

Institut Teknologi Bandung



# Postgraduate Student Handbook 2016



# Postgraduate Student Handbook

---

2016



**Institut Teknologi Bandung**





# March of ITB

Gait thy steps, look forward  
ITB, the image of Ganeça,  
Surge thy strength, pursue thy dream  
Thy devotion for the Country

Be prepared, and poise thy heart  
Brace thy perseverance  
Paces and endeavours, shall be testified  
As Motherland's desire

O son of the nation, man of arena,  
Noble tasks ahead of thou  
Spirit and perseverance  
Ever be cultivated  
Bright light shall come into sight

Verse:  
Study the science and technology  
Art and culture of the nation  
Solid is thy disposition and sovereign is thy resolution  
To arrive to the glorious era

Broaden thy wings, illuminate thy vision  
Enlighten the sons of the Country  
Guide Indonesia nation to be  
Just, rich, prosperous

Advance, move forward, truthful scout  
The cherished alma mater,  
May thy be evermore steadily mature  
Ever glorious and eternal

Music & lyrics: Drs. Ahmad Setiawan



# Welcome to Our University

In Harmonia Progressio ...!

Welcome to Institut Teknologi Bandung, the oldest technical higher education in the Archipelago where the youths dedicate their hopes and ideals for the progress of the country. Thank you for choosing ITB as a stepping stone for your future career.

Since ITB was established in 1920, there have been many scientists, researchers, engineers, businessmen, and even a statesman as well as other prominent activists who also entrusted their undergraduate education here. Hopefully ITB can always meet with the expectations of society as a reliable institution of higher education.

It is useful when at the initial process of study each student had already identified his/her interest and choice of study programme. But the case is often different; some students still do not have a clear picture of what to do during and after their undergraduate educations. This book is expected to help those who still need information about the variety of study programmes offered by ITB, at the same time, it is also expected to give the readers the spirit to achieve the desired goals.

Have a good reading and may your endeavours be fruitful.

Prof. Kadarsah Suryadi  
Rector

---

## VISION

To become an outstanding, distinguished, independent, and worldwide recognized university to lead changes toward the prosperity of Indonesia and the world.

## MISSION

To discover, share and apply science, technology, art and humanity, as well as to develop outstanding human resources to best serve Indonesia and the world.



# Board of Officials

## BOARD OF TRUSTEES

Chairman

Ir. Betty S. Alisjahbana

Vice Chairman

Prof. Dr. Ir. Jann Hidajat Tjakraatmadja

Executive Secretary

Prof. Dr. Ir. Made Emmy Relawati S.

## ACADEMIC SENATE

Chairman

Prof. Ir. Indratmo Soekarno, M.Sc., Ph.D

Secretary

Dr. Ir. Iwan Sudradjat, MSA

## FORUM OF PROFESSORS

Chairman

Prof. Dr. Ir. Roos Akbar, M.Sc

Secretary

Prof. Dr. M. Salman A.N., S.Si., M.Si

## HEADSHIPS

Rector

Prof. Dr. Ir. Kadarsah Suryadi, DEA

Vice Rector of Academic and Student Affairs

Prof. Ir. Bermawi Priyatna Iskandar, M.Sc., Ph.D.

Vice Rector of Finance, Planning and Development

Prof. Dr. Wawan Gunawan A. Kadir, MS.

Vice Rector of Resources and Organization

Prof. Dr. Irawati, MS.

Vice Rector of Research, Inovation and Partnership

Prof. Dr. Ir. Bambang R. Trilaksono

Vice Rector of General Administration, Alumni, and Communication

Dr. Miming Miharja, ST., M.Sc.Eng.

Chairman of Internal Auditor Unit

Prof. Dr. Asep Gana Suganda

Chairman of Quality Assurance Unit

Prof. Dr. Ir. Ichsan Setya Putra

Executive Director of Student Enrollment Management

Prof. Ir. Mindriany Syafila, MS., Ph.D.

Executive Director of ITB Jatiningor Campus

Dr. Ir. Wedyanto, M.Sc.

Chairman of Business and Endowment Fund Unit

Ir. Mary Handoko Wijoyo, M.Sc



# Contents

March of ITB	
Welcome to Our University	
Institut Teknologi Bandung	02
ITB, Ganesa Campus	04
History and The Future	05
Campus Facilities and Services	06
Potrait of Ganesa Campus	17
School/Faculty & Study Programme Information	
FMIPA	34
Faculty of Mathematics and Natural Sciences	
SITH	66
School of Life Science and Technology	
SF	79
School of Pharmacy	
FTTM	87
Faculty of Mining and Potroleum Engineering	
FITB	101
Faculty of Geological Science and Technology	
FTI	120
Faculty of Industrial Technology	
FTMD	134
Faculty of Mechanical and Aerospace Engineering	
STEI	148
School of Electrical Engineering and Informatics	
FTSL	159
Faculty of Civil and Environmental Engineering	
SAPPK	179
School of Architechture, Planning and Policy Development	
FSRD	203
Faculty of Art and Design	
SBM	227
Hymn of ITB	238



ITB is located in the north of Bandung; a city with a tropical nature which is famous for its relatively cool and pleasant climate. This city is the capital city of West Java province; it is 150 Km from Jakarta, the capital city of Indonesia, and from Jakarta it can be reached by way of the toll-roads in about 2 hours.

This city has an interesting development history. Bandung is a highland at 725m above sea level. It was believed to have been a giant lake which was surrounded by mountains such as Tangkubanparahu, Burangrang, Manglayang, Malabar, and others. These mountains form natural boundaries that surrounding the area. Until the middle of the 19th century, Bandung was still a quiet place known as *een kleine berg dessa* (a tiny mountain village) which had hardly any visitors. Known as Ibu Kota Priangan (the capital city of Priangan) this village gradually continued to develop.

At the end of the 19th century, the early development from a village into a city was marked by the building of the road, Groote Postweg (known as Jl. Asia Afrika) and Anyer- Pamanukan road in 1811. The rapid development of Bandung took place at the end of the 19th century, around 1890. It started with the building of city parks and adding new roads and new buildings with their supporting facilities.

The development of Bandung reached its climax when it received the name Parijs van Java because of its beautiful landscape. In the international conference on Modern Architecture which was held in Switzerland in 1928, Bandung was declared as a city that successfully met the principles



This city, which is surrounded by mountains and hills becomes one of the destinations of nature tourism in Java, Indonesia. It is located at about 600 - 900m above sea level. It makes this city have cool weather with the temperature ranges between 19° – 26°C.

The city with its 2.5 million people has been trying to explore culture-based industries during two decades. At every corner of the city, we can find various community activities which have their own uniqueness. Stores with specific atmosphere, restaurants, cafes, markets, and annual folk festivals make this city a comfortable place to live and study.



Doc. Dhan Damajani



Doc. Dhan Damajani

## ITB, Ganesa Campus

When it was built in 1920, Ganesa campus which was 30 ha wide, was located near Cikapundung river banks with green rice fields at Lebak Siliwangi and beautiful scenery of Tangkubanparahu in the north.

This beautiful nature composition inspired the first master planner of this campus—Henri Maclaine Pont - to determine an imaginary axis as a basic binding element of mass and space. This basic concept is continually maintained through generations in developing the campus master plan. Cozy environment with more than a thousand trees in the green campus. Along with hundreds varieties of vegetations, ITB becomes a source of inspiration to explore and deepen knowledge.



Doc. Dhan Damajani



Doc. Dhanana HM



# History and the Future

FUTURE	ITB proceed to Autonomous State University.	ITB as Research, Development and Innovation University: Academic excellence for education, contribution to knowledge, industrial relevance, and community services.
		2013 - now : ITB status changed as PTN BH 2012 : ITB stated as PTP 2010 to 2012 : Transition process to PTP
2010 – 2015		
2000 – 2010	Institut Teknologi Bandung as Legal Entity (Autonomous/BHMN)	December 26, 2000, ITB embarked on new status of as legal entity . In 2009, Government of Indonesia Launched UU BHP (UU no 9 tahun 2009). UU BHP was cancelled by Constitution Court, 31 March 2010
1959 – 1999	INSTITUT TEKNOLOGI BANDUNG (ITB) As State University/PTN	March 2, 1959, officially declared by Soekarno (the 1 <sup>st</sup> President of Indonesia)) 1959, The first Rector of ITB was inaugurated 1973, Common Preparatory Level was opened 1979, The first Graduate Programs
1946 – 1959	Universitas Indonesia	June 21, 1946, officially declared by NICA 1946, Faculteit van Technische Wetenschap was established October 6, 1947, Faculteit van Exacte Wetenschap was established
1945 – 1946	Sekolah Tinggi Teknik (STT)	1945, opened 1946, moved to Yogyakarta & named as STT Bandung in Jogja 1946, became Faculty of Engineering, University of Gajah Mada (UGM)
1944 – 1945	Bandung Kogyo Daigaku (BKD)	April 1, 1944, TH was re-opened & named as BKD by the Japanese governr
1920 – 1942	Technische Hogeschool (TH)	July 3, 1920, officially declared by the Dutch government July 1, 1924, the first graduates July 3, 1926, the first Indonesian graduates (among others, Ir. Soekarno, the President of Indonesia)

## KEY SUCCESS FACTORS

There are four Key Success factors which will lead to the implementation of ITB vision 2025 :

1. Ability to attract the best talents into ITB community;
2. Ability to fulfill the needs of the best talents in ITB community
3. Ability to invite and empower resources and potency to develop ITB;
4. Being accountable to ITB stakeholder's needs.

Key Success factors that need to be realized by ITB in order to get world class recognition are :

1. Attracts academic and natural best talents, and is able to advance their ability to the maximum.
2. Creates a conducive academic atmosphere to support the development of the internal potential of the best talents.
3. Acquires resources to develop internal and external networking.
4. Responds to external development by participating in the realization of the dreams of Indonesian people.

# CAMPUS FACILITIES

In addition to lecture rooms, laboratories, workshops and studios, ITB has an art gallery, sport activities and student activities center. Also near the campus is the Salman Mosque for worship and religious activities of the ITB Muslim community. For implementation of academic and research activities there are seven academic support facilities, namely, the Central Library (with approximately 150,000 books and 1000 journal titles) on campus, Sport Center, Language Center, and The Boscha Observatory (a facility of the Department of Astronomy) in Lembang, 11 kilometers to the north of Bandung.

## 1. Academic Support

### 1.1. Bookstores

There are several bookstores inside of campus ITB.

- **Sagung Seto**  
It is located in central Library Building 1st floor. The bookstore provides textbooks and popular books, and is open every Monday to Friday, 9:00 am to 5:00 pm and Saturday, 9:00 am to 12:00 pm.
- **Toko Buku ITB**  
Toko Buku ITB is the on-campus site for text, reference, and general reading. Toko Buku ITB is located near Aula Barat, and is open Monday to Friday, 8:00 am to 4:30 pm.
- **University Bookstore and Café**  
This place offers imported books and ITB publisher, online books order, and campus atmosphere on café. The place is equipped by hotspot services so visitors can access internet easily. It is located on East Campus Center 1st Floor. University bookstore and café are opened Monday to Friday, 8:30 am to 4:30 pm.

### 1.2. Center of Campus Information Services

This center is located at the main gate of ITB campus. Visitors can get information they need regarding ITB in general and its campus from this center.

### 1.3. Central Library

The library provides information services to ITB and society. It has about 291,400 book titles and 9,113 magazines collections. The services include lending books, audio visual, ordering copy from other libraries in Indonesia and overseas, and internet services. Central Library's members are lecturers, students, administration staffs, alumnus, American Corner, etc. It is located at Jalan Ganesha 10 Bandung 40132, and phone/fax: +6222-2500089, email: library@itb.ac.id.

### 1.4 Counseling Center

Students can consult their academic or non-academic problems in Counseling Center, which has stood for since 1982. Counselor team is instructor staff in ITB and has certificate from National Training for Counselling for university.



Doc. Indra Yudha

## 1.5. Computer Laboratories and IT Facilities

- **Comlabs USDI**  
Comlabs provide services for civitas academica such as courses, public access (internet, typing, AI3, students email, print, backup data, download, etc), information technology service (Microsoft Legal Software, AI3 account, hotspot, web hosting, IT consultation), special service (workshop and IT seminar, Free Saturday Lesson, Bulletin IT). It is located on TPB Building 1st floor. Phone/Fax: +62-22-2516760, email: info@itb.ac.id. Access time: Monday to Friday, 8:00 am – 9:00 pm, Saturday 8:00 am to 12:30 pm.
- **Hotspot**  
ITB Hotspot is wireless service connection in strategic place in ITB. To use this service, users must have sets of computer equipment, laptop or PDA, which has wireless LAN (Wifi) 802.11b/g. User is asked to enter username password ITB Network Account (INA) as authentication system. And set proxy HTTP on your browser: cache.itb.ac.id with port 8080.  
For more information about ITB Network Account (INA) or to get ITB-INA, user can call Information Technology & Systems Directorate office. ITB-INA service also provided in voucher that can be bought and be valid everyday.

