



UNIVERSITAS
INDONESIA

Veritas, Probatum, Scientia

FAKULTAS
MATEMATIKA
DAN ILMU
PENGETAHUAN
ALAM

FACULTY OF MATHEMATICS AND NATURAL SCIENCES UNIVERSITAS INDONESIA

- Mathematics
- Physics
- Chemistry
- Biology
- Geography
- Geoscience



Vision & Mission



Vision

Faculty of Mathematics and Natural Sciences is aimed to be center of excellence on science education, research, community services and give contribution at national and international levels.

Mission

- To conduct research-based academic education professionally in order to prepare the students to become future leaders with good ethics, global insight and care for the welfare of the society and possess excellence academic research.
- To support excellent research contribution in science and technology development as well as to conduct excellent academic research.
- To disseminate science and new innovations that is beneficial for society.

About Us

The Faculty of Mathematics and Natural Sciences Universitas Indonesia

The Faculty of Mathematics and Natural Sciences-Universitas Indonesia (FMIPA UI) was established in 1960. At present, it consists of six departments-namely Mathematics, Physics, Biology, Chemistry, Geography and Geoscience. The faculty has 18 study programs with 168 academic staffs and 3,628 students. The faculty offers undergraduate and postgraduate programs to prospective students as follows.

- Undergraduate Program in Mathematics
- Undergraduate Program in Statistics
- Undergraduate Program in Physics
- Undergraduate Program in Chemistry
- Undergraduate Program in Biology
- Undergraduate Program in Geography
- Undergraduate Program in Geology
- Undergraduate Program in Geophysics
- Master of Mathematics Program
- Master of Physics Science Program
- Master of Material Science Program
- Master of Chemistry Science Program
- Master of Biological Science Program
- Master of Marine Science Program
- Master of Geography Program
- Doctor of Material Science
- Doctor of Chemistry
- Doctor of Biological Science

All of the programs are supported by competent academic staffs graduated from leading universities in Indonesia and abroad. All programs have been accredited by The National Accreditation Agency of Higher Education (BAN-PT). All the Undergraduate Programs have received “A” category of accreditation, while two of the Master programs and two Doctoral Programs have received “B” category.

Two Centers of Excellence (CoE) are located within the Faculty of Mathematics and Natural Sciences:

CoE Nano Science and Technology (CoENST) and CoE for Indigenous Biological Resources – Genome Studies (CoE IBR-GS)

Research centers at the Faculty of Mathematics and Natural Sciences reflect the diversity of research interest i.e :

- Spatial and geographic science including land management, GIS application, policy studies, urban and regional planning, natural and social hazard mitigation
- Ocean space and resources, marine conservation and environment
- Nanoscience and nanotechnology, and material science
- Advance smart materials : catalyst, sensor, etc
- Species richness in a tropical biodiversity hotspot

Currently there are six research centers concerned with basic and applied research on various fields, namely :

- Research Center for Material Science
- Research Center for Applied Geography
- Center of Computer and Information Technology
- Center for Marine Studies
- Center of Tropical Biodiversity
- Research Center of Geoscience



FACULTY CONTACT

Faculty of Mathematics and Natural Sciences Universitas Indonesia

Depok Campus, 16424, Indonesia

Tel. : +62.21.7863436, 7863437, 7270013

Fax. : +62.21.7270012

Email : sekretariat@sci.ui.ac.id

Website : www.sci.ui.ac.id



Department of **MATHEMATICS**



Accreditation : A

Mathematics is one of the most essential and long lasting fields of study which has continuously provided knowledge and tools in expanding number of disciplines and professions. The scope of mathematics applications has consistently evolved and increased beyond their traditional areas in physical sciences and engineering.

Modern and advances in computational and scientific technology which create a massive production of data has expanded the need of mathematics, statistics, modelling and computational skills to analyze and solve problems in wide areas of modern science and

technology such as information technology, weather forecasting, finance, economics, data science, actuarial science as well as molecular biology and medicine.

Department of Mathematics aims to be leading institution to provide the graduates with its competences to contribute in development and applying mathematical knowledge, applications and tools in order to solve problems in advancing science and technology, and quality of human life.

There are some major skills which allow our graduate to support their future career such as logic analysis skills, quantitative reasoning, abstract reasoning, mathematical model development, critical thinking and problem solving, computational skills, data analysis and interpretation, statistical analysis, multidisciplinary research skills.

In Bachelor Program, students require a minimum 144 credits, divided into core and elective courses to fulfill their bachelor degree. The Bachelor Program consists of three Study Programs including:

- Mathematics
- Statistics
- Actuarial

Bachelor of Science in Mathematics

This program has three concentration including Pure Mathematics, Computational Mathematics and Operation Research. In Computational Mathematics we have special interest research groups such as Bioinformatics and Advanced Computing, Data Science, Data Security, Biomathematics, and Scientific Computing.

Bachelor of Science in Statistics

This program has three concentrations including Pure Statistics, Applied Statistics, and Actuarial Statistics.

Bachelor of Science in Actuary

This program has three concentrations including Life Insurance, General Insurance, and Risk Management.



