 Subjects)
*Internship / Merdeka Belajar Activities
Final Project

*8 Merdeka Belajar Activities

SECOND YEAR

Social Studies (2 Subject)
Calculus 2 & 3
Mechanics of Materials
Mechanics of Soil
Hydraulic & Fluid Mechanics
Numerical Analysis
Structural Analysis
Highway Engineering
Foundation Engineering
Project Management 1

THIRD YEAR

Community Service
Structural Analysis with Matrix
Construction Contract Law
Technology of Construction Materials
Hydrology & Water Resources
Theory & Design of Concrete Structure 1 & 2
Theory & Design of Steel Structure 1 & 2
Structure Dynamics & Forging Technic
Irrigation Planning & Waterworks
Traffic Engineering
Entrepreneurship
Construction Methods

In House Electives

Integrated Water Management; Urban Drainage; Heavy Equipment & Mechanic Soil Movement; Geo-synthetic Application; Land Repair Techniques; Airport Engineering; Railway Engineering; Port Engineering; Urban Transportation Management; Bridge Engineering; Quality Management in Construction Projects; Infrastructure Assets Management; Pre-strained Concrete.

Program Overview

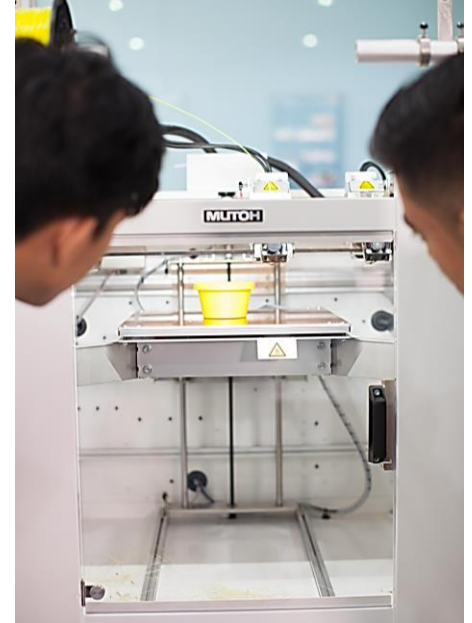
BACHELOR OF INDUSTRIAL ENGINEERING

Established 1998

The **Bachelor of Industrial Engineering (IE)** program prepares its graduates with the fundamental principles in math, statistics, engineering design, information technology, business process, and social studies, that are integrated for the improvement of “All Types of Systems”. Whether shortening cashier lines in shopping centers, designing factory and its facilities, manufacturing expensive automobiles, distributing products worldwide, or improving service level in hospital operations, Industrial Engineers face common goals: saving money and increasing efficiency.

*Under the IE, students are encourage to choose one of our two new specialization programs: **Bachelor's Program in Digital Supply Chain Management** or **Bachelor's Program in Digital Product Design***

This program is Accredited “B” in 2017 by the National Accreditation Agency of Higher Education (BAN-PT) of the Republic of Indonesia. This program also collaborates with The Institution of Engineers Indonesia (PII) for Professional Engineers Certification.



CURRICULUM

FIRST YEAR

Social Studies (3 Subjects)
 English for Academic Purposes
 Mechanic & Fluid
 Differential & Integral
 Computer Programming for Engineer 1 & 2
 Introduction to Industrial & Systems Engineering
 Bio-industry
 Probability & Statistic
 Introduction to Economics
 Vector & Matrix
 Electric, Magnet & Optic

FOURTH YEAR

Internship
 * Merdeka Belajar Elective (2 Subjects)
 Final Project

SECOND YEAR

Social Studies (2 Subject)
 Materials
 Industrial Statistics
 Operations Research & Optimization 1& 2
 Computer Aided Design
 Work Methods
 Entrepreneurship
 Ergonomic & Human Factors
 Engineering Economics
 Quality Management Systems
 Smart Manufacturing
 Production Planning & Inventory Control