Hotspot places in ITB:

- a. Comlabs ITB (inside and outside)
- b. Eastern Campus Center
- c. South Gate of ITB
- d. Selasar Labtek III
- e. Selasar Labtek IX B
- IP phone

One of ITB Smart Campus policy program is to build ITB Digital Phone System applied newer communication system of technology (Next Generation Network, NGN), operating on network bases Internet Protocol (IP), as a result development of ITB research. This program has the same aim with Smart Campus Principle, where ITB campus is an applied place and tested of the result of ITB civitas academics.

Digital telephone ITB services:

- a. To get the information, call Customer Service in +62-22-4254121 or website <http://telepondigital.itb.ac.id>
  - b. To get technical problems, call telephone Operator in +62-22-4254123.
  - Legal Software
- ITB provides legal software to avoid piracy in campus. From 2003, ITB start Campus Agreement (CA) programs with Microsoft to buy products license with reached price and subsidy from ITB. License products: Windows XP Professional with Service Pack 2, which is operating system for PC/Pentium, Microsoft Windows Vista Business Upgrade, Microsoft Windows 8, Microsoft Windows 10, Office Professional XP 2007 (Word,

Excel, PowerPoint, Access, and Outlook, OneNote), Microsoft Office 2004 for Mac Standard Edition, for others operating system, and Vista Professional 2003, Virtual PC 2004, Emulator operating system, Encarta Premium 2007 (complete encyclopedia), Project Professional 2003, Visual Studio 2005, Windows Server 2003, Share Point and Other Server Products, for server applications. To get legal software, please call USDI or Comlabs ITB.

## 1.6. Language Center

ITB Language Center offers courses for ITB students and staff, as well as for groups outside of ITB. ITB language Center specializes in Pre-departure courses, TOEFL Preparation Courses, and Courses in English for Specific Purposes especially in science and technology.

The Language Center offers services:

1. English, Japanese, German and Chinese courses
2. Translation
3. TOEFL-like Test
4. Language Consultant
5. Language Training for English Teachers
6. Indonesian Language Course for Foreigners

## 1.7. Publisher

ITB publisher is an auxiliary business in the area of printing and publishing books and literatures. This unit gives support to academic program such as giving the opportunity for ITB lecturers to publish their books, lecture notes and publishing foreign literatures in Indonesian. It is located on Central Library Building.

## 1.8. Students Dormitories

ITB provides 7 buildings for male dormitory and 1 building for female dormitory. The dormitory accommodates 294 students in total, 245 male students and 49 female students. The permission to stay in the dormitory is one year and can be extended if the requirement fulfilled.

- Dormitory H, located at Jalan Cisitua Lama 27, with capacity



Doc. Indra Yudha



Doc. Indra Yudha



23 (twenty three) people, and one room is for 3 (three) people maximum.

- Dormitory Kidang Pananjung, located at Jalan Kidang Pananjung, near asrama H with capacity 300 people, and one room is for 4 (four) people maximum.
- Dormitory Bumi Ganesha, located at Jalan Cisitua Baru No. 35, Bandung 40135, and phone +62-22-2502445, capacity 120 people, one room is for 3 (three) people.
- Dormitory Kanayakan for female, located at Jalan Kanayakan Lama No 61 Bandung 40135, capacity 180 people with one room is for 3 (three) people. Phone +62-22-2512057, email: ap-itb@egroups.com.

In Bandung there are also other dormitories, such as:

- Aceh Students Dormitory, Jl. Belitung 3 dan 7
- Putri Salman Dormitory, Jl. Ganesha 7
- Bali Students Dormitory, Jl. Ciung Wanara 3
- Banu Hampa Dormitory, Jl. Cisitua Baru 16
- Bumi Rengganis Dormitory, Jl. IR. H. Djuanda 438
- Gorontalo Students Dormitory, Jl. Cihampelas 88
- Gunung Kerinci Students Dormitory, Jl. Cihampelas 89
- Jawa Timur "Surya Putra" Dormitory, Jl. Sekeloa Utara I/8
- Kalimantan Selatan "Dermang Lehman" Dormitory, Jl. Cisitua Lama 13
- Kaltim "Lamin Mahakam" Dormitory, Jl. Titiran 2
- Lampung Sebauai Dormitory, Jl. Hasanuddin 14
- Ligar Harum Dormitory, Jl. Cihampelas 22A/35B
- Mahasiswa Panca Citra Dormitory, Jl. Ranca Bentang I/45
- Minahasa Students Dormitory, Jl. Banda
- Perhimak Kebumen Dormitory, Jl. Cisitua Baru 37
- Putra Kalbar "Kapuas I" Dormitory, Jl. Soka 8
- Putra "Kenanga" Dormitory, Jl. Terusan Halimun 54
- Putri "Budi Istri" Dormitory, Jl. RE. Martadinata 110
- Putri "Kenanga" Dormitory, Jl. Sabar 11
- Putri Kalbar Dormitory, Jl. Haruman 7
- Sul-Sel "Wisma Latimojong" Dormitory, Jl. Lamping 17
- Sum-Sel Students Dormitory, Jl. Purnawarman 57
- Timah Dormitory, Jl. Ir. H. Djuanda 421

### 1.9. Student Health Service

Primary functions of the service are the diagnosis and treatment of illness, the activation and the maintenance of well-ness and the promotion of health education program. Located at Jalan Gelap Nyawang No. 102, and is open on Monday to Friday.

Health services in Bumi Medika Ganesha are provided for publics, especially executive, staff, students, and pension of

ITB. They have the right to use health subsidy from ITB.

Health Services in Bumi Medika Ganesha:

- Publics practice
- Dentist
- Specialist
- Family Planning Practical
- Rontgen and EKG
- Healthy Statement Letter (SKS)
- Clinic Laboratory (together with Prodia Clinic)
- Medicine services by Apotek Bumi Medika Ganesha
- Consultation

### 1.10. Student's Parents Association

Student's Parents Association (IOM) is an organization for associating student's parents of ITB students to construct and keep contact among student's parents. Its function is as a partner of ITB, within constructing of informal education having familiarity. Besides, IOM ITB attempts to collect fund for student's welfare, i.e. scholarship, dormitory and other social aid. The members of IOM are student's parents unparticularly be written state undecline to be the member of IOM. Since 2004, secretariat office of IOM ITB has been in Technical Implementation Unit of Library Building, 2nd floor. Phone +62-22-2512401, open Monday through Friday, 9:00 am to 4:00 pm, and Saturday, 9:00 am to 12:00 pm.

## 2. Career Development

Professional Community and Alumni Development (PCAD) encompass a broad range of programs designed to assist undergraduates, graduate students, and alumni of the University to explore their career options. PCAD acts as job supply (on this case), private or public industry) to maintain students' professionalism both on specific field (by technical training) and generic field (soft skill training). Open at Monday to Friday, 8:00 am to 4:00 pm.

## 3. Community Services

### 3.1 Canteens and Restaurants

There are some canteens in ITB:

- Canteen Gedung Kuliah Umum (GKU) Barat  
Located on Basement Floor GKU Barat, and is open from Monday to Friday, 7:15 am to 5:00 pm. This canteen provides Indonesian food such as opor ayam, ketoprak, es buah, es sari kelapa, coffee, milk, soft drink, etc.



Doc. Indra Yudha

- **Canteen Gedung Kuliah Umum (GKU) Timur**  
Small canteen which is located on GKU Timur building 1st Floor, and is open from Monday to Friday, 7:00 am to 5:00 pm. Students often visit this little canteen, because it is near college room, provide snack, coffee, etc.
- **Canteen Borju**  
Located on Labtek V Basement Floor, and is open from Monday to Friday, 7:00 am to 4:00 pm. We can get Indonesian and Western foods here.
- **Canteen Barrac**  
It is located near Architecture Department, and is open from Monday to Friday, 8:00 am to 4:00 pm.
- **Canteen Salman**  
Located on Salma's complex, across campus, and is open everyday, 7:00 am to 9:00 pm. Prasmanan food is provided here.
- **Canteen Barat Laut**  
Located on Ex-UPT Olah Raga Building, and is open from Monday to Friday, 8:00 am to 4:00 pm. Name of the canteen appropriate with the location in the Northwest. Many kind of food such as fried rice, noodle, capcay, and some Chinese foods can be found here.
- **Canteen Bengkok**  
It is located near Chemistry building, and is open from Monday to Friday, 8:00 am to 4:00 pm. This canteen has been built newer compared to others. Previously, Bengkok Building was provided as a secretariat of some students' activity units. This canteen has food and drink variously.
- **Resto Campus Center**  
Located on East Campus Center 1st Floor, and is open from Monday to Friday, 8:30 am to 4:30 pm.

**3.2. Children Care Bunda Ganesha**  
ITB provides children care services to help working parents. It accommodates 30 children ages 3 months to 5 years. It is open every working day from 7:00 am to 5:00 pm. It has indoor and outdoor playgrounds, sleeping rooms, and classroom. It also provides pediatrician, psychologist, nutritionist, and educator.

### 3.3. Sasana Budaya Ganesha (Sabuga)

Sasana Budaya Ganesha is the center for science, technology, and art. It has modern facilities to support academic activities and others such as conferences, symposiums, exhibitions, music concerts, and dance performances. The facilities include a big hall that can



Doc. Indira Yudha

accommodate 4.000 people, audio visual room, restaurant, meeting rooms, science and technology gallery, library for special collections, etc. Information of using Sasana Budaya Ganesha can be obtained from organizer, in SABUGA, Jalan Tamansari 73 Bandung, phone +62-22-4212043.

### 3.4. Sawunggaling Hotel

Sawunggaling Hotel provides services to ITB guests and alumni. It has 17 rooms (4 Executive Rooms, 12 Standard Rooms, and 1 Standard Corner), 1 meeting room for 15, Business Center, Art Gallery and Café, located in Jalan Sawunggaling No. 13 Bandung. Phone +62-22-4212043

### 3.5. Shops

Some shops in ITB campus

- **G.10 Shop**  
The shop is part of Koperasi Keluarga Pegawai (KKP) ITB. It provides photocopy, digital printing, stationary, food, drinks, souvenir, and glasses. It is located near East Hall and is open from Monday to Friday, 8:00 am to 4:00 pm.
- **TOKEMA**  
The shop sells stationary, snack, clothes, drinks, and ITB's souvenir. Located on Ex-UPT Olahraga Building Basement Floor, is open from Monday to Thursday. 9:00 am to 6:00 pm and Friday, 9:00 am to 11:00 am, 1:00 pm to 6:00 pm.

### 3.6. Soemardja Gallery

The Soemardja Gallery was established in its current location in 1993. As an oldest university gallery in Indonesia, the Soemardja Gallery serves as an educational complement to the Institut Teknologi Bandung (ITB) Department of Fine Art and as a cultural resource for the institute and Bandung arts communities.

Soemardja Gallery is the oldest university gallery in Indonesia and in Bandung. Founded in 1974, the gallery is

named after the late Syafe'i Soemardja, one of the founder of art education system in Indonesia. The gallery is located on the north side of Bandung and easily reached by public and private transportation. The gallery building is a part of the Faculty of Fine Art and Design and located near the grass field of the East Hall (Aula Timur), within the campus of ITB. As part of an educational institution, initially the gallery was a place for the academic circles of ITB to exhibit their works. Nowadays, it is a place for contemporary art exhibitions and for the students to learn and study the management of exhibitions and art programs through curatorial and volunteering works. To stimulate a wider general public on contemporary art issues, Soemardja Gallery also holds art programs such as discussions, seminars and workshops by artists and art experts in the national, regional and international level. The gallery also accommodates other visual art practices, including industrial design, architecture, craft, photography, and visual culture in general. Soemardja Gallery regularly runs art programs and exhibitions in cooperation with local, regional, international artists, various cultural foundation, and art institutions. The exhibition space is approximately 150 m<sup>2</sup> and is 4 m in height on one side and 2.4 m on the other side. The space is equipped with lighting facilities and portable panels.

#### 4. Common Facilities

##### 4.1. Banks and ATMs

Inside of ITB Campus, there are several bank and ATM that can be used by students, staffs, and others.

- Bank BNI, located on East General Lecture Hall (GKU Timur) Basement Floor and Jalan Tamansari No 80, open every Mon-

day until Friday from 8:00 am to 4:00 pm. There is also ATM BNI. Another ATM BNI is near Aula Barat.

- Bank Bukopin, located beside G.10 Shop, which is in front of ITB campus, open from Monday to Friday from 8:45 am to 3:00 pm, inside the bank, users can find ATM Bukopin.
- Bank Niaga, located on GKU Barat Building. Cashier Service every Monday until Friday from 8.30-15.30, ATM machine service can be accessed every Monday until Friday from 8:30 am to 5:00 pm.
- Bank BRI, located near G.10 Shop, which is in front of ITB campus.
- ATM Mandiri and ATM BCA, both of ATM is near G.10 Shop, in front of ITB campus.

##### 4.2. Places for Worship

Around ITB, there are some places for worship. As most Indonesian people posses Islamic faith, there is Salman Mosque, which is located near the ITB campus. People who embrace Christians faith can also find a range of churches nearby. There are Catholic, Pentacost, Methodist, and Seventh-day Adventist churches in the city. The nearest Protestant church is GII, located on Jalan Cikapayang. The closest Catholic Church is in the St. Borromeus Hospital complex.

Bandung's St. Peter's Cathedral is only 10 minutes away by public transport from the campus. Hindu temples can be found in Ujungberung and Cimahi, both about 1 hour drives away from ITB. There is a Buddhist temple on Jl. Ir. H. Juanda, just five minutes away by car from the campus. There are numerous other Buddhist temples in the city.