Degree :

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters

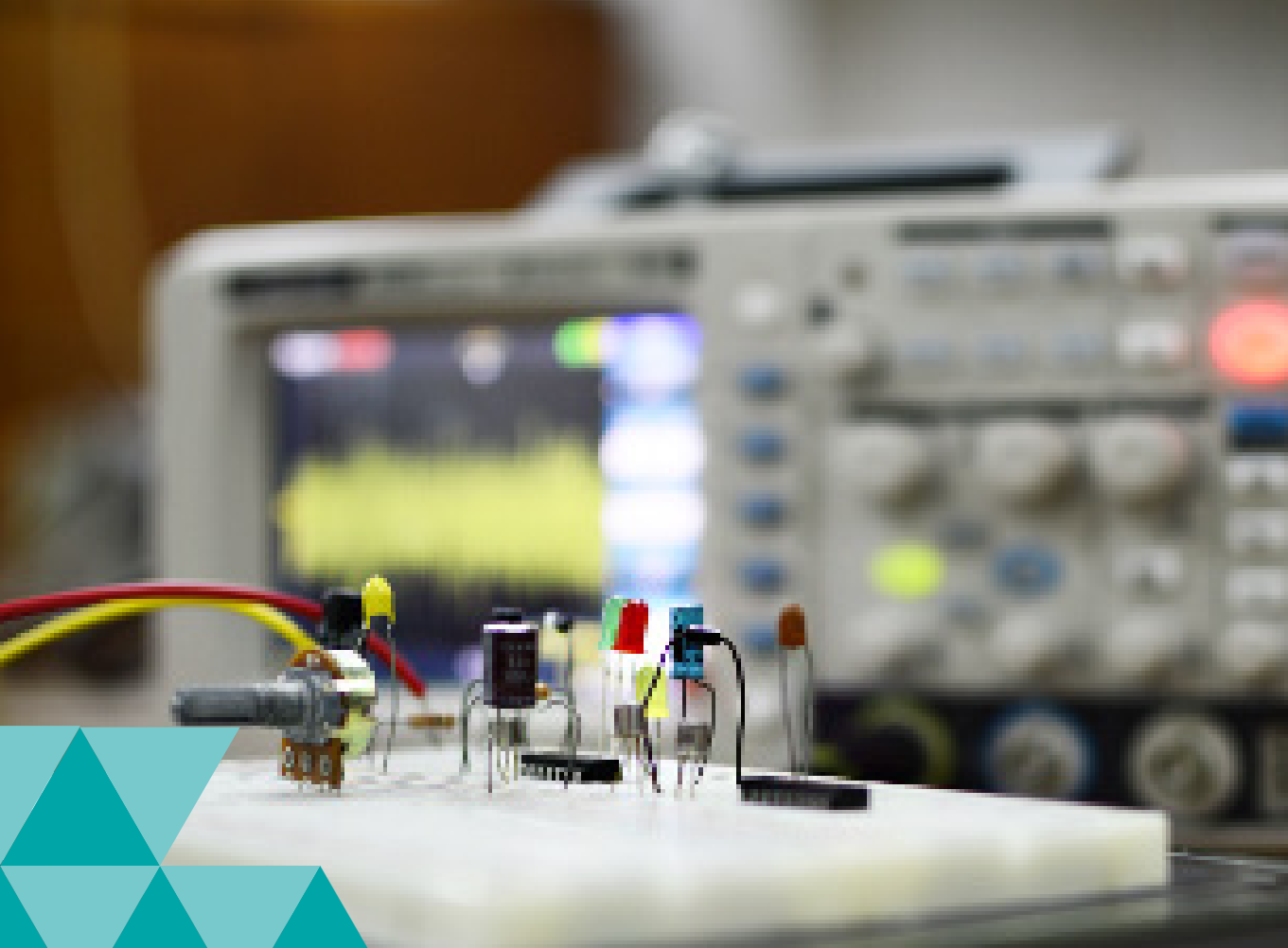


Language :
Bahasa
Indonesia

CAREER OUTLOOK

The bachelor program graduates pursue careers in related works in private and public sectors including IT and communication, manufacturing industries, insurance, finance and banking, business and management, consulting firm, energy, transportation, data science, health & medicine, educations, and research institutions.





Department of **PHYSICS**



Accreditation : A

Boasting an excellent program, the Department of Physics is a center of physics education and applied physics research. Besides contributing to the education and research activities, many graduates have contributed to the world of global industries by joining many national and multi-national companies.

The Department of Physics has a wide cooperation with a number of industries, international and government affiliations which is aimed to create a mutual partnership that enables both parties to

upgrade the competency of physics graduate, develop core knowledge in physics and to actualize academic contribution for community development.

In its bachelor program, the Department of Physics has five concentrations:

- Nuclear and Particles Physics
- Materials and Solid Substance Physics
- Electronic Instrumentation Physics

- Geophysics
- Medical Physics and Biophysics

Nuclear and Particle concentration focuses on developing analytical skill with competency in elementary particle and nuclear theory and competency in analyzing and predicting natural disasters. Competency in this area includes Nuclear Technology and Application, Quantum Mechanical and Non Relativistic, Numerical Analysis and Computer Programming.

Materials and Solid Substance emphasizes on identifying and modifying materials engineering with good quality in practical experience and strong basic science comprehension in Competency in Materials Nanotechnology, Physical Chemistry, Special Materials, Materials Engineering and Special Competence according to interest field.

Electronic and Instrumentation concentration is to develop competencies in analyzing, duplicating, modifying, developing, designing and making prototype of tools for scientific electronic instrumentation and industry. The area of competency covers Sensor and Application, Measuring and Interfacing, Microprocessor, Computer (Hardware and Programming), Metrology, Digital and Analog Signal Processing and Instrumentation for Measuring Physics Unit.

Geophysics concentration is to develop students' competency in geophysics exploration (acquisition data, processing, analysis and interpretation data) that focuses on strengthening aspects geoscience basic concepts, numeric computation and direct application in the natural field of petroleum and gas exploration, coal, mineral, environment and disaster mitigation. The competency areas include Geology and Geodesy, Numeric Computation, Geoelectric and Electromagnetic Method, Gravitation Method, Seismic Method, Geophysics Instrumentation, Petroleum Exploration, Geothermal Exploration, Environmental Geophysics.

Medical Physics and Biophysics is focused to optimize application in the health sector that relates to nuclear radiation, X-ray, ultrasonic, magnetic and laser resonant especially for diagnostic interpretation and oncology therapy. The students will obtain competencies in the field of Radiotherapy, Medical Diagnostic Interpretation, Nuclear Medicine, Radiation Biology and Medical Instrumentation.