THIRD YEAR

Community Service
 Quality Control
 Knowledge Management
 Supply Chain Systems
 Facilities Design
 Cost Analysis
 Product Design
 Industrial Internet of Things (IIOT)
 Design for Information System
 Systems Modelling & Simulation
 Industrial Management & Organization
 Research Methodology
 *Merdeka Belajar Elective (1 Subjects)
 *Specialization Studies (3 subjects)

In House Electives

Natural Computation; Healthcare System & Management; Computational Data Mining; Resources Management; Project Management; e-Business & Digital Marketing; Maritime Logistics; Big Data & Analytics; Industrial Psychology; Supply Chain Risk Management; Design of Experiment; Industrial Robotics; Marketing Management; Finance Management

Program Overview

BACHELOR OF INFORMATICS

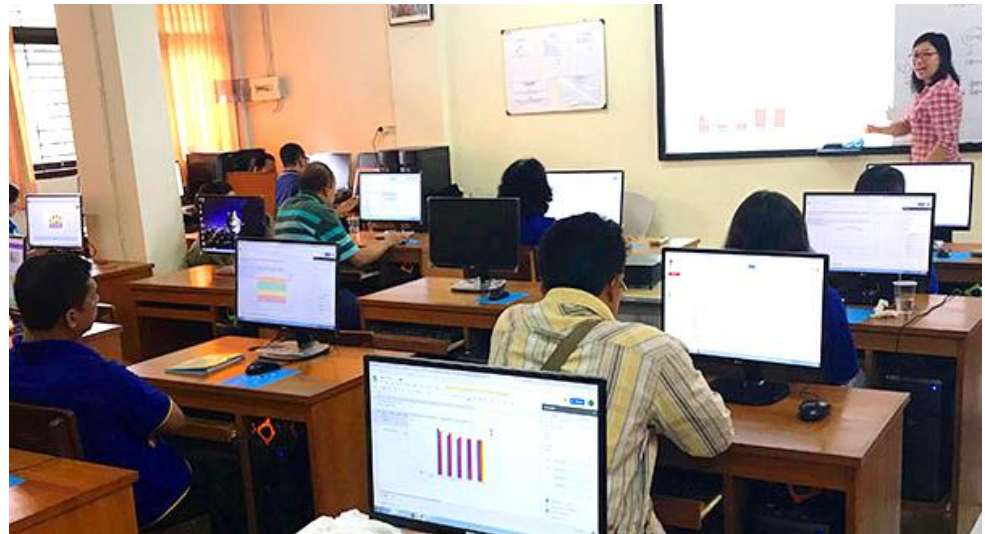
Established 2002

The **Bachelor of Informatics (IF)** program is designed to strengthen the fundamentals of logics, software programming, wireless technology, hardware requirements and specifications, and human computer interaction. IF-UKRIDA offers students a variety of hands-on projects in creative design practices, web development, mobile programming, cloud computing, Artificial Intelligent, Cyber Security, and high performance computing. IF-UKRIDA also prepares the students for professional certifications in collaboration with **Alibaba Clouds** and **Oracle Academy**.

Under the IF, students are encourage to choose one of our new two specialization programs:

Bachelor's Program in Health Informatics or Bachelor's Program in Intelligent Systems

This program is Accredited “B” in 2017 by the National Accreditation Agency of Higher Education (BAN-PT) of the Republic of Indonesia.