##### 4.3. Sports Center

The Sport Center has Olympic-size swimming pool, kids swimming pool, and diving pool. There are also football field, basketball fields, volleyball fields, tennis courts, jogging track and fitness center within the area. The facilities are mostly used for sport courses of 1st year students. The facilities are also used for other activities such as football school, tennis lesson, jogging club, swimming lesson, and other programs. Information about facilities can be obtained at the office of Sport Department which is located under Swimming Pool – Lebak Siliwangi, phone: +62-22-2500078, ext 8854.

#### 5. Student Activities





In addition to studying and doing other academic activities, ITB maintains that campus organizations are a contributing factor to a student's education. They provide the opportunity to extend classroom experiences into relevant programs that develop social skills and provide leadership opportunities. Therefore, ITB encourages all students to be involved in the non-academic activities such as those in the student associations and students activity units. Throughout the year, more than fifty-three different activity units provide a various activities for students to be involved in.

### 5.1. Student's Union (KM ITB)

Studentship literally is all of activities held by students due to student's role itself, i.e. iron stock, agent of change, and guardian of value. For realizing those roles, students need a tool called as students' organization. ITB students have this kind of organization namely Student's Family Bandung Institute of Technology (KM ITB). KM-ITB which was declared on January 20th 1996 has five main bodies, Congress as legislative institute, Cabinet as executive institute, Student's Associations, Student's Activities Units, and aspiration league that is called Badan Koordinasi Satuan Kegiatan (BKSK).

### 5.2. Undergraduates Students Activity Units and Associations

There are different activity units which

provide a variety of activities for students.

#### Student's Activities Unit

##### Arts

- Aceh Cultural Group (UKA)
- Angklung Group (KPA)
- Bali Cultural Group (MGG)
- Borneo Cultural Group (UKB)
- East Java Cultural Group
- Grup Apresiasi Sastra ITB "GAS-ITB"
- Irian Jaya Cultural Group (UKIR)
- Japanese Study Group (UKJ)
- Java Cultural Group (PSTK)
- Lampung Cultural Group (UBL)
- Mahasiswa Bumi Sriwijaya (MUSI)
- Marching Band ITB "Waditra Ganesha" (MBWG)
- Minangkabau Cultural Group (UKM)
- Music Appreciation (Apres ITB)
- North Sumatera Cultural Group (UKSU)
- South Sulawesi Cultural Group (UKSS)
- Student's Choir (PSM-ITB)
- Student Theater Group (STEMA)
- Sunda Cultural Group (LSS)

##### Education

- Amateur Radio Club (ARC)
- Blood Donor Society "KDD"
- Boy Scouts
- Buddhist Student Society "Dhammanano"
- Catholic Student Society "KMK"
- Cendekia ITB
- Christian Student Union "PMK"
- GaneshaTV (GTV)
- Hindu Student Society "KMH"
- Islamic Students Society "GAMAIS"
- Kelompok Analisa dan Komunikasi Islam Strategis
- Kelompok Studi Sejarah Ekonomi dan Politik (KS-SEP)
- Keluarga Mahasiswa Pencinta Alam Ganesha "KMPA"
- Koperasi Kesejahteraan Mahasiswa "KOKESMA"
- Korps Sukarela Palang Merah Indonesia (KSR-PMI)
- Liga Film Mahasiswa "LFM"



- Lingkar Studi Gerakan Mahasiswa Madani (LSGMM)
- Online Game Research Group (OGRG)
- ITB Student Press (Persma)
- Radio Kampus ITB
- Salman ITB (Karisma)
- SICOS: Scientific Collaboration Studies
- Societal Study Union "PSIK"
- Studi Komunikasi Massa ITB
- Student English Forum "SEF"
- Student Regiment Battalion I/ITB (Menna)
- Student's Tabloid Boulevard
- Unit Kelompok Studi Ekonomi dan Pasar Modal (KSEP)
- Unit Pembinaan Kewirausahaan Mahasiswa "UPKM"

#### Sports

- Aerokreasi
- Aikido
- Archery (PASOPATI ITB)
- Badminton
- Basketball (UBG-ITB)
- Bela Diri Hikmatul Iman
- Bridge (UAB)
- Chess
- Football ITB (PS ITB)
- Ganesa Bicycles
- Hockey
- Judo ITB
- Kempo
- Kendo ITB
- Karate ITB
- Kyokushinkai
- Pencak Silat Tenaga Dasar Indonesia
- Pendawa Padma
- Perisai Diri
- Satria Nusantara
- Sinar Putih
- Softball

- Table Tennis
- Tae Kwon Do
- Tennis ITB
- Tri Eka Dharma Margaluyu "313"
- Tarung Drajat (Boxer)
- Unit Renang dan Polo Air (URPA)
- Volleyball (UBV)
- Wanadri

#### Student's Association

- Architecture Students Association "IMA-G"
- Art and Design Students Association "KMSR"
- Astronomy Students Association "HIMASTRON"
- Biology Students Association "NYMPHEA"
- Chemical Engineering Students Association "HIMATEK"
- Chemistry Students Association "AMISCA"
- City and Regional Planning Students Association "PAN-GRIPTALOKA"
- Civil Engineering Students Association "HMS"
- Electrical Engineering Students Association "HME"
- Engineering Physics Students Association "HMFT"
- Environmental Engineering Students Association "HMTL"
- Geodesy Students Association "IMG"
- Geology Students Association "GEA"
- Geophysical Engineering Students Association "Terra"
- Geophysics Students Association "HMGF"
- Industrial Engineering Students Association "MTI"
- Informatics Engineering Students Association "HMIF"
- Material Engineering Students Association "MTM"
- Mathematics Students Association "HIMATIKA"
- Mechanical Engineering Students Association "HMM"
- Mining Engineering Students Association "HMT"
- Petroleum Engineering Students Association "PATRA"
- Pharmacy Students Association "Ars Preparandi"
- Physics Students Association "HIMAFI"

#### DISTANCE EDUCATION and LEARNING TECHNOLOGIES

##### 1. School on Internet (SOI)



SOI ITB is an activity aimed to create a new breakthrough and an improvement for the Indonesian education by using Internet. SOI ITB is an abbreviation of School on Internet Institut Teknologi Bandung. SOI ITB is the continuation of the research about education and internet technologies. SOI ITB tries to make the distance learning becomes more realistic, so the students may feel like they are attending the real class, so that the distance doesn't matter anymore.

'School on Internet' is an educational environment using Internet technologies. Indonesian geographical condition that consists of thousands islands spreading from Sabang to Merauke, is a huge challenges to establish education nationally. The main problem faced by the lecturer is the location of universities in Indonesia, which spreads thorough all over Indonesian territory. It wastes time and money caused by the long distance. By using 'school on internet', those problems vanished. It's a new method to make effective and efficient distance class through coordination among universities using Internet technologies. All of 'School on Internet' activities are done by using internet. The teaching and the lecturing activities are held by using 'video conference' method over the internet by the lecturer at ITB. The registration and the exercise submission are done through SOI ITB website.

This system is developed to support academic lesson in Institute Teknologi Bandung. Collaboration between lecturers and students is expected more intensive by the system. To use this facility, students have to register first. For further information, email: [soi-team@soi.itb.ac.id](mailto:soi-team@soi.itb.ac.id) or

Contact

Information Technology & Systems Directorate

Gedung CCAR Lantai 3

Jalan Tamansari 64 Bandung

Phone: +62-22-4254121, ext 12305

Fax: +62-22-2515034

## 2. E-Learning

This system is developed to support the academic activities in ITB. The collaboration between lecturers and students is expected to be done intensively by this system. Students should register first to use this online system.



Doc. Indra Yudha







# ITB Multicampus

Jatinangor ITB Campus was established in 2011 on the 46 hectares of land owned by west java province's government. The Development of Jatinangor ITB Campus is a part of ITB's Long-Term Strategy to achieve it's vision and mission.

Jatinangor ITB Campus will grow as a meeting point for all stakeholders in order to create the elements of education and research environment. The development agenda includes :

1. Academic Enhancement Programs,
2. Infrastructure Enhancement Program based on an Infrastructure Development Masterplan, and
3. Student Life Enhancement Program. The aim of Jatinangor ITB Campus development program is to support









# Potrait of Ganesa Campus

# The Footsteps: from TH to ITB

## The Beginning of TH

ITB has a unique history. Just imagine how difficult it was when the founding fathers tried to convince the government of Dutch East Indies—nearly a hundred years ago—that a university should be established in Indonesia. Until 1910, as told in a blue-covered book—*Dari TH ke ITB* (From TH to ITB)—, Indonesian people in general, and Dutch people in particular, believed Indonesia was too unfit to have a university.

It was K.A.R. Bosscha, Klopper, Ijzerman, and B. Coops the gentlemen who played significant role as the founding fathers of this institute. Planter of Malabar, Pangalengan, Bosscha was the appointed chairman of *College van Directeuren* (Board of Directors); an institution that fitted the needs for campus building and educational undertaking prior to the handover of this university by the government in 1924. Prof. Ir. J. Klopper—then appointed rector—was the first *Magnificus* of TH. Along with J.W. Ijzerman, Chairman of *Raad van Beheer*, Klopper left of Holland on March 8th, 1919 to undertake the mission.

Klopper and Ijzerman arrived in Indonesia on April 19th, 1919. By that time it was uncertain where TH would be built—whether in Solo, Yogyakarta, Jakarta, or Bandung. *Technisch Onderwijs Commissie* (Technical Education Commission) preferred Jakarta, while Bandung Mayor B. Coops explicitly said his city was willing to accept the idea, and he immediately proposed a proper location: a cool area in Northern Bandung which has the beautiful Mount Tangkubanparahu as its background. General Governor Mr. J.P. Graaf van Limburg Stirum approved to the proposal.

TH (*Technische Hoogeschool*/Technical College) was officially started on July 3rd, 1920, refuting the general belief mentioned above. In the following years other universities appeared on the scene, e.g. the Jakarta-based Law College in 1924 and Stovia (*School tot Opleiding van Indische Artsen*) in 1927.

## TH Hand-over

On October 18th, 1924, at the hall of TH campus (the present West Hall “Aula Barat”), a ceremony was held to mark the handover of TH from a private institution to the government of Dutch East Indies. In his speech General Governor Mr. D. Fock said that the event was not unexpected, but was something that had been dreamed for. Since TH had become a state university, some institutions were consequently dissolved. K.A.R. Bosscha, one of the men who had directed TH for four years, was appointed to be President of *College van Curatoren*. As a tribute to Mr. Bosscha’s contributions, a physics laboratory that officially opened on March 18th, 1922 was named Bosscha Laboratory.



K.A.R. Bosscha



Kloppe



Ijzerman



B. Coops

## Bandung Kogyo Daigaku and STT-Bandung

Shortly before Japanese occupation, TH was temporarily closed down for all of its professors had been forced to join the militia. On April 1st, 1944 the Japanese Military government reopened TH under new name: Bandung Kogyo Daigaku. Following the Declaration of Indonesian Independence in 1945, Bandung Kogyo Daigaku came to an end, and the technical university was reopened under the name of Bandung Technical College (STT-Bandung).

Amid the tense atmosphere of the independence revolution, STT-Bandung was moved to Yogyakarta for all of its lecturers and staffs were ordered to take refuge. Due to the attack of Dutch soldiers in Yogyakarta, STT-Bandung was closed down in December 1948 and was reopened in 1949 with only Civil Department operated. Finally, following the establishment of Gadjah Mada University in 1949, STT-Bandung was integrated to it as its technical faculty.

## A Branch of UI

Meanwhile, on June 21st, 1946 Nood-Universiteit (Temporary University) was established, and then became Universiteit van Indonesie (University of Indonesia). TH Bandung was also restarted not in the form of an autonomous college, but as a faculty of the university named Faculteit van Technische Wetenschap (Faculty of Technical Science) chaired by Prof. Dr. K. Posthumus.

In 1950 it changed its name as Fakultet Teknik Bandung (Bandung Technical Faculty), then in 1951 it became Fakultet Pengetahuan Teknik (Faculty of Technical Knowledge), and in 1952 it became Fakultet Teknik Bandung, and Fakultas Teknik Bandung in 1956.

On October 6th, 1947 another faculty was established, i.e. Faculteit van Exacte Wetenschap. Since 1950 the faculty has changed its name into Fakultet Ilmu Pasti dan Ilmu Alam (FIPIA) and was led by Prof. H. Th. M. Leeman.



## The Birth of ITB

Since 1952 the idea to integrate these Bandung based faculties so that they could constitute an independent university had been thoughtfully considered by some circles. Indonesian Engineer Association (PII) led by Ir. H. Juanda was one of organisations that keenly promoted the idea. A meeting held at Technical Faculty on February 9th, 1957 was the first step in assuring the idea to be come true. In the beginning, the name proposed for the coming university, as been put forward on February 25th, 1957, was Institut Teknologi dan Pengetahuan Alam (Technology and Natural Science Institute).

Under Government Regulation No. 6/1959, which was signed on February 28th, 1959, Institut Teknologi Bandung (ITB) was established. On March 2nd, 1959, in a ceremonious event at the campus to mark its opening, President Soekarno turned the name plate that read 'Fakultas Teknik dan Fakultas Ilmu Pasti dan Ilmu Alam, Universitas Indonesia' over so it showed the new identity: 'Institut Teknologi Bandung'.