CAREER OUTLOOK

A degree in Physics offers many career prospects in education and academic research, laboratories, meteorology & geophysics agency, and air transportation companies.



Degree :

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters



Language :
Bahasa
Indonesia





Department of **CHEMISTRY**



Accreditation : A
AUN-QA Assessment : 5 (out of 7)

Chemistry is a study of molecules and how they interact. The students whom fitted out with this knowledge could produced new substance, materials and to over come all the problems.

Chemists are often at the forefront of the new medicines development. It may be closely involved in the search for new materials with special properties. It regularly contribute to a more sustainable world with smart solutions for energy generation.

The Department of Chemistry has five concentrations: Physical Chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, and Biochemistry

Physical Chemistry is a study of macroscopic, atomic, subatomic, and particulate phenomena in chemical systems in the principles terms, practices and physics concepts such as motion, energy, force,

thermodynamics, quantum chemistry, statistical mechanics, analytical dynamics and chemical equilibrium.

Organic Chemistry is a chemistry sub discipline which involve the scientific study of the structure, elucidation properties, organic compounds reactions and organic materials, i.e. various forms materials that contains carbon atoms. Study of structure includes many physical and chemical methods to determine the chemical composition and the chemical constitution of organic compounds and materials.

Inorganic Chemistry is related to the synthesis and behavior of inorganic and organo metallic compounds. This field covers all chemical compounds except the myriad organic compounds, as subjects of organic chemistry. The distinction between the two disciplines is far from absolute, as there is much overlap in the subdiscipline of organometallic chemistry. It has applications in every aspect of the chemical industry, including catalysis, materials science, pigments, surfactants, coatings, medications, fuels, and agriculture.

Analytical Chemistry focuses on studies using instruments and methods to separate, identify, and quantify matter. In practice separation, identification or quantification can be obtained by the entire analysis

or combination with another method. Separation isolates analytes. Qualitative analysis identifies analytes, while quantitative analysis determines the amount or concentration of materials.

Biochemistry, sometimes called by biological chemistry, is a study of chemical processes within and relating to living organisms. By controlling information flow through biochemical signaling and the flow of chemical energy through metabolism, biochemical processes give rise to the complexity of life. Over the last decades of the 20th century, biochemistry has become so successful in explaining living processes. Now it almost cover all areas of the life sciences from botany to medicine and genetics which are engaged in biochemical research. Today, the main focus of biochemistry is how to understand chemical role in biological molecules, give rise to the processes that occur within living cells, which in turn relates greatly to the study and understanding of tissues, organs, and whole organisms.

CAREER OUTLOOK

As a chemist, you will have excellent career prospects. Such as in a variety of areas, such as food industries, health care, environmental inspection, education, etc.



Degree :

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters



Language :
Bahasa
Indonesia





Department of **BIOLOGY**



Accreditation : A

The Department of Biology FMIPA UI provides a challenging field of research and education which covers knowledge on life science, focusing on biodiversity and conservation issues. Formerly, it was known as the Department of Biology FIPIA UI. Under a provision of education, the Department of Biology FMIPA UI has experienced three periods: a period in Bogor (1961-1975), a period in Jakarta (1975-1987), and a period in Depok (starting the academic year 1987/1988 until present).

Until 1987, the Department of Biology has been developed five laboratories, they are Taxonomy Lab, Physiology Lab, Microbiology Lab, Ecology Lab, Anatomy

Lab, and Histology & Embryology Lab. While moving to Campus UI Depok, the Department of Biology had 2 additional labs: Genetic Lab. and Marine Biology Lab.

By the year of 2015, the Department of Biology reconstructed 7 laboratories into 3 Science Groups: Zoological Science Group, Botanical Science Group, and Microbiological Science Group. These 3 Science Groups provide class and practical courses for students which are designed in the curriculum of Undergraduate Study Program, Master Study Program, and Doctor Study Program hosting by the Department of Biology. There are 10 research groups that provide topics for students of each study program

in the Department of Biology, like a: Animal Science for Health, Chemical Ecology, Coastal & Marine Resources, Environment and Management Landscape Genetics, Reproductive Genetics, Terrestrial-Aquatic Ecosystem, Conservation & Environmental Services, Plant Genetics Development and Biosystematics, Plant Physiology & Natural Resources, Microbial Systematics & Ecology, Microbial Technology and Prospecting. For advancing research activities, the Department of Biology has 3 research clusters (approved by Decree Rector of Universitas Indonesia) that provide multidiscipline topics which are covered by the available research groups: Bioprospecting for Sustaining Nature (Bio-SN), Bio Environmental Genomics (BEG), Reproduction Bioresources Sustainability (Red-BUS).

The Department of Biology has various facilities for academic activities such as research laboratories, teaching laboratories, green house, orchid house, microalgae culture house, rodent care house, and microorganisms Culture Collection of Universitas Indonesia. In addition, the Department of Biology has a strong collaboration with many institution, most of them are lead by alumni of biology UI.

Biology Undergraduate Study Program

The curriculum of the study program is designed to prepare students with an adequate competence of knowledge and basic skill to do a research in Biology fields, with special emphasize in the biodiversity and conservation topic. Students have to earn at least 144 credits for 8 semesters and normally take 4 years of study. They are introduced with a specific research



topic provided by the existing 10 Research Groups as described above. The students also have an opportunity to perform their interested research topic in other research institution of which the main supervisor should be come from the Department of Biology, FMIPA UI.

Beside formal academic activities, students are also provided with practical knowledge about biodiversity and conservation along with leadership soft skill under 3 student specific interest organizations: BSO Comata which interested in wildlife terrestrial animals, BSO Canopi which interested in plant biodiversity, and BSO Sigma which interested in wildlife marine biotas.