CURRICULLUM

FIRST YEAR

Social Studies (2 Subjects)

English for Academic Purposes

Calculus 1 & 2

Physics

Statistics

IT Concepts

Algorithm & Programming 1 & 2

Computer Architecture

Mathematical Logic

Data Structures

Operations Research

FOURTH YEAR

Research Methodology

Internship

* Merdeka Belajar Elective (2 Subjects)

Final Project

SECOND YEAR

Social Studies (2 Subject)

Discrete Math

Data Communication

Algorithm & Programming 3

Human Computer Interactions

Object Oriented Programming

Database System

Computer Network

Computer Graphics

Operating Systems

Numerical Method

Web Design

Database Design

THIRD YEAR

Community Service

Social Studies (1 Subject)

Computer Security

Network Applications

Web Programming

Advanced Database Programming

Artificial Intelligent

Language Theory & Automata

Software Engineering

Entrepreneurship

Data Warehouse & Data Mining

Image Processing

Mobile Programming

Expert System

* Merdeka Belajar Elective (2 Subjects)

In House Electives

Advanced Mobile Programming; Advanced Web Programming; Decision Support System; Graphics Design; Multimedia Applications; Computer Vision; Testing & Implementation; Network Administration; Bio-informatics; Internet of Things; Robotics

Program Overview

BACHELOR OF INFORMATION SYSTEMS

Established 2009

The **Bachelor of Information Systems (IS)** program focuses on implementation and management of information technology to solve business and organizational problems. IS-UKRIDA develops its students to excel not only on technical implementation, but also able to formulate IS/IT strategies and policies so that the technology being implemented can provide sustainable tangible benefits for business and organizational needs.

Under the IS, students are encourage to choose one of our new four specialization programs:

Bachelor's Program in Full-Stack Development or Bachelor's Program in IT Infrastructure or Bachelor's Program in Business Intelligence or Bachelor's Program in Data Science

This program is Accredited “B” in 2019 by the National Accreditation Agency of Higher Education (BAN-PT) of the Republic of Indonesia. IS-UKRIDA also prepares the students for professional certifications in collaboration with **Alibaba Clouds, Quint, DQLab** and **Google**.



CURRICULUM

FIRST YEAR

Social Studies (2 Subjects)
English for Academic Purposes
Linear Algebra & Mathematical Logic
Management of Information Systems
IT Service Management
Algorithm & Programming
Java Programming 1
Full-Stack Programming 1
Database System
Business Analysis Methods 1
IT Governance 1
Business Math
Business Process Management
System Analysis and Design
Operating System 1

In House Electives

Mobile Apps Development using Flutter; Full-Stack JavaScript Web Development; React-Native Full-Stack Development; System Implementation & Testing; IS Strategic Planning; IS Security; Innovation Management Fundamental; Strategic Management Fundamental; Infographics & Data Visualization; ISO27001, ISO20000, and ISO22301 Foundation

SECOND YEAR

Social Studies (2 Subject)
Community Service
Statistics
Software Engineering
Full-Stack Programming 2
Java Programming 2
Human Computer Interaction
Computer Network & Virtualization Technology 1
Database Design
Methodology of Agile Scrum
IT Governance 2
Accounting Information System
Business Intelligence 1
Track 1: Full-Stack Development (Fundamental)
Track 2: IT Infrastructure (Fundamental)

THIRD YEAR

Social Studies (1 Subject)
Entrepreneurship
Data Management
Enterprise Architecture
IT Risk Management
Research Methodology
Track 1: Full-Stack Development (Intermediate)
Track 2: IT Infrastructure (Intermediate)
Track 3: Business Intelligence (Fundamental)
Track 4: Data Science (Fundamental)
* Merdeka Belajar Electives

FOURTH YEAR

Internship
DevOps Fundamental
IS Project Management
Business Analysis Methods 2
Business Process Modelling
Multimedia
Final Project

RESEARCH CENTERS

In addition to accredited study programs, UKRIDA has a number of research centers. Four of them are coordinated by the researchers from the UKRIDA Engineering & Computer Science (FTIK).



UKRIDA Center of Optimization System and Machine Learning (COSMa)

COSMa focuses on how technologies and computer enable systems optimization and machines learning. COSMa organizes its research into three inter-related subjects: models & methods of optimization, models & methods of machines learning, and applications of intelligent computational systems.