In the first year ITB consisted of three departments: Technical Science Department, Exact and Natural Science Department, and Department of Chemistry and Biology. In 1961 it had been developed into seven departments:

1. Faculty of Mathematics and Natural Sciences (FMIPA), consisting of DIPIA and DKB,
2. Faculty of Civil Engineering and Planning (FTSP), consisting of DTS and DPSR,
3. Faculty of Industrial Technology (FTI), consisting of DME, DFTTK, and DTM.



## Ganesa Campus at a Flying Glance

Had Bandung Mayor B. Coops not approved to the proposal of Koninklijk Instituut voor Hoger Onderwijs in Nederlands Indie (Royal Institute for Higher Education in Dutch East Indies)—a private organization that initiated and ran TH before 1924—, ITB would not have existed in Bandung. It was he the gentleman who proposed that TH could be built at a corner of the chilly Land of Sunda, though Jakarta was also considered as a feasible location.

What a brilliant decision on the part of Mr. Coops, for he chose an area of about 30 hectares near the brink of the beautiful Cikapundung with its green paddy fields spreading out evenly in the panorama of the charming Mount Tangkubanparahu. It was a perfect natural composition that had inspired Henri Maclaine Pont, the first architect and master planner of this campus, to settle an imaginary line as the basic cord to tie masses and spaces. This basic concept has been preserved by his successors in further master plan development.



Doc. ITB



## Old Bandung

A simple account of the city of Bandung prior to the establishment of Ganesha campus seems to be necessary to illustrate the atmosphere of the land of Parahyangan at the time. In the beginning there was the successful establishment of the Groote Postweg (Post Road) (now Jl. Asia-Afrika). Spreading out across Java, from Anyer in the west to Panarukan in the east, the road was built in the reign of Dutch East Indies General Governor Herman Willem Daendels (1808-1811). Bandung was previously a small village in Parahyangan. According to Juliaen de Silva's records, in 1641 it was known as Negorij Bandoeng or West Oedjoeng Broeng with its centre in Karapyak (now Dayeuhkolot), about 11 km south of Post Road (H. Kunto,

For the benefit of the colonial government, on May 25, 1810 the centre was moved from Krapyak to the present day Bandung Square. Apart from the impact of the Post Road that had connected Bandung to other main cities across Java, the growth of Bandung city was accelerated by the development of railways that connected Bandung to Sukabumi, Buitenzorg (now Bogor), and Batavia (now Jakarta) in 1884.

Since the issuance of wet Suiker (Sugar Law) and wet Agrarische (Agricultural Law) by Dutch parliament in 1870, the population of Bandung has grown rapidly. Investments were growing as well as plantation activities. Her fame as a plantation region of Tatar Sunda has been increasingly grown. Her cool weather and fine geographical conditions are attractive so that Bandung could become a new shelter as the city of Batavia began to be abandoned by Europeans due to environmental problems and poor sanitation. Under these conditions, Bandung had once been expected to become the capital of Dutch East Indies. On 1 April 1906 Bandung became a Gemeente (autonomous town) so the develop-



ment began to be enhanced in large scale. In 1914 the headquarters of the joint military-DOV Departement van Oorlog (Department of Warfare) moved to Bandung.

The campus of ITB (Hoogeschool Technische te Bandoeng/Technical College of Bandung) which was officially opened by the General Governor of Dutch East Indies in July 1920, was part of the whole facilities of Bandung due to the plan made by Dutch colonial government. The establishment of Gedung Sate, by architect Ir. Gerber (Departement van Gouvernementsbedrijven - GB) on January 1, 1921, was also part of the scenario.

Various facilities such as government buildings, post offices, telegraph and telephone offices; trade/commercial centre, weapons manufactory, and many others, were also constructed in the 'development' period that lasted from 1900 to 1940. It is not surprising that in this period Bandung was called

'Laboratory of Architecture'. Bandung was not only well developed with her various infrastructures, but also was well planned and designed. Hence, the Stadsgemeente Bandung, which as seen as the prototype of Dutch East Indies colonial city, was appointed to the Internationaler Kongress für Neues Bauen in Athens from July 29 to August 31, 1933.



Doc. Harsono Taropratjeka



Doc. Indra Yudha

## Preliminary Master Plan of Ganesa Campus

The establishment of ITB campus was initiated by a European/Dutch philanthropic group, which consisted of Priangan planters (Preangerplanters) such as of E.J. Kerkhoven and his nephew K.A.R. Bosscha. In its early years ITB was operated with a curricula that was equivalent to the one of a similar university in Delft, i.e. TU Delft. General Governor of Dutch East Indies Mr. J.P. Graaf van Limburg Stirum (1916-1921) officially opened the campus on July 3, 1920.

ITB campus was originally adjacent to Jl. Ganesha on the south side and Jl. Tamansari on the west and north side; and now it has been expanded to Lebak Siliwangi along Jl. Tamansari.

Based on building register as currently shown at FSRD and FTSP, TH campus originally occupied a wide area, which was divided into two large parts. The group of buildings on the west (FTSP and Department of Civil Engineering buildings) is number 12, while the group of buildings on the east is number 10.

ITB complex was originally comprised of only three units of main building and several units of supporting building. These building units spread out from the southern main entrance, which were connected to each other by a peristyl (hall) that has several columns of river stone. The stones and other materials such as wood, stone walls, exposed paths, and shingle roofs were composed in order to give a natural touch while adapting to the tropical climate.

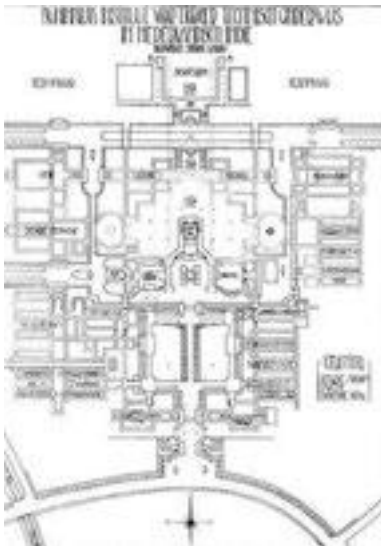
Ir. Henri Maclaine Pont designed the main campus buildings, namely the West Hall (Aula Barat) and East Hall (Aula Timur). His works experimentally represent the combination of traditional architecture of the archipelago and modern construction techniques. This style is known as Indisch Architecture. Struck by its shingle roofs, Bandung residents used to call the compound Gedong Sirap (Shingle Building).

When the campus master plan was prepared, on the southern side of Jl. Ganesha a park was built as a tribute to Dr. Ir. J.W. Ijzerman, and it was named Ijzerman Park. This park was designed in the form and with the style of Indische Tropische Park; a kind of Priangan tropical

Doc. ITB







Doc. ITB

landscape promoted by Bandoeng Vooruit group. It was also influenced, however, by French and Italian style of late Middle Ages that precede the renaissance.

The present day Ganesha Park was part of TH campus. This oval-shaped and symmetrical garden was equipped with a fountain and a sort of terrace on its higher part. Around its patio stone pillars with typical vines of ITB, *Pyrostegia*, also decorated the park. According to botanist Dr. L. Van der Pijl (1950), this particular vine vegetation was imported from South America through Australia by A. Kerkhoven to decorate the ITB campus (H. Kunto, 1984).



Doc. Indra Yudha



Doc. Indra Yudha

## Further Development

Due to the institutional development that should be in harmony with any recent progress, the needs for new facilities were inevitable. Limited campus area requires a referral as a means of controlling the subsequent development. In general, the pace of ITB campus development can be divided into several stages, each of which has its own characteristics.

### 1950s

In this era a number of funds provided budget for physical construction of the campus, and it used materials from the spoils of war. It constructed several buildings, i.e. the ones of Department of Architecture, Biology, Geodesy, and Chemistry. These four buildings represented a prototype of prefabricated buildings, such as the ones that at the time was usually functioned as office/barrack of United States army. Apart from department buildings, several other buildings were also built, including Scientific Meeting Hall at Jl. Surapati 1 and the Centre for Housing Research and Development in northern campus, which was then granted to the ITB. Currently School of Business and Management uses the building. Natmeisnig and Kopeinig, Austrian architects that joined Sangkuriang Architects Bureau, designed both buildings (Rahaju BUK, 1996).

### 1968-1973

In this period ITB had an institution responsible for controlling physical development of the campus, namely Development Bureau of ITB. In the national context, this period was known as Repelita I. In this period, several semi-permanent buildings were built to meet urgent needs. Several departments were forced to do their activities in these buildings, including Department of Pharmacy and Biology. One of the semi-permanent buildings, known as BRT building (Household Bureau), had even moved several times (Rahaju BUK, 1996).



## 1973-1978

In this period, due to government program in coordinating national development, ITB set out a long-term plan known as Academic Master Plan and Physical Master Plan. Introducing a matriculation to undergraduate students at their first year known as Common Preparation Stage (TPB) changed the academic system of ITB. It therefore needed a common lecturing facility, the use of which did not restricted to one of its departments. Among several buildings that were built at the time were classrooms for studium generale—TVST or Octagon: two separate octagons that were related to each other

## 1978-1983

Campus development in this period was focused in providing buildings in order to support common activities, mainly the ones that were related to education and teaching. At north of Department of Environmental Engineering ITB built two lecturing facilities known as Twin Buildings that face to each other. These buildings had in turn been demolished when ITB built several buildings on the previous soccer field. At its western campus it also built General Lecture Building (GKU), which was mainly used for students at TPB.

To meet the need for inauguration, for the benefit of not less than 2000 graduates in every session, ITB built a huge and large building, which was rare at the time. Some teaching staffs of Department of Architecture collectively designed the Gedung Serba Guna (GSG): Goenawan Atmosoetjpto, Raswoto, Tatang S.J., Huthudi, Prabowo, and of Department of Civil Engineering: Budihardjo.

There were other buildings that were not general facilities built in this period, one of which was Labtek IV that was used by several departments at FIKTM. ITB also built Centre for Education in photogrammetric and Cartography at



Doc. Indra Yudha



## 1983-1990s

In this period ITB was in need for expanding campus area so that it could be adjacent to Lebak Siliwangi (Siliwangi Valley). So far, the 30 hectares campus had in turn been felt confined, due to the growing development of departments that surely required new facilities. It also had been in need for a sport centre, not only for ITB students but also for general public. Hence, ITB stakeholders supported the idea to develop Lebak Siliwangi without neglecting the importance of preserving its natural feature.

There were also changes in the structure of organization of ITB as the role of Development Bureau was handed over to the authority of Vice Rector of Development. Three important buildings were built in this period, i.e. Main Library that Slamet Wirasonjaya designed its preliminary concept, Centre for Interuniversity Cooperation (PAU), and East General Lecture Building (GKU). There was also a need to redesign northern area of the campus, which was so far treated as merely campus backyard, so an architectural contest was organized in search of a suitable design for redesign Northern Gate. AR-81 student Mohammad Tirta won the contest. His design had been retouched as ITB built a new facility, i.e. Sunken Court, an underground facility that connects Ganesha Campus to Lebak Siliwangi.





## 1992-2001

In 1992 ITB had made Master Plan of Development (RIP) of ITB for the period 1992-2001 that provided a long-term plan for the next ten years. According to this document, campus development would emphasize its priority on the field of strategic science and technology, which dealt with material and energy, manufacture and process, information and telecommunication, transportation, bioscience and biotechnology, and environment.



Doc. Indra Yudha

In the matter of physical development of this period, ITB had a chance to develop various facilities along with their properties in the very significant volume. Overseas Economic Cooperation Fund, a Japanese government financial institution, provided the Loan OECF IP-401 to support the development in the first stage (1992-1997) and Loan OECF IP-434 for the development in the second stage (1994-2001).

The team led by project manager Mame Sutoko built Labtek V, VI, VII, and VIII in an area that previously was functioned as soccer field, Labtek IX A, IX B, and IX C in south eastern campus, Labtek X and XI, and Sabuga Complex in Lebak Siliwangi. Other facilities that were built with this fund are Plaza Widya Nusantara and Sunken Court.

Labtek V and VI were built for the benefit of some departments and academic supporting units, each of which was 8,750 square metres. Wider buildings of Labtek VII and VIII were also built, each of which was 11,000 square metres. One of the golden chances to relate one building to the other had been met rightfully. These four buildings are related to each other through the open space of Plaza Widya Nusantara, which simultaneously accentuates the imaginary line of the campus. The continuum of this line reaches the farthest northern side of Ganesha Campus that is at an open space between Main Library and Centre for Interuniversity Activities (PAU).

Sunken denotes to an underground space, and yet it has a contact with a higher space. Around the sunken is a space used by student units, which is directly related to the sport centre in Lebak Siliwangi. In the context of urban life, the open space is a prototype of campus underground facilities.

Labtek IX A, IX B, and IX C consist of building compound that is used by some departments, especially at FTSP. These buildings were designed in reference to the structural elements of West and East Halls. Round column of small river stones and unique roofs are main elements of their mass compositions. There is an open space in the form of amphitheatre that usually utilized by students and departments.