CAREER OUTLOOK

Graduates of this program have the theoretical and practical skills to pursue future career in ecology conservation, wild life and forestry conservation and microbiology research both in private and governmental sectors.



Degree :

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters



Language :
Bahasa
Indonesia





Department of **GEOGRAPHY**



Accreditation : A

Geography is a study of human activities, with interaction between humans and Earth consist of its lands, features, inhabitants and phenomena in a spatial perspective which creates a particular pattern.

The Geography Study Program consists of three concentrations: Physical Geography, Regional Planning and Geographical Information System and Remote Sensing. The department has three laboratories to support its academic activities :

- The Geographical Information System and Remote Sensing Laboratory
- The Physical Geography Laboratory
- The Regional Planning Laboratory

The library reserves more than 10,000 books, topography and landscape references in the form of digital and hard copy collection.

Three research focuses in Geography consist of Physical Geography, Human Geography, and Geographic Information System and Remote Sensing.

Physical Geography includes the climate topic (variability and change), water resources (for availability and variability) and dynamic landscape (land dynamics landscape), in watershed and coastal region. The research topic emphasize the fundamental understanding of variability in space and time (space and time variability) climate elements, hydrology and landscapes of Earth, space relation with humans and its activities.

Human Geography and regional development are emphasized on related topic to human relations and environment, and the transformation of living space. It includes the management of resources & quality of life, environmental change & adaptation capacity, the dynamics of cultural and eco-sustainable consumption, as well as the identity of place and space competition.

Geographic Information Systems and Remote Sensing focused on research related to the application of GIS/Remote Sensing for environmental monitoring, estimation of biomass and carbon stock, and GIS Modeling.

CAREER OUTLOOK

The study of Geography leads to the development of a comprehensive understanding and practical competence in regard to different kinds of phenomena such as applicable in various professional careers, such as regional planning and development, surveying and mapping, environmental management, forestry, mining and energy exploration, transportation, etc.



Degree:

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters



Language :
Bahasa
Indonesia





Department of GEOSCIENCE

Department of Geoscience

Our department offers two kinds of program about the Earth science, it is Geology and Geophysics. The lecturers and students work together through the cutting-edge research to solve problems in Geosciences, especially related to natural resources, disaster, and environmental issues. Most of our activities involve detail observation mapping and data acquisition in the real practical or the laboratory. The Geoscience Department has a collaborative partnership with some industries and government affiliations which is aimed to update the knowledge and upgrade the student's competency in Geosciences.



Geology

The bachelor of geology is designed to analyze the on going procces, the one that happen, or will occur in the future. Our undergraduate students will be able to explain the fundamental concept of geology and the geological object with its process in particular area. Beside that, they also have the skill to collect, process, model the data and integrate it with other geosciences data. Our research is also focusing in the past, now, and the future prediction for natural resources, natural disaster mitigation, and environmental problems.

Geophysics

This undergraduate program is aimed to analyze the problem related with natural resource, natural disaster, and environment using geophysical methods. They are trained to solve Geoscience problems analytically and numerically by collecting, processing, and modeling the geophysical data. Moreover, our students are able to incorporate geophysics data with other geosciences data and apply it for Earth's issues.

Research Interest

Our lecturers and students involve in some cutting-edge research related with diverse magnitude of field, such as Geopark, volcanology, sedimentology, seismotectonic, from the big scale as tectonic plate to the small scale like microfossil.

Our previous research was about Merangin Geopark and how to enhance the geodiversity and propose Merangin as a UNESCO Global Geopark. We used various approaches, such as seismotectonic,



sedimentology, GPR, and reconstruction of Tethys plate. We also conducted other research in the unstable soil region using engineering geology such as: determination of landslide slip surface, soil crack investigation by GPR method, and study about the role of ground water fluctuation that cause landslide. For there more, we are in the middle of investigation about the sedimentation of oil and gas reservoir which are covered by volcanic activity and interpreted by geophysics instrument, for example vibroseis, magnetic, gravity, resistivity measurement, and passive seismic.

Research Location

The great geodiversity of Indonesia will always be a part of challenges for worldwide geologists yet. It also can be an opportunity to be studied. Thus our research has been covered diverse scope of geological setting from Merangin Geopark in Jambi, Cianjur, Pagelaran, until some geological feature in West Java. The future studies will cover more detail study in Merangin Geopark, landslide, and channel-fill caused by turbidity current, and sedimentation related volcanic activity in West Java.

Laboratory Facilities

All of the studies have not been done without



Degree :

Sarjana Sains
(Bachelor of Science)



Depok
Campus



Length of Study :
8 Semesters



Language :
Bahasa
Indonesia



contribution of our professional assistants and tools. Our laboratories have been equipped with high-end polarization microscope, high-specification of workstations, and numerous basic field-tools. We always enhance and supply our laboratory and field tools every year to promote the best lecture for our student.

CAREER OUTLOOK

Graduates from geology and geophysics will have opportunity to work in natural resources, energy exploration and exploitation, environment, natural disaster mitigation, the government and other geoscience institution.