Coordinator: **Dr. Iwan Aang Soenandi**



UKRIDA Center for Photonics (CP)

CP focuses on theoretical and experimental studies of laser spectroscopy, bio-photonics, thin film-based sensors, and optical communications. The applications of photonics have been widely accepted in today's technologies include smart phones manufacturing, marine industry, home appliances manufacturing, fiber optic telecommunications, laser printing, and medical diagnostics.

Coordinator: **Indra Karnadi, Ph.D.**



UKRIDA Center for Biomedical Engineering (CBE)

CBE focuses on experimental studies of biomechanics and image processing in medical environment. The aim are to advance health care treatments, including diagnosis, monitoring, and therapy. The applications of biomechanics research involves the use of advanced medical imaging techniques and computational methods to characterize the mechanical properties of human body.

Coordinator: **Ivan Tanra, Ph.D.**



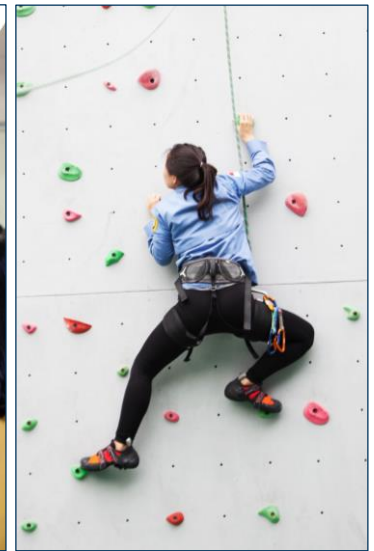
UKRIDA Center for Knowledge Management and Collaborative Innovations (CKMCI)

CKMCI focuses on the role of knowledge, technology, and human behavior in our society. Through collaborations from multidisciplinary perspectives, CKMCI explores how industries and non-profit organizations acquire, create, share, and utilize knowledge and adapt it to the advancement of technology, process innovation, and sustainability.

Coordinator: **Dr. Oki Sunardi**

STUDENTS LIFE

We All Have Stories to Tell...





*And Our
Stories Last
Forever...*



LIVING IN JAKARTA

The City of Opportunities...

As one of the largest and busiest city in the world, Jakarta offers many opportunities to study, work, and pleasure. A home of 9.6 million people, Jakarta held many nicknames: J-Town, The Big Durian, City of Bajaj, and City of Angels.

When you come to Jakarta, make sure that you try some of well-known foods, such as: Asinan Betawi, Soto Betawi, Soto Mie, Soto Tangkar, Ayam Sampyok, Gabus Pucung, Bandeng Pesmol, Ketoprak, Gado-gado, Nasi Goreng Kampoeng, and many traditional dishes and cakes that will make you remember of this city. You should also visit sightseeing spots such as: Monas, Kota Tua, Ancol, Taman Mini Indonesia Indah, and Sunda Kelapa Port.

Transportation in Jakarta is very easy to access. Jakarta is surrounded by 12 Transjakarta Bus Corridors, Commuter Lines, MRT, LRT, Metered Taxy, and Online Transportations such as GOJEK and GRAB. You can also take Angkot and Mikrolet to access narrow streets.

UKRIDA School of Engineering & Computer Science (FTIK) is located in the old campus (Campus 1), on Jalan Tanjung Duren Raya No. 4, West Jakarta. Within 1 Km radius, Campus 1 is surrounded by four shopping malls (Mall Taman Anggrek, Mall Ciputra, Mall Neo SOHO, and Mall Central Park) and two Transjakarta Bus Stations (Grogol Station and Central Park Station). Also, nearly 150 boarding houses and apartment rooms are available near the campus with affordable price. The monthly average living cost for students is at IDR 2.800.000,- (include accommodation, 3 times meal, transport, and telecommunication). Our campus provides many Scholarships opportunities for students, free 24 hours Wifi for students, and free e-books and printed books to access.

Enjoy Jakarta...





UKRIDA Engineering & Computer Science (FTIK)

Campus 1

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