Labtek X and XI are entirely different from the legendary West and East Halls. These buildings, each of which is 7,600 square metres, are located in the far west-north side of the campus. Between the two buildings is a common facility, which is 1,200 square metres. For this building is dominated by blue colour, campus community call it the Blue Labtek "Labtek Biru".

One of the buildings developed in this period which is not located in Ganesha Campus is Sasana Budaya Ganesha (Ganesha Cultural Auditorium). It was originally designed to meet the need for a proper and representative place for inauguration. With its main hall that can accommodate 4000 people was first designed by Slamet Wirasonjaya. In the present day urban activities such as exhibitions, shows and performances, and scientific meetings were held at this building. As this facility is connected to sport facilities around, it doesn't only meet the need of ITB but also meet the need of general public.

In addition to be utilized in the development of public facilities and buildings for the benefit of academic activities at ITB departments, the loan from OECF is also utilized in the construction of the Office of ITB Rector. The old building was renovated, and a new building, which is 6,000 square metres was built. This five stories building is functioned as Centre for Academic Information and Data of ITB, which facilitate the activities of ITB bureaus. Inside the building there are several offices, one of which is functioned for student registration. The upper floor of the Annex Building is functioned as auditorium, which is usually utilized for conducting doctoral promotion.



Doc. Indra Yudha



Doc. Indra Yudha



Doc. Indra Yudha









## Information of School/Faculty Study Program







# FACULTY OF MATHEMATICS AND NATURAL SCIENCES

Originally, the Faculty of Mathematics and Natural Science (Fakultas Matematika dan Ilmu Pengetahuan Alam, FMIPA) was called Faculty of Exact Science. It is comprised of a Mathematics Study Program, Physics Study Program, Chemistry Study Program, and Astronomy Study Program.

Those who choose to study in FMIPA will learn about natural (physical) sciences (in contrast to biological/life sciences). FMIPA is an exciting choice for students, since they will be given a strong science foundation and will be encouraged and taught to apply fundamental knowledge in solving various challenges within the community.

Each of the study programs in FMIPA has its own area of expertise.

1. The study of mathematics in the Mathematics Study Program not only deals with numbers and theorems, but is also applied in modeling and financial problems.
2. The Physics Study Program offers a scientific stimulating experience to students with many of its technological applications from a miniscule scale to very large size, such as nano-photonics and micro-electronics, nuclear engineering as well as earth physics surveying.
3. Students at the Chemistry Study Program will learn not only about mixing chemicals but far deeper into an understanding of the theoretical background and simulating it with computational chemistry.
4. Students in the Astronomy Study Program investigate physical phenomena of the heavenly bodies, from solar flare and the atmosphere of Titan (a moon of Jupiter) to the black hole at the centre of the galaxy.

Our research groups:

1. Algebra Research Group
2. Analysis and Geometry Research Group
3. Analytical Chemistry Research Group
4. Astronomy Research Group
5. Biochemistry Research Group
6. Combinatorial Mathematics Research Group
7. Industrial and Financial Mathematics Research Group
8. Inorganic Chemistry and Physics Research Group
9. Nuclear Physics and Biophysics Research Group
10. Organic Chemistry Research Group
11. Complex System Physics Research Group
12. Electronic Material Physics Research Group
13. Magnet Physics and Photonics Research Group
14. Statistics Research Group
15. Theoretical Physics and Instrumentation Research Group

Dean

: Prof. Dr. Edy Tri Baskoro, M.Sc.

Vice Dean for Academic Affairs

: Prof. Drs. Abdul Waris, M.Eng., Ph.D.

Vice Dean for Resource Planning and Management : Dr. Indra Noviandri, MS

# MATHEMATICS

The Master's Program in Mathematics, FMIPA, Institut Teknologi Bandung offers a program to enrich students with a higher level of mathematical abilities, to prepare them for advanced studies (at doctoral level) or job markets where mathematics is used extensively. Students, with guidance from their academic counselors, will design their own program based on their interest linked with the on-going research in the research groups of Algebra, Analysis and Geometry, Combinatorial Mathematics, Industrial and Financial Mathematics, and Statistics.

Possibilities of pursuing multidisciplinary studies with other research groups in ITB, or other universities, or with industries are available. Applicants are not assumed to have a Sarjana (Bachelor) degree in mathematics. Nevertheless a strong background in multivariable calculus, matrix algebra, and statistics are necessary.



## ADDRESS

Institut Teknologi Bandung  
Gendung Center for Advanced Studies (CAS) 4th and 5th Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : (022) 2502545  
(022) 2534175

Fax : (022) 2506450

Website : [www.math.itb.ac.id](http://www.math.itb.ac.id)

Email : [prodi-ma@math.itb.ac.id](mailto:prodi-ma@math.itb.ac.id)

## Curriculum of Mathematics

### Compulsory courses (Option: Algebra)

MA502X	Option: Matrices Analysis/Linear Algebra Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5221	Introduction to Module Theory	3
MA6091	Thesis I	3
MA6092	Thesis II	3
MA6121	Advanced Algebra Structure	3
Total Load : 20 credits		

### Compulsory courses (Option: Analysis)

MA502X	Option: Matrices Analysis/Linear Algebra Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5231	Complex Analysis	3
MA6091	Thesis I	3
MA6092	Thesis II	3
MA6131	Functional Analysis	3
Total Load : 20 credits		

### Compulsory courses (Option: Discrete Mathematics)

MA502X	Option: Matrices Analysis/Linear Algebra Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5051	Graph Theory	3
MA5251	Algebraic Graph Theory	3
MA6091	Thesis I	3
MA6092	Thesis II	3
Total Load : 20 credits		

### Compulsory courses (Option: Financial Mathematics)

MA502X	Option: Matrix Analysis/Linear Algebraic Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5161	Financial Mathematics	3
MA5262	Computational Finance	3
MA6091	Thesis I	3
MA6092	Thesis II	3
Total Load : 20 credits		



### Compulsory courses (Option: Fluid Dynamics)

MA502X	Option: Matrix Analysis/Linear Algebraic Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5271	Partial Differential Equation	3
MA5273	Computational Fluid Dynamics	3
MA6091	Thesis I	3
MA6092	Thesis II	3
MA6121	Advanced Algebra Structure	3
Total Load : 20 credits		

### Compulsory courses (Option: Optimization and Control)

MA502X	Option: Matrix Analysis /Linear Algebraic Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5171	Advanced Optimization Methods	3
MA5272	Optimum Control Theory	3
MA6091	Thesis I	3
MA6092	Thesis II	3
Total Load : 20 credits		

### Compulsory courses (Option: Biomathematics)

MA502X	Option: Matrices Analysis/Linear Algebraic Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5172	Dynamical Systems	3
MA5274	Population Dynamics	3
MA6091	Thesis I	3
MA6092	Thesis II	3
Total Load : 20 credits		

### Compulsory courses (Option: Statistics)

MA502X	Option: Matrix Analysis/Linear Algebraic Structure	4
MA503X	Option: Real Analysis A/Real Analysis B	4
MA5181	Stochastics Process	3
MA5281	Measure and Probability	3
MA6091	Thesis I	3
MA6092	Thesis II	3
Total Load : 20 credits		

## Elective Courses

MA5023	Topic in Algebra	3	MA5272	Optimal Control Theory	3
MA5033	Topology	3	MA5273	Computational Fluid Dynamics	3
MA5034	Topics in Analysis	3	MA5274	Population Dynamics	3
MA5041	Topics in Geometry	3	MA5275	Topics in Applied Mathematics II	3
MA5051	Graph Theory	3	MA5281	Measure and Probability	3
MA5152	Topics in Discrete Mathematics I	3	MA5282	Topics in Statistics II	3
MA5161	Financial Mathematics	3	MA6031	Advanced Topic in Analysis	3
MA5162	Actuarial Mathematics	3	MA6032	Analytical Function and Geometry	3
MA5171	Advanced Optimization Methods	3	MA6041	Advanced Topics in Geometry	3
MA5172	Dynamical System	3	MA6121	Advance Algebraic Structure	3
MA5173	Topics in Applied Mathematics I	3	MA6122	Advanced Topic in Algebra I	3
MA5181	Stochastic Process	3	MA6131	Functional Analysis	3
MA5182	Topics in Statistics I	3	MA6151	Advanced Topics in Discrete Mathematics I	3
MA5221	Introduction to Module Theory	3	MA6171	Robust Control Theory	3
MA5231	Complex Analysis	3	MA6172	Advanced Topics in Applied Mathematics I	3
MA5251	Algebraic Graph Theory	3	MA6181	Advanced Topics in Statistics I	3
MA5252	Topics in Discrete Mathematics II	3	MA6221	Advanced Topics in Algebra II	3
MA5261	Financial Econometrics	3	MA6251	Advanced Topics in Discrete Mathematics II	3
MA5262	Computational Finance	3	MA6271	Non Linear Control Theory	3
MA5263	International Finance Mathematics	3	MA6272	Advanced Topics in Applied Mathematics II	3
MA5271	Partial Differential Equation	3	MA6281	Advanced Topics in Statistics II	3

# TEACHING MATHEMATICS

Master's in Mathematics for Teaching Study Program was formally established in 2009. Recent developments in education require teachers to become experts in mathematics and to become innovative in matters of mathematical teaching. The program is carefully designed to help experienced teachers meet the challenges and to become mathematical leaders within the teaching community. The courses and research provide advanced knowledge and abilities in mathematical content, mathematics content knowledge, and related research. This program emphasizes both advanced knowledge, relevant to a mathematics program at the secondary level, mathematical content and the development and reinforcement of effective pedagogy. The mathematical content has been designed to supplement the pedagogical focus. The program is based on an immersion experience in mathematics, related coursework, and preparation for assuming leadership roles in professional development. This program is designed to help high school teachers to increase their knowledge and understanding of mathematical contents and teaching methods.

The curriculum covers: the theory of high school mathematical materials, learning theory, and their application in high school teaching. Study load of this program is 36 credits. In addition, the students need to take 6 credits courses that focus on mathematics learning and mathematics teaching.

## ADDRESS

Institut Teknologi Bandung  
Gendung Center for Advanced Studies (CAS) 4th and 5th Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : (022) 2502545

(022) 2534175

Fax : (022) 2506450

Website : [www.math.itb.ac.id](http://www.math.itb.ac.id)

Email : [prodi-ma@math.itb.ac.id](mailto:prodi-ma@math.itb.ac.id)

## Curriculum of Teaching Mathematics

### Semester I

MA5111	Mathematical Power	3
MA5121	Number Theory and Arithmetic	3
MA5141	Symmetry and Transformations	3
Total Load : 9 credits		

### Semester II

MA5211	School Mathematics Learning	3
MA5222	Theory of Polynomials	3
MA5283	Statistics	3
Total Load : 9 credits		

### Semester III

MA6093	Project I	3
MA6185	Combinatorics	3
	Electives	3
Total Load : 9 credits		

### Semester IV

MA6094	Project II	3
	Electives	6
Total Load : 9 credits		

### Elective Courses

MA6011	Topics in Mathematics Teaching I	3
MA6012	Topics in Mathematics Teaching II	3
MA6032	Function and Analytic Geometry	3



# MATHEMATICS (Doctoral)

In the Mathematics Doctoral Program, students are expected to explore the forefront research in mathematics and to make original contributions towards mathematical sciences. The main activity of this program is conducting research. However, students and their supervisors are obliged to publish their works in international journals or conference proceedings.

In their first year, students should take three courses in 7XXX or 8XXX level to strengthen their background. A qualifying exam is compulsory and this is done under their supervisor's guidance. Students may complete their doctoral study in three years.

## ADDRESS

Institut Teknologi Bandung  
Gendung Center for Advanced Studies (CAS) 4th and 5th Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : (022) 2502545

(022) 2534175

Fax : (022) 2506450

Website : [www.math.itb.ac.id](http://www.math.itb.ac.id)

Email : [prodi-ma@math.itb.ac.id](mailto:prodi-ma@math.itb.ac.id)

## Curriculum of Mathematics (Doctoral)

### Semester I/II

KU7080	Philosophy of Science	3
MA7001	Qualifying Exam	3
MA7002	Research and Seminar I	5
MA8001	Research and Seminar II	5
MA8002	Research and Seminar III	5
MA9001	Research and Seminar IV	5
MA9002	Research and Seminar V	5
MA9091	Dissertation Exam	3

Total Load : 34 credits

### Elective Courses

MA7003	Independent Study I	3
MA7004	Independent Study II	3

# ACTUARIAL SCIENCE

ITB Master's Program in Actuarial Science studies the financial impact that afflicts a family or institution when unexpected events occur, such as an accident, death, illness, disability, natural catastrophe, or other calamities. Modeling the uncertainty of the timing, the frequency and the severity of such disastrous events is the main objective of actuarial studies. Risk modeling of uncertain (or unexpected) events, evaluation process and financial risk management which is necessary to life insurance companies, general insurance companies, reinsurance companies, pension funds, banks, and other financial institutions, may be executed.

Knowledge in probability theory and statistics, mathematics, actuarial mathematics, and financial mathematics are compulsory in actuarial studies, as well as that in economics and accounting. The ability to apply this knowledge to solve real problems as well as good communication and business skills will make one become a good actuary. In this Actuarial Science Master's Program at ITB, students are given the basic knowledge required for the areas of life insurance, general insurance, and financial mathematics. Courses such as Life Insurance Mathematics I, Life Insurance Mathematics II, General Insurance and Mathematics in Finance are compulsory and are given in the first semester of the program. For some first year students, they are required to take Probability Theory and Statistics. In the other three semesters, students may take elective courses to master their knowledge in the areas of life insurance, general insurance, and financial mathematics.