BIOLOGY



Accreditation : A



Degree :

Magister Sains
(Master of Science)



Depok
Campus



Length of Study :
4 Semesters
(41 Credits)



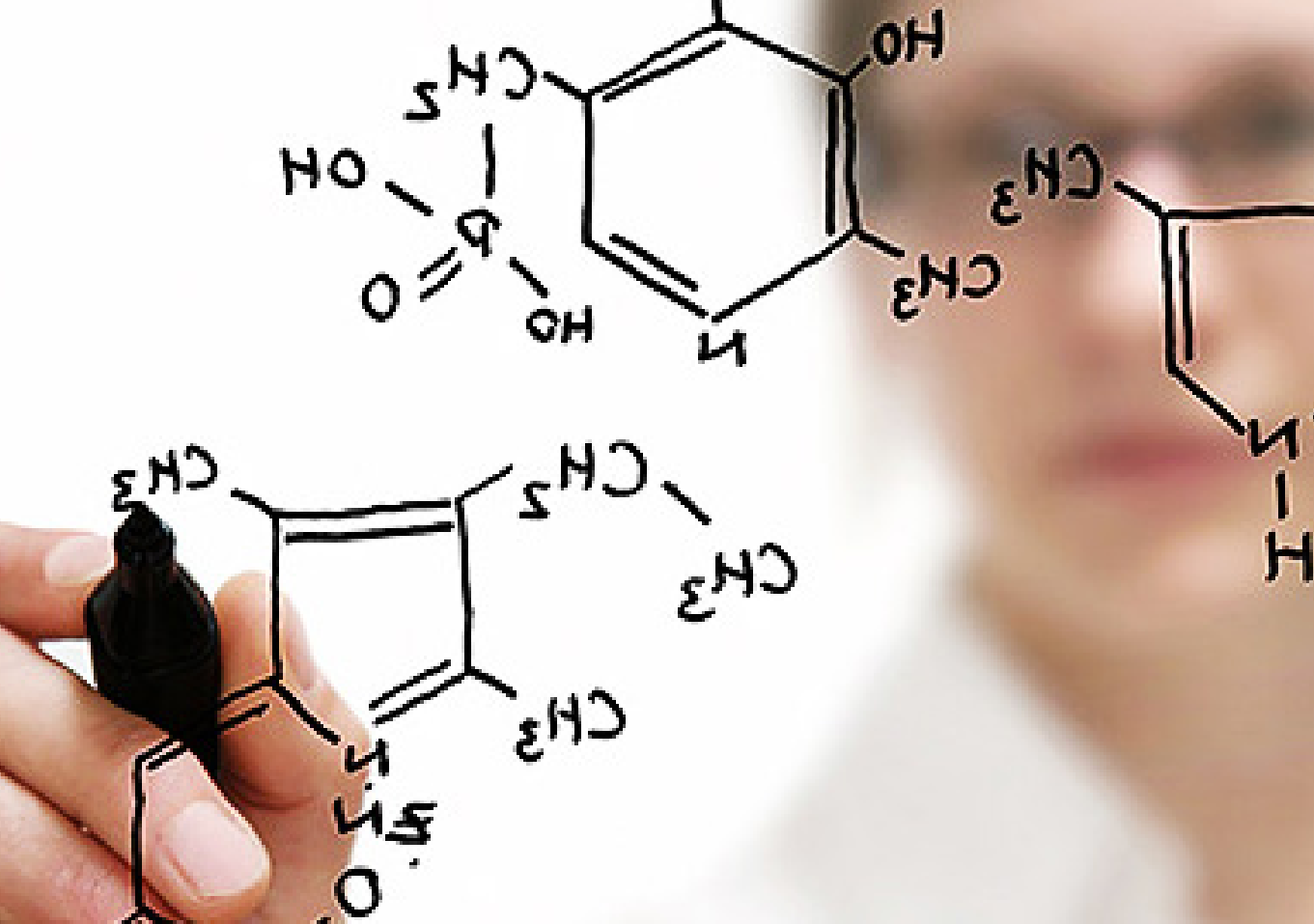
Language :
Bahasa
Indonesia

This study program tries to attract fresh graduated students or professional researchers to get a master degree. The curriculum is designed to prepare students with a high level competence of knowledge and excellent skill to do and manage a research in the field of Biology, with special emphasize to the topic of biodiversity and conservation. Students must have a prior chosen topic related to 10 Research Groups in the Department of Biology FMIPA UI as described above. Students must earn at least 41 credits for 4 semesters where normally

take 2 years of study. Besides doing a research, in the Department of Biology laboratories, the students can also do their interested research topic in other research institution laboratory.

CAREER OUTLOOK

This master program graduates pursue higher careers or specialized field in education and academic research, ecology and wildlife conservation, forestry, farm products development, environment management.



CHEMISTRY



Degree:
Magister Sains
(Master of Science)

The Master Program of Chemistry aims to nurture chemists with special ability. A chemists who are advanced at applying chemistry and actively also involved in efforts to increase public service. The curriculum is oriented to chemical research and its application.

CAREER OUTLOOK

This master program graduates pursue higher careers or specialized field in education and academic research, food industries, pharmaceutical companies, petrochemical industries, farm products development and environmental management.



Accreditation : A



Depok
 Campus



Length of Study :
4 Semesters
 (40 Credits)



Language :
Bahasa
 Indonesia

GEOGRAPHY



Accreditation : **A**



Degree :
Magister Sains
(*Master of Science*)



Depok
Campus



Length of Study :
4 Semesters
(42 Credits)



Language :
Bahasa
Indonesia

The graduates of this program are expected to have the ability to apply and develop spatial analysis for any aspect in regional perspective. This course provides an advanced study in the area of geography, has been accredited (A).

CAREER OUTLOOK

This master program graduates pursue higher careers or specialized field in regional planning and development, environmental management, forestry, mining and energy exploration, transportation management, etc.



MARINE SCIENCE



Degree:

Magister Sains
(*Master of Science*)

In order to develop ability and competitiveness in marine science, the master program of Marine Science aims to enhance the knowledge and ability of its student in specialization of marine science. The graduate students of this program are expected to be able to conduct research, to manage, to conserve marine resources, to cooperate in planning and developing marine science. This program provides three special interests: Marine Physics Science, Marine Biology Science, and Coastal Management.

CAREER OUTLOOK

Our graduates pursue higher careers or specialized field in education and academic research, government office, marine-focused company, marine resource management, and conservation foundation.



Accreditation : **B**



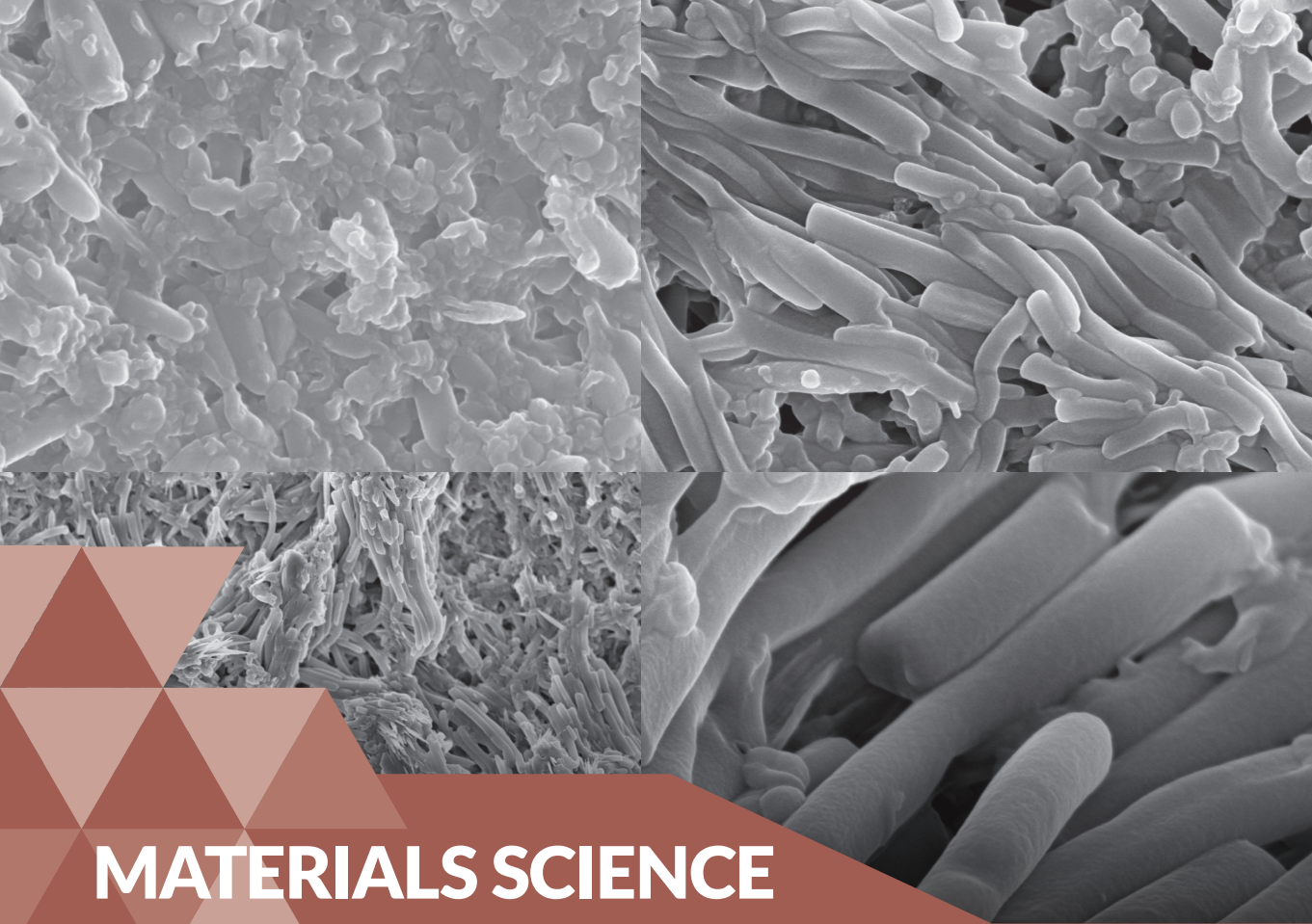
Depok
Campus



Length of Study:
4 Semesters
(42 Credits)



Language :
Bahasa
Indonesia



MATERIALS SCIENCE



Degree:

Magister Sains
(Master of Science)

This program also provides students with knowledge of science and materials engineering which focused on metal, ceramic, composite, polymer, electronic and also magnetic materials. The graduates students can analyze the progress of science and technology of materials, to analyze specific problems in materials science through research activities independently and/or in groups by scientific ethics, capable of communication and dissemination. The results of community research in materials science, can apply the research results in the form of prototypes that are beneficial to the public and materials science, and to apply the concept of entrepreneurship in solving the problems of business management fields of the material.

Our program has four concentrations: Polymer & Composite, Metal & Alloy, Ceramic & Glass, and Electronic & Magnetic Materials.

CAREER OUTLOOK

This master program graduates pursue higher careers or specialized field in education and academic research, laboratories, manufacturing companies, transportation companies, heavy machinery or construction industries.



Accreditation : B



**Depok /Salemba
Campus**



**Length of Study :
4 Semesters
(40 Credits)**



**Language :
Bahasa
Indonesia**



Depok
Campus



Length of Study :
3-6 Semesters
(42 Credits)



Language :
Bahasa
Indonesia

MATHEMATICS



Degree :
Magister Sains
(Master of Science)



Accreditation : A

In Master Program, the students need to obtain 42 credits. It consists of core and elective courses in each concentration, to fulfill their Master degree.