Five subjects/courses are given in the ITB Actuarial Science Master's Program that are equivalent to two (out of seven) exam subjects in the Society of Actuaries of Indonesia (PAI) Professional Examination for Associate Actuary certification. Those five subjects are: Life Insurance Mathematics I, Life Insurance Mathematics II, General Insurance, Risk Theory and Credibility Theory and Simulation. Students, who obtain a minimum grade of B for each of these five subjects, are eligible to apply to PAI for exemption from two of the professional examination subjects, namely "A60 Actuarial Mathematics" and "A70 Risk Theory".

By pursuing a Master's Program in Actuarial Science at ITB, applicants are expected to earn sufficient provisions to achieve more in the future, academically or professionally. Its graduates may have a career at an insurance company (as an actuary), bank (as a risk analyst), or other financial institutions (capital market institution, money market, or foreign currency as well). Graduates may also have a career at a university as teaching/academic staff. A career field which is still widely open.

## ADDRESS

Institut Teknologi Bandung  
Gendung Center for Advanced Studies (CAS) 4th and 5th Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: (022) 2502545 (022) 2534175
Fax	: (022) 2506450
Website	: <a href="http://www.math.itb.ac.id">www.math.itb.ac.id</a>
Email	: <a href="mailto:prodi-ma@math.itb.ac.id">prodi-ma@math.itb.ac.id</a>

## Curriculum of Actuarial Science

### Semester I

AK5101	Life Insurance Mathematics I	3
AK5102	General Insurance	3
MA5xxx	Financial Mathematics	3
AK60Z1	Thesis I	3

Total Load : 12 credits

### Semester II

AK5201	Life Insurance Mathematics II	3
AK60Z2	Thesis II	3

Total Load : 6 credits

### Elective courses

AK5001	Operations of Life and Health Insurance	3
AK5103	Probability and Statistics in Actuary	3
AK5202	Survival Model	3
AK6001	Topics in Actuarial Science I	3
AK6002	Topics in Actuarial Science II	3
AK6101	Risk Theory	3
AK6102	Pension Fund and Valuation	3
AK6201	Credibility Theory and Simulation	3
AK6202	Warranty	3



# COMPUTATIONAL SCIENCE

Computational sciences is a young scientific discipline that has established itself as the third pillar of modern science. Next to theoretical science and experimental science, computational science involves the modeling, simulation and analysis of world phenomena through computation. Computational science will play an important role in the future of scientific discovery processes. This occurs since modern science has opened up new windows into the physical and social sciences, earth sciences and life sciences on many levels (atomic, nano, mezzo, and macroscopic scales). Computational science has important roles in several areas, such as:

1. Understanding non-deterministic and chaotic natural phenomena that can not be solved with analytical method,
2. Simulation that bridges theory and experimentation,
3. Prediction or forecasting,
4. Statics and dynamics system modeling,
5. Data calculation, organization, and presentation.

In the past decade, subjects which strengthen student's computational skills have always been an important part of the curriculum for study programs at the Faculty of Mathematics and Natural Sciences (FMIPA ITB). Each of the study programs offers at least 10% Bachelor's courses and 20% Master's courses which heavily contain computational materials.

Research of staff and students at FMIPA has also emerged towards a similar trend. The number of publications, final projects, theses, and dissertations which topics are focused in computational science has increased significantly in the last decade. In addition, research collaboration between FMIPA's researchers with their peers in both the academia and the industry arenas has also been conducted. For example, academic collaboration has been conducted in Japan (Kanazawa University, Osaka University, Tokyo Institute of Technology, Kyoto University, Gunma Observatory), Australia (University of Ballarat, University of Newcastle), Pakistan (School of Mathematical Science, GC University), and the Netherlands (Twente University, RuG). On the other hand, FMIPA has strong industrial collaboration with ALLIANZ, Taspen, Telkom, RC OPPINET, and CONOCO-Philips.

## ADDRESS

Institut Teknologi Bandung  
Gendung Center for Advanced Studies (CAS) 4th and 5th Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : (022) 2502545

(022) 2534175

Fax : (022) 2506450

Website : [www.math.itb.ac.id](http://www.math.itb.ac.id)

Email : [prodi-ma@math.itb.ac.id](mailto:prodi-ma@math.itb.ac.id)

Master's in Computational Science at ITB equips its graduates with:

1. Knowledge and comprehensive skills for a computational approach in science,
2. Ability to develop, model, and simulate, efficient algorithms, and use the optimization method to solve problems in science,
3. Ability to conduct an interdisciplinary approach in the quest for solutions of scientific problems,
4. Skills in several techniques, methods, and tools and the ability to choose appropriate tools for solving particular problems, and
5. Ability to work together with their peers, both in the same or different areas.

The educational system is continually progressing due to the significant amount of research done by the school and the graduates. During first year, students will learn the fundamentals of computing from introduction to computational science, to numerical analysis and software development. Students will also be equipped with the fundamentals of science and mathematics that will be used in their research. During the second year, students will apply the techniques and methods they have already learned to particular problems in science and mathematics.

Although the traditional workforce for graduates of this program is in the area of research and development (both in universities and research centers), our graduates will have the skills and competence to enter other work fields such as: insurance, banking, finance, information technology, telecommunication, automotive industries, pharmaceutical and chemical industries, as well as oil and gas industries.

Selected students of ITB and Kanazawa University (Japan) will have the opportunity to participate in a Double Degree Master's Program in Computational Science at ITB and at Kanazawa University. ITB students will spend up to one year at Kanazawa University to conduct research under the supervision of staff from ITB and Kanazawa University. Kanazawa University students will also have the opportunity to do similar research at ITB. Staff of Kanazawa University will teach several courses at ITB either in person or by using distance learning facilities.

During the 2009/2010 academic year, 10 students were accepted for the double degree program (DDP), to do research in Kanazawa starting from April 2010. In 2010/2011, 11 students were accepted for DDP. Other students study computational science solely at ITB. Students of the Master's in Computational Science Program at ITB are degree holders in science, mathematics, engineering, or other relevant fields. Students are expected to have adequate knowledge and skills in College Mathematics (Calculus, Matrix, and System of Linear Equations), Elementary Programming (in any language), and proficient in English. namely "A60 Actuarial Mathematics" and "A70 Risk Theory".

By pursuing a Master's Program in Actuarial Science at ITB, applicants are expected to earn sufficient provisions to achieve more in the future, academically or professionally. Its graduates may have a career at an insurance company (as an actuary), bank (as a risk analyst), or other financial institutions (capital market institution, money market, or foreign currency as well). Graduates may also have a career at a university as teaching/academic staff. A career field which is still widely open.

## Curriculum of Computational Science

### Compulsory core courses

SK5101	Introduction to Computational Science	2
SK5102	Advanced Numerical Analysis	3
SK5103	Algorithm and Software Design	3
SK5104	Network System and Parallel Data Management	2
SK5201	Scientific Model and Simulation	3
SK6101	Special Topics in Computational Science	3
SK6202	Elective in Computational Science	3

Total Load : 19 credits

### Elective courses

SK6111	Large Data Handling	3
SK6112	Science Visualization	3
SK6211	Artificial Intelligence System Engineering	3
SK6212	High Performance Computing	3
SK6213	Computation Material	3

# PHYSICS

Master's Program in Physics is a continuation of a Bachelor's in Physics and is executed in an integrated way. This Master's program aims to produce graduates who have advanced knowledge of physics and who are able to do research. The students can choose from one of six options that match their interests: theoretical physics, material physics, earth physics, nuclear applications, computational physics, and physics instrumentation. The minimum total credits required in this program are 36. This program contains advanced physics courses and elective courses which are subject to the student's specific interest. In addition to the classes and research activities, the students are also encouraged to participate in scientific activities, such as seminars and conferences both within and outside ITB.



Telephone	: +62-22-2502545 ext. 007/210
Fax	: +62-22-2506450
Website	: <a href="http://www.fmipa.itb.ac.id">www.fmipa.itb.ac.id</a>
Email	: <a href="mailto:akademik@fmipa.itb.ac.id">akademik@fmipa.itb.ac.id</a>



## Curriculum of Physics

### Semester I/II

FI5001	Electrodynamics	3
FI6098	Thesis I	6
FI6091	Research Methodology	3
FI500Z	Directive Elective Courses	6
FI500Y	Directive Elective Courses	6
FI5006	Instrumentation Physics	3
FI5005	Computational Physical Systems	3
FI5004	Analytical Mechanics	3
FI5003	Quantum Mechanics	3
FI5002	Statistical Mechanics	3
FI6099	Thesis II	6

Total Load : 45 credits

### Elective courses

FI6111	Quantum Field Theory	3
FI6121	Selected Topics in Material Physics Theory	2
FI6122	Orbital Quantum Theory	2
FI6131	Material Physics and Nano Devices	2
FI6132	Computational Material and Electronic Devices	2
FI6141	Advanced Reactor Physics	2
FI6142	Advanced Computational Nuclear Physics	2
FI6151	Advanced Physical Radiation	2
FI6161	Physical System Modeling	3
FI6171	Industrial Electronics	3
FI6211	Selected Topics in Theoretical Physics	3
FI6221	Selected Topics in Photonic and Magnetic Material	2
FI6231	Selected Topics in Electronics Material	2
FI6241	Advanced Nuclear Instrumentation	2
FI6251	Physical Radiation Application for Health	2
FI6252	Selected Topics in Medical Physics	2
FI6261	Selected Topics in Complex System Physics	3
FI6271	Selected Topics in Instrumentation System	3

# PHYSICS TEACHING

Master's Program in Physics Teaching was formally established in 2008. The program itself, however, has been run by the ITB Faculty of Mathematics and Natural Sciences (FMIPA) since the 2006 academic year. The program is aimed to produce a high-quality of senior high school (SMA/MA) physics teachers as well as junior high school (SMP/MTs) science teachers.

The program is supported by curriculum that contains the most relevant physics concepts and principles. The core of the curriculum consists of physics concepts and principles, based on both the "body of knowledge" of physics and the teacher's needs. Implementation of the curriculum is supported by physics lecturers of FMIPA-ITB that have experiences and competencies in physics teaching and research as well as in a number of educational physics laboratories.

Applicants should be physics or science teachers that hold a Bachelor's degree (S1) in physics or in physics-related fields. The graduates are expected to be physics or science teachers who:

1. have mastered the basic concepts and principles of physics,
2. are skillfull and able to develop their competencies independently,
3. are able to teach creatively,
4. are able to inspire their students to enjoy physics.

Telephone	: +62-22-2502545 ext. 007/210
Fax	: +62-22-2506450
Website	: <a href="http://www.fmipa.itb.ac.id">www.fmipa.itb.ac.id</a>
Email	: <a href="mailto:akademik@fmipa.itb.ac.id">akademik@fmipa.itb.ac.id</a>

Curriculum of Actuarial Science

Semester I

FI5080	Mathematical Physics	4
FI5081	Physics I	4
FI5181	History and Literature of Physics	2

Total Load : 10 credits

Semester II

FI5082	Physics II	4
FI5281	Physics Laboratory Works	2(2)
FI5282	Computational Physics	3(2)

Total Load : 9 credits

Semester III

FI5083	Physics III	4
FI5182	Teaching Technology and Methods	2
FI6096	Final Project I	2

Total Load : 8 credits

Semester IV

FI6097	Final Project II	4
FIXXX	Elective Courses	7

Total Load : 11 credits

## PHYSICS (Doctoral)

The Physics PhD Program aims to produce graduates who have the attitude and quality of academic competence, ability to do research independently, and ability to provide meaningful contribution to the repertoire of physics. Doctoral Study Program in Physics has produced graduates since 1986.

A doctoral student can do research which is associated with research road maps of Research Groups supporting the Physics Study Program, namely; Research Group of High Energy Theoretical Physics and Instrumentation, Research Group of Nuclear Physics and Biophysics, Research Group of Physics of Earth and Complex Systems, Research Group of Magnetic and Photonic Physics, and Research Group of Physics and Electronic Materials. The applicants are Master's graduates in physics or equivalent and have passed an entry examination. The period of study is 3 - 5 years.

Telephone	: +62-22-2502545 ext. 007/210
Fax	: +62-22-2506450
Website	: <a href="http://www.fmipa.itb.ac.id">www.fmipa.itb.ac.id</a>
Email	: <a href="mailto:akademik@fmipa.itb.ac.id">akademik@fmipa.itb.ac.id</a>



## Curriculum of Actuarial Science

### Semester I/II

FI7091	Research Methodology	3
FI7092	Qualifying Exam	3
FI7093	Special Study I	2
FI7094	Special Study II	2
FI7095	Proposal Writing	5
FI8001	Research and Seminar I	5
FI8002	Research and Seminar II	5
FI9001	Research and Seminar III	5
FI9002	Research and Seminar IV	5
FI9003	Dissertation Exam	3
KU7080	Philosophy of Science	3

Total Load : 41 credits

# ASTRONOMY

This program is divided into two orientations: (i) Advanced Astrophysics and (ii) Astronomy Development and Education. The first is the continuation of the undergraduate program, studying advanced astrophysical subjects, while the second is designed for prospective students with wider backgrounds. The second also aims to consider support systems for the development of astronomy in Indonesia, to explore progress of astronomy in the world and various factors necessary for the progress, and impacts of the progress to the world of astronomy itself and the public.

## ADDRESS

Institut Teknologi Bandung  
Labtek III ITB 4th Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62-22-2509170
Fax	: +62-22-2511576
Website	: <a href="http://www.as.itb.ac.id">www.as.itb.ac.id</a>
Email	: <a href="mailto:administration@as.itb.ac.id">administration@as.itb.ac.id</a>

## Curriculum of Astronomy

### Compulsory core courses (Option: Advanced Astrophysics)

AS5001	Research Methodology	3
AS5101	Cosmology	3
AS5102	Galactic Physics	3
AS5103	Stellar Physics	3
AS5104	Solar System Physics	3
AS6190	Thesis I	3
AS6191	Seminar	3
AS6290	Thesis II	6

Total Load : 27 credits

### Compulsory core courses (Option: Astronomy Development and Education)

AS5001	Research Methodology	3
AS5105	Stars	3
AS5106	The Solar System	3
AS5107	Motion and Position of Celestial Bodies	2
AS5108	Astronomy Laboratory	4
AS5203	Galaxies	3
AS5204	The Universe	3
AS6101	Exploration of Astronomy Development	2
AS6192	Seminar and Thesis I	4
AS6201	Exploration of Astronomy Education	2
AS6291	Seminar and Thesis II	4

Total Load : 33 credits

### Elective courses

AS5002	Astronomy A	2	AS5214	Solar Physics	3
AS5003	Topics in Computation	4	AS5217	The Time	2
AS5004	Topics in Observation	4	AS5218	History of Astronomy	2
AS5111	Plasma Physics	3	AS5219	Astrobiology	2
AS5112	Philosophy of Science A	2	AS6112	Stellar Photometry and Spectroscopy	2
AS5113	Astronomy Communication	2	AS6113	High Energy Astrophysics	2
AS5115	Astrochemistry	2	AS6114	Statistical Astronomy	2
AS5119	Earth and Sun Interaction	2	AS6115	Close Binaries	2
AS5211	Introduction to Astronomical Instrumentation	3	AS6116	Physics of Small Bodies in the Solar System	2
AS5212	Extragalaxies	3	AS6117	Space Exploration	2
AS5213	Relativistic Astrophysics	3	AS6118	Development of Astronomical Demonstrations Kits	2

## ASTRONOMY (Doctoral)

The doctoral program is based on astronomical research. Doctoral candidates conduct research which is converging to their dissertation. The results, being original research work, are contributions to 'proper' astronomy. At the frontier, astronomy is progressing due to its research work its own nature as a science, and its interaction with various elements which have contributes to the development of astronomy as a field of science, as well as its participation in human civilization and culture which are globalizing in trend.

### ADDRESS

Institut Teknologi Bandung  
Labtek III ITB 4th Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: (022) 2511576
Fax	: (022) 2509170
Website	: <a href="http://www.as.itb.ac.id">www.as.itb.ac.id</a>
Email	: <a href="mailto:administration@as.ac.id">administration@as.ac.id</a>



## Curriculum of Astronomy

### Compulsory courses

AS7060	Research Methodology	3
AS7091	Qualifying Exam	3
AS7092	Research and Progress Seminar I	5
AS8093	Research and Progress Seminar II	5
AS8094	Research and Progress Seminar II	5
AS9095	Research and Progress Seminar IV	5
AS9096	Research and Progress Seminar V	5
AS9097	Dissertation Exam	3
KU7080	Philosophy of Science	3

Total Load : 37 credits

### Elective courses

AS7010	Cosmology	3
AS7020	Galactic Physics	3
AS7030	Stellar Physics	3
AS7040	Solar System Physics	3

# CHEMISTRY

ITB Master's Program (S2) in Chemistry, Faculty of Mathematics and Natural Sciences, was established in 1980. Until now, there have been about 700 graduates with a Master's in Chemistry degree and more than 300 scientific papers have been published in national and international journals. Chemistry Master's study program includes five subprograms, namely: Analytical Chemistry, Physical Chemistry, Inorganic Chemistry, Organic Chemistry, and Biochemistry. Each subprogram is a typical structure of the curriculum. In this master's study program, students are prepared for 4 semesters (36 credits) which prepares them for higher education (doctoral course), as well as in industrial environments that requires research and development work to improve its competitiveness.

Telephone : +62-22-2502545, +62-22-2534175  
Fax : +62-22-2506450  
Website : [www.chem.itb.ac.id](http://www.chem.itb.ac.id)  
Email : [akademik@fmipa.itb.ac.id](mailto:akademik@fmipa.itb.ac.id)

## Curriculum of Actuarial Science

### Compulsory courses (Option: Analytical Chemistry)

KI5111	Research Methodology	3	KI5222	Advanced Spectrometry Analysis	3
KI5121	Analytical Separation	3	KI6091	Master Research I	4
KI5122	Analytical Measurement	3	KI6092	Master Research II	4
KI5221	Advanced Applied Analysis	3	KI6093	Seminar and Exam	1

Total Load : 24 credits

### Compulsory courses (Option: Inorganic Chemistry)

KI5111	Research Methodology	3	KI6091	Master Research I	4
KI5131	Advanced Anorganic Chemistry	3	KI6092	Master Research II	4
KI5141	Quantum Chemistry	3	KI6093	Seminar and Exam	1
KI5231	Anorganic Reaction Mechanism	3	KI6131	Anorganic Synthesis	3
KI5232	Anorganic Structure Determination	3			

Total Load : 27 credits

### Compulsory courses (Option: Physical Chemistry)

KI5111	Research Methodology	3	KI6091	Master Research I	4
KI5141	Quantum Chemistry	3	KI6092	Master Research II	4
KI5241	Statistical Thermodynamics	3	KI6093	Seminar and Exam	1
KI5242	Advanced Dynamic Chemistry	3	KI6141	Statistical Thermodynamics	3

Total Load : 24 credits

### Compulsory courses (Option: Organic Chemistry)

KI5111	Research Methodology	3	KI5252	Advanced Natural Organic Chemistry	3
KI5151	Organic Reaction Theory and Mechanism	3	KI6091	Master Research I	4
KI5152	Advanced Organic Synthesis	3	KI6092	Master Research II	4
KI5251	Bioorganic Chemistry	3	KI6093	Seminar and Exam	1

Total Load : 24 credits

### Compulsory courses (Option: Biochemistry)

KI5111	Research Methodology	3	KI6091	Master Research I	4
KI5161	Physical Biochemistry	3	KI6092	Master Research II	4
KI5162	Enzymology	3	KI6093	Seminar and Exam	1
KI5261	Biochemistry Research Engineering	3	KI6161	Metabolism	3
KI5262	Molecular Genetics and Genetic Engineering	3			

Total Load : 27 credits

### Compulsory courses (Option: Chemistry Teaching)

KI5171	Conventional Analysis and Instrument Method	3	KI5274	Chemical Structures and Dynamics	2
KI6173	Teaching Methodology	2	KI5273	Structure, Function, and Biomolecular Application	2
KI6172	Molecular Metabolism and Genetics	2	KI5272	Macromolecular and Organic Synthesis	2
KI6171	Chemistry Equilibrium and Energetics	3	KI5271	Anorganic Reaction and Structures	2
KI6096	Seminar and Master's Assembly	1	KI5174	Intramolecular and Intermolecular Interaction	2
KI6095	Research	4	KI5173	Anorganic and Practical Analitical	2
KI6094	Chemical Study Design Project	2	KI5172	Descriptive Anorganic Chemistry	2
KI5275	Biochemistry and Practical Organic	2	KI6271	Structure Determination	3

Total Load : 36 credits



# TEACHING CHEMISTRY

Teaching Chemistry Master's Program is intended to increase the teaching quality of chemistry teachers through mastering chemistry teaching materials, to achieve professional chemistry understanding as a teacher, as outlined in Teacher and Teaching Regulations. Graduates are expected to actively follow the latest chemistry science development.

In 2008, the Chemistry Teaching Masters Program was established formally and in 2011 the total admitted were 148 students, while the total graduates were 119 students. The chemistry teachers who may enter the Chemistry Teaching Master's Program should have a bachelor's degree in Chemistry or Chemistry Education.

Chemistry Teaching Master's Program graduates will be competent in:

1. Mastering chemistry teaching materials in order to perform as a professional chemistry teacher.
2. Developing chemistry material research related to chemistry teaching for high school students.
3. Improving chemistry teaching techniques creatively, attractively, and effectively at the high school level.

Telephone	: +62-22-2502103
Fax	: +62-22-2504154
Website	: <a href="http://www.chem.itb.ac.id">www.chem.itb.ac.id</a>
Email	: <a href="mailto:education@chem.itb.ac.id">education@chem.itb.ac.id</a>

## Curriculum of Teaching Chemistry

### Semester I

KI5171	Conventional Analysis and Instrumentation Methods	3
KI5172	Descriptive Inorganic Chemistry	2
KI5173	Practical Analytic and Inorganic Chemistry	2
KI5174	Intra and Intermolecular Interactions	2

Total Load : 9 credits

### Semester II

KI5271	Inorganic Structures and Reactions	2
KI5272	Macromolecules and Organic Synthesis	2
KI5273	Structure, Function, and Application of Biomolecules	2
KI5274	Structure and Chemical Dynamics	2
KI5275	Practical Organic and Biochemistry	2

Total Load : 10 credits

### Semester III

KI6172	Metabolism and Molecular Genetics	2
KI6173	Teaching Methodology	2
KI6094	Project of Chemistry Teaching Design	2

Total Load : 6 credits

### Semester IV

KI6095	Research	1
KI6096	Seminar and Examination	4

Total Load : 5 credits

## CHEMISTRY (Doctoral)

Chemistry Doctoral Program, FMIPA ITB, was established in 1980. As well as its Master's program, Doctoral Programs in Chemistry consists of 5 chemistry field studies with various research interests, such as Separation and Speciation of Analysis, Physical Chemistry of Material, Theoretical and Computational Chemistry, Synthesis of Inorganic Materials, Natural Product Chemistry, Bioorganic Chemistry, DNA and Protein Engineering, Bioinformatics, etc.

Within the six semester curricula, 28 doctoral titled-staff members are dedicated to preparing post graduate students to achieve original findings in chemistry fields of interest either in strengthening national competency in fundamental sciences or applied chemistry, such as material sciences, food sciences, energy, health, environmental sciences, etc.



### ADDRESS

Institut Teknologi Bandung  
Labtek III ITB 4th Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62-22-2502545, +62-22-2534175
Fax	: +62-22-2506450
Website	: <a href="http://www.chem.itb.ac.id">www.chem.itb.ac.id</a>
Email	: <a href="mailto:akademik@fmipa.itb.ac.id">akademik@fmipa.itb.ac.id</a>

## Curriculum of Chemistry

### Compulsory core courses

KI7012	Qualifying exam	3
KI7013	Special Topic I	3
KI7014	Research and Seminar I	5
KI7015	Special Topic II	3
KI8011	Research and Seminar II	5
KI8012	Research and Seminar III	5
KI9011	Research and Seminar IV	5
KI9012	Research and Seminar V	5
KI9013	Dissertation Exam	3

Total Load : 37 credits





# SCHOOL OF LIFE SCIENCE AND TECHNOLOGY

In the 21st century, professionals in life sciences play important roles in the development of bioscience, biotechnology and natural resources management (bio-management). In fact, biotechnology has been projected to be one of the most important applied sciences.

The School of Life Sciences and Technology (Sekolah Ilmu dan Teknologi Hayati, SITH) ITB, founded in January 2006, manages six study programs at the undergraduate (S1) and graduate (master's and doctoral) levels which offer multidisciplinary education to procedure graduates that meet the challenges of this highly competitive era. The student body consists of 569 undergraduate and 136 graduates. SITH graduates will have the knowledge and skills required to compete in the job market, and a broad opportunity to establish careers in many areas of interest at the government and private/industry sectors, or in entrepreneurship.

The SITH has 37 academic staff members, all of whom have PhD qualification. The department and staff are supported with modern facilities for research and community services. Research projects, which are funded by national and international grants, reflect the vast activities in the research focuses of the four research groups within SITH:

1. Ecology and Biosystematics,
2. Physiology, Developmental Biology and Biomedics,
3. Microbiology, Genetics and Molecular Biology,
4. Plant Sciences and Biotechnology.

## Facilities

1. Computer Studio and 24 Hour Hot Spots

SITH has a computer studio equipped with server, 20 sets of computers, all are connected to LAN-internet, scanners, laser printers, and software. We also provide students with 24 hour hotspots throughout our building. These facilities are essential in supporting the students' study and research activities.

2. Laboratory of Identification and Classification

This laboratory provides the equipment to separate samples from the field, either from the terrestrial or aquatic ecosystem, and then identify and classify them. For more information, please click this link: <http://www.sith.itb.ac.id/herbarium/>

Dean

: Dr. I Nyoman Pugeg Aryantha

Vice Dean for Academic Affairs

: Dr. Tjandra Anggraeni

Vice Dean for Resource Planning and Management : Dr. Iriawati, M.Sc.

### 3. Library

The library of SITH offers a literature collection of 6000 in the form of text books, journals, magazines, S1 final project reports, S1 internship reports, theses, dissertations, transparencies, and CDs. The library is also equipped with a reading room, catalogue cabinet, computers connected to LAN-internet, as well as an audio set to learn English. To open the digital library website, please click <http://digilib.sith.itb.ac.id>, and to make an online book request, please click <http://library.sith.itb.ac.id>.

### 4. Laboratory of Aquatic Ecosystem Analysis

This laboratory provides the equipments and facilities required for researches in aquatic ecosystems. The equipment includes various aquatic ecosystems physical-chemical factor measurement devices, aquatic biota sampling devices, and aquatic ecosystems analysis.

### 5. Laboratory of Terrestrial Ecosystem Analysis

This laboratory provides the equipments and facilities required for researches in terrestrial ecosystems. The equipment includes various terrestrial ecosystems physical-chemical factor measurement devices, terrestrial biota (plants and animals) sampling devices, map, GPS, computer, and other terrestrial ecosystems analysis.

### 6. Laboratory of Toxicity Test

This laboratory provides the facilities required for toxicity testing such as: Tin Layer Chromatography, Water Bath, Biotron, Environmental Chamber, and Microscopes. In addition to intern research and educational activity purposes, this laboratory also offers toxicity test services for anyone in need.

### 7. Laboratory of Cytogenetic Analysis

This laboratory is equipped with facilities for cytogenesis analysis.

### 8. Laboratory of Molecular Genetic Analysis

This laboratory is equipped with molecular genetic analysis tools. In this laboratory, research and study is conducted in genetic engineering, genetic markers, microbes, plants, and animal phylogenetic analysis. In addition, several strains of fruit flies are provided (*Drosophila*) which can be used for various educational and research purposes in the university or other educational institutions in need.

### 9. Laboratory of Insect Biological Test

This laboratory provides the facilities and tools required for insect biological testing such as: Condition Chamber, Microtome, Stereo Microscope, Optical Fiber, Incubator, Monocular Microscope, Gas Chromatograph, and Sieve Shaker. The tests involve useful and pest insects.

### 10. Laboratory of Biomedical Analysis

This laboratory provides the facilities and tools required for biomedical analysis such as Biofuge 15, Centrifuge, Rota vapor R124, Vacuum Pump, Hot Plate, HPLC, Chart Speed Recorder, Spectrophotometer, El. Cardio Graph, Blood Analyzer, D.O. Meter, Stimulator, Tele Thermometer, Colony Counter, Spiro meter, Hb-Meter, Electromagnetic Blood Flow Meter, Electronic Manometer Stand, OHP, Water Bath, Vacuum Pump, and Reticorder. Animal and human cell cultures are also provided.

### 11. Laboratory of Behavioral Analysis

This laboratory provides the facilities and tools required for analyzing the behavior of animals from the Vertebrate and Invertebrate groups. The tools include Kymograph, Student Stimulator, Chart Recorder, etc.

12. Laboratory of Structure and Development Analysis (1 and 2)

This laboratory is equipped with the tools required for the research in plant and animal developmental biology; from organs, tissues, and cells, to molecules. This laboratory also provides the service for the public who need plants or animals preserved as mounts, electrophoresis 1D and 2D, and toxicity testing.

13. Laboratory of Photochemical Analysis

This laboratory provides the facilities and tools required for photochemical analysis such as: sterile tools, Anti-fog Refrigerator, Autoclave, Centrifuge, Computer and Table, Filling Cabinet, Freeze Dryer, Incubator, Electronic Stove, Kruk, Laminar Air Flow, Tool Cabinet, Iron Cabinet, Refrigerator, Glass Cabinet, Low Temperature Incubator, Oven, Spectrophotometer, and Vacuum Pump.

14. Laboratory of Transformation and Micro-Propagation

This laboratory provides the facilities and tools required for transformation and micro-propagation such as: Air Conditioner, Analytical Balance, Centrifuge, Cold Incubator, Heating Plate, Illuminated Incubator, Inverted Microscope, Computer, Kruk, Spectrophotometer, and Stereo Microscope.

15. Laboratory of Bioprocess

This laboratory is equipped with tools required for microbe isolation, cell propagation, and cell or metabolite production scale optimization and multiplication. The tools include devices for microbe cultivation, fermentor for microbe multiplication, and other devices for bioprocess activities. In addition to intern research and educational activity purposes, this laboratory also offers microbe isolation, identification, and metabolite screening services for the public in need.

16. Laboratory of Bioremediation

This laboratory is equipped with tools and facilities required for microbe isolation and screening for bioremediation purposes.

17. Herbarium

The Herbarium collects about 15 thousand plant samples; most are plants from all around Indonesia. For more information, please click <http://www.sith.itb.ac.id/herbarium/>

18. Museum of Zoology

The Museum of Zoology at the Biology Department (SITH, ITB) keeps about 15 thousands animal samples. Our collections include common and rare animals.

19. Field Station

Our field station is located in the Cimanggu area, and can be utilized to support field research activities.



# BIOLOGY

This Study Program prepares students to advance their understanding of biological concepts at the master level. There are three (3) lines of research students may perform for their final project thesis, i.e.: (1) Cell and Molecular Biology, (2) Organism Biology, (3) Environmental Biology. The program is supported by lecturers and research staffs holding Ph.D. degrees who are experts in the above areas of research. Preferred candidates should hold Bachelor's degrees (S1) in life sciences. Candidates from different backgrounds will be considered on a case by case basis.



## Curriculum of Biology

### Compulsory core courses

BI5094	Master's Research I	5
BI6095	Master's Research II and Seminar	5
BI6096	Thesis Writing and Master's Assembly	2

Total Load : 12 credits

### Compulsory courses (Option: Cell and Molecular Biology)

BI5101	Advanced Cell Biology	3
BI5191	Cell and Molecular Biology Research Planning	3
BI5203	Molecular Biology Analysis Engineering	3
BT5102	Advanced Molecular Genetics	3

Total Load : 12 credits

### Compulsory courses (Option: Environmental Biology)

3BI5107	Terrestrial Ecology	3
BI5108	Aquatic Ecology	3
BI5193	Environmental Biology Research Planning	3
BI5209	Ecosystem Analysis	2
BI5210	Population Ecology	2

Total Load : 13 credits

### Compulsory courses (Option: Organism Biology)

BI5105	Physiology Concepts	3
BI5106	Biostatistics Analysis	3
BI5192	Organism Biology Research Planning	3
BI5204	Organism Defense System	3

Total Load : 12 credits

## Elective Courses

BI5111	Advanced Microbe Physiology	3	BI5213	Microbes Interaction	2
BI5112	Mixed Culture Fermentation	2	BI5217	Advanced Plant Ecophysiology	3
BI5114	Photochemistry Analysis	3	BI5219	Plant Reproduction	3
BI5115	Biological Evolution	2	BI5222	Animal Reproduction Physiology	3
BI5116	Plant Development Mechanism	3	BI5223	Animal Physiology and Disease	3
BI5118	Advanced Plant Development Physiology	3	BI5224	Neuroendocrinology	3
BI5120	Development Genetics	3	BI5225	Insect Pathology	2
BI5121	Biological Cancer	3	BI5226	Toxicology Reproduction and Development	3
BI5127	Plant Micropagation	3	BI5229	Ecotoxicology	3
BI5128	Insect Chemical Ecology	3	BI5230	Ecoetology	3
BI5132	Biological Control	3	BI5231	Morphogenetic Analysis	2
BI5134	Ethno biology	3	BI5233	Insect Ecology	3
BI5135	Animal Morphogenetic	3			

# BIOTECHNOLOGY

Biotechnology is an applied science which involves various branches of science and technology to enhance the benefits of living organisms (or parts of it) with the purpose of producing value-added products (goods and services). Biotechnology considers the development of biotechnology, especially in developed countries, and the needs of it to produce high value-added biological products in Indonesia.

The Master's Program in Biotechnology was established in 2003. This program is designed to provide excellent human resources in biotechnology, which are able to develop natural bio-resources into value-added products for application in health, agriculture, environment, and energy. To achieve the mission, an integration of sciences and technologies in biochemistry, cell and molecular biology, biological processes, cell and tissue culture, fermentation technology, genetic engineering, DNA technology and bioinformatics are studied through courses and research.

To finish the Biotechnology Program, students need to complete a minimum of 36 credits consisting of 27 credits of compulsory courses and 9 credits of elective courses. This program requires students to undertake a research project (BT5091, BT6090, and BT6091). The entire program is expected to be completed in four semesters.

Telephone / Fax : 022-2511575, 022-2534107  
Website : [www.sith.itb.ac.id](http://www.sith.itb.ac.id)  
Email : [bioteknologi-s2@sith.itb.ac.id](mailto:bioteknologi-s2@sith.itb.ac.id)

## Curriculum of Biotechnology

### Compulsory core courses

BI5101	Advanced Cell Biology	3
BT5090	Biotechnology Research Planning	3
BT5091	Research I	5
BT5102	Advanced Molecular Genetics	3
BT5103	Bioprocess	3
BT5201	Genetics I Engineering	3
BT6090	Research II and Seminar	5
BT6091	Thesis Writing and Examination	2

Total Load : 27 credits

### Elective Courses

BT5202	Animal Cell and Tissue Engineering	3
BT5203	Plant Cell and Tissue Engineering	3
BT5204	Gene Expression and Manipulation	3
BT5205	Bioinformatics	3
BT5206	Downstream Process	3
BT6101	Plant Metabolism Engineering	3
BT6102	Fermentation Technology	2
BT6103	Genomic and Proteomic Application	2
BT6104	Animal Reproduction and Biotechnology	3
BT6105	Biotechnology Capita Selection	2
BT6107	Bioremediation Engineering	2

# BIOMANAGEMENT

The Master's Program in Biomanagement, once called Tropical Bioresources and Environmental Management was established in 1996. This program is designed to respond to the demand for professionals who are able to use interdisciplinary approaches in seeking solutions to tropical bioresources and environmental management problems, which are often complex and multi-dimensional in nature.

Since 2008, this program has been supported by the School of Business and Management-ITB for subjects related to economics, business and management. Outside professionals are involved in the education process as guest lecturers in order to provide insights on problem-solving in practical application. This program welcomes applicants having undergraduate degrees from all disciplines.

To finish the Biomanagement Program, students need to earn a minimum of 36 credits consisting of 26 credits of compulsory courses and 10 credits of elective courses. This program requires students to undertake an applied-oriented research project (BP6090, BP6091, and BP6092). The entire program is expected to be completed in 3 (three) semesters. The following table lists the courses offered. Note that students may take elective courses from other master's programs at SITH, i.e. Biology Program and Biotechnology Program, on subjects which are relevant to the scope of their research.

Telephone / Fax : 022-2511575, 022-2534107  
Website : [www.sith.itb.ac.id](http://www.sith.itb.ac.id)  
Email : [bioteknologi-s2@sith.itb.ac.id](mailto:bioteknologi-s2@sith.itb.ac.id)



## Curriculum of Biomanagement

### Semester I

BP5101	Biological Management	3
BP5102	Human Ecology	2
MM6101	Entrepreneurship and Business Management	2
MM6102	Economy Management	2

Total Load : 9 credits

### Semester II

BP5201	Biomanagement Case Study	2
BP5202	Final Project Proposal	3
MM6201	Corporate Management	2

Total Load : 7 credits

### Semester III

BP6090	Final Project	3
BP6091	Final Project Report	2
BP6092	Assembly	2
BP6101	Professional Ethics	3

Total Load : 10 credits

### Elective Courses

BP5103	Biodiversity Business	2
BP5104	Business Biotechnology	2
BP5105	Environment Law and Business	2
BP5203	Conservation Engineering	3
BP5204	Aquaculture Production Engineering	3
BP5205	Natural Resource Economy and Environment	2
BP6102	Food Production Engineering	3
BP6201	Integrated Pest Control	3
BP6202	In Vitro Seed Production Engineering	3

## BIOLOGY (Doctoral)

This program prepares students to be researchers in biological sciences, as well as in the applications of biological concepts and management of natural resources and tropical environments. The program is supported by lecturers that hold PhD degrees. Preferred candidates are graduates from master's (S2) study programs in life sciences. Candidates from other backgrounds will be considered on a case by case basis.

Telephone / Fax : 022-2511575, 022-2534107  
Website : [www.sith.itb.ac.id](http://www.sith.itb.ac.id)  
Email : [bioteknologi-s2@sith.itb.ac.id](mailto:bioteknologi-s2@sith.itb.ac.id)

## Curriculum of Biology

### Compulsory core courses

BI7090	Proposal Preparation	5
BI7091	Qualifying Exam	3
BI7101	Philosophy	3
BI7102	Life Science Capita	3
BI8092	Doctoral Research I	5
BI8093	Doctoral Research II	5
BI9094	Doctoral Research III	5
BI9095	Dissertation Writing	5
BI9096	Dissertation Exam (Closed Exam)	3
BIAAAA	Elective Courses	3

Total Load : 40 credits

### Elective Courses

BI7103	Selected topics in Cell and Molecular Biology	3
BI7104	Selected Topics in Developmental Biology	3
BI7105	Selected Topics in Physiology	3
BI7106	Selected Topics in Ecology	3
BI7107	Selected Topics in Evolution and