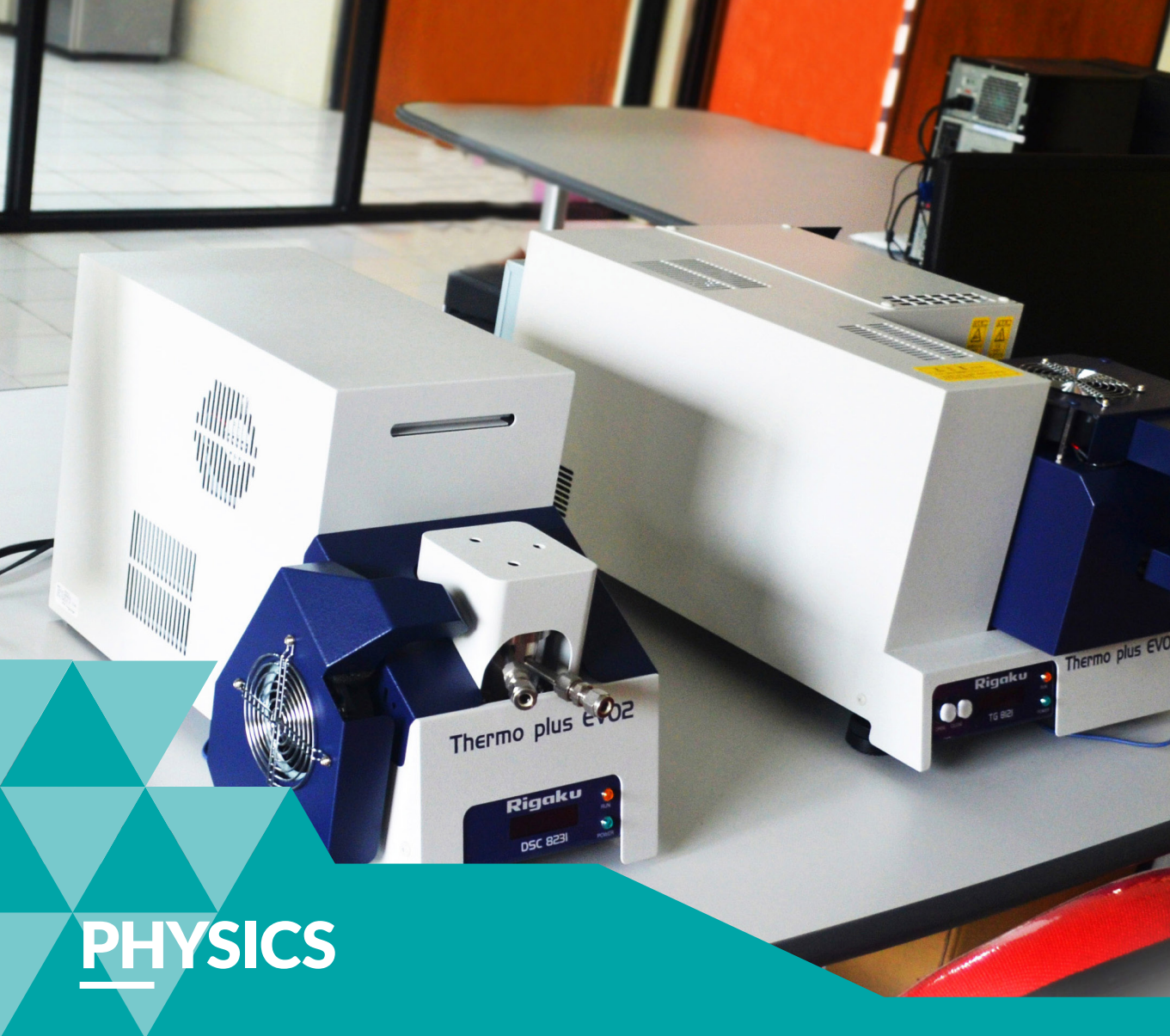
Department of Mathematics provides this master program to respond the increasing great demand of mathematicians in a wide areas of private and public sectors such as industry, finance, information technology, business, health and medicine, and services sectors. The objective of this study program is to provide our graduates with high level of competency in mathematics and its applications, strong research skills in mathematics to contribute in enhancing science, technology and other fields.

Currently, Master Program consists of a study program Master of Science in Mathematics. We offer

two optional tracks for the students to pursue their master study including : **(1) Master by Research Program**, and **(2) Master by Course and Research Program**. Furthermore, there are three concentrations in Master Program including Pure Mathematics, Data Analysis, and Modelling.

CAREER OUTLOOK

The master program graduates pursue careers in private and public sectors such as IT and communication sectors, manufacturing industries, insurance, finance and banking sectors, business and management, consulting, energy sectors, transportation, data science, health and medicine, educations, and research institutions.



PHYSICS



Accreditation : A

The Department of Physics has an objective to provide high quality education for students who wish to deepen their knowledge in physics. We provide five specialization programs :

1. Pure Physics and Applied Physics

This study is tailored to BSc graduates to enhance their physics ability and to pursue a research career in industrial, national research laboratory, or within university. The Master Degree also provide students to pursue career as lecturers for undergraduate

program in physics. This study also aims to nurture world-class graduates who have highly innovative and competent in scientific, academic and industrial environments.

2. Medical Physics

Opened in 2002, Medical Physics graduate program serves the nationwide demand on academically-qualified medical physicists. This two-year program is emphasized on learning process on Radiation Therapy, Diagnostic Radiology and Nuclear

Medicine, which are prepared for students in future career as medical physics in hospital, academic and other related profession. The curriculum is designed to provide the knowledge and experience that involve independent scientific investigation mainly in medical physics. The curriculum is conducted by class meeting, laboratory works, field trip, seminar and research project using English and Indonesian language as the communication.

3. Reservoir Geophysics

The course are planned to provide the knowledge and experience that involves independent scientific investigation. Research opportunities allow student to design scientific programs which often include considerable experience at exploration seismology, geology, geophysics and reservoir characterization. The graduates are well prepared for teaching, research work, the universities lecturer and local government, technical staff, research institutions, laboratories, oil and gas industry.

The curriculum is designed to provide the knowledge and experience that involve independent scientific investigation mainly in reservoir geophysics, which is based on the computing problem. The curriculum is conducted by class meeting, laboratory works, field trip, seminar and research project. The communication use English and Indonesian language.

used for its exploration, exploitation and utilization, by emphasizing on the exploration field, the stressing of the Master Program of Geothermal Exploration.

The curriculum is emphasized on the understanding of fundamental concept, advanced geoscientific knowledge and skills, strategic exploration management, investment and risk analysis and environmental responsibility. It is supported by advanced geoscientific research laboratories: Geothermal Laboratory and Exploration Geophysics Laboratory, it have been developing technology for advanced geothermal exploration (Advanced Geothermal Exploration Technology). UI Master Program in Geothermal Exploration is also supported by BATAN's Laboratory of Geochemistry and Isotope Technology, Geological Resource Center's, Laboratory of Geology, and the geothermal industry's facilities.

5. Instrumentation Physics

The department is intended to produce graduate students who are advanced in preparing and conducting research in Instrumentation Physics. It is also prepared students as universities lecturer who experts in Instrumentation and have ability in quantity and quality control and to expand the diversification of Instrumentation.



Degree :

Magister Sains
(Master of Science)



Depok
Campus



Length of Study :

4 Semesters
(40 Credits)



Language :

Bahasa
Indonesia

4. Geothermal Exploration

UI Master Program in Geothermal Exploration is intended to provide deepening of knowledge and expertise (skill) for the geothermal exploration sector in human resources in the geothermal industry or other government institutions. The knowledge given are specialized and applicative. It is also strengthen by the fundamental concept and the practical application of the geothermal exploration on field. The students are given the strengthening of geothermal system concept and the technology

CAREER OUTLOOK

This master program graduates pursue higher careers or specialized field in education and academic research, laboratories, meteorology and geophysics agency, manufacturing companies and transportation companies.

Doctoral Program

BIOLOGY



Accreditation : **B**



Degree :
Doctor



**Depok
Campus**



Length of Study :
**6 Semesters
(50 Credits)**



Language :
**Bahasa
Indonesia**

This study program attract graduated master students or professional researchers to get a Doctor degree. The curriculum of this study program is designed to prepare students with an advance competence of knowledge and excellent research skill. It also create a novelty finding in the field of Biology, with special emphasize to the topic of biodiversity and conservation. Students must have a prior chosen topic related to by the existing 10 Research Groups in the Department of Biology FMIPA UI as described above. Students must earn at least 50 credits for 6 semesters where

normally take 3 years of study. Besides doing a research in the Department of Biology laboratories, the students can also do their prior chosen topic research in other research institution laboratory.

CAREER OUTLOOK

The graduates of this program have a wide range career opportunity in biological field in academic, research institutions or industries, as scientists, healthcare professionals, and lecturer in universities.



CHEMISTRY

The objectives of this course are to equip students who pursue career in academic or industrial research with the required knowledge and skills. The study prepares students to have competence in solving problems in chemistry field, as innovator in chemistry, and able to develop their knowledge and skills in their field by conducting research for industry such as quality control or assurance, management process and production, research and development, technical representative, and service in academic or business. This program offers several specializations such as biological chemistry, non-biological chemistry and biotechnological industry.

CAREER OUTLOOK

The graduates of this program have a wide range career opportunity in chemistry field in academic or industries and as lecturer in universities.



Degree:
Doctor



Accreditation : A



**Depok
Campus**



Length of Study:
**6 Semesters
(50 Credits)**



Language:
**Bahasa
Indonesia**



Depok/Salemba
Campus



Language :
Bahasa Indonesia



MATERIALS SCIENCE



Degree :
Doctor



Accreditation : B



Length of Study :
**6 Semesters
(50 Credits)**

The students are provided to choose one of the four specializations: Metal & Alloy, Polymer & Composite, Ceramics, and Electronic & Magnetic Materials. The graduates are expected to have competence in conducting research in related field by using general physics concept and finding new material. The graduates students are able to formulate answers to problems in the field of science and technology of materials with interdisciplinary and multidisciplinary approach. They are also able to devise a research programme complies

with the scientific ethic, dissemination research results in national and international materials community, an to creating a new science and technology in the field of materials science that will benefit mankind.

CAREER OUTLOOK

The graduates of this program have a wide range career opportunity in material field in academic, research institutions or industries, as scientists, or lecturer in universities.



Study Center & Center of Excellence

As one faculty who put forward research, Faculty of Mathematics and Natural Sciences (FMIPA) Universitas Indonesia not only has a laboratory, but also has a wide range of Study and Research Centre. It can be utilized by students and the general public, such as **Research Center for Applied Geography, Marine Studies Centre, Center for the study of materials science (RCMS), and the Center for the study of Geosciences.** In addition, FMIPA UI also has 3 (three) the flagship research fields. They are **CoE (Center of Excellence), CoE Nano Science & Technology, CoE for Indigenous Biological Resources, and CoE Genome Studies.**

It was built in the year 2011 Integrated Research Laboratory, Laboratory Science and multidisciplinary grant of PT. Pertamina (Persero) as FMIPA UI partner in implementing the national science olympiads of colleges all over Indonesia.

Two Centers of Excellence (CoE) are located within the Faculty of Mathematics and Natural Sciences.

CoE Nano Science and Technology (CoENST) conducts and develops research of both nanoscience and nanotechnology. Nanoscience study focuses on the comprehension of properties at nanometer scale, where as nanotechnology involves the creation and use of materials and devices by controlling shape and size at nanometer scale.

The purpose of establishing CoE for Indigenous Biological Resources – Genome Studies (CoE IBR-GS) is to promote the utilization of indigenous biological resources for industry through genome-based analysis of scientifically important and industrially/commercially useful biological resources originating from Indonesia.



Contact Us :

**Faculty of Mathematics and Natural Sciences
Universitas Indonesia**

Depok Campus, 16424, Indonesia

Tel. : +62.21.7863436, 7863437, 7270013

Fax. : +62.21.7270012

Email : sekretariat@sci.ui.ac.id

Website : www.sci.ui.ac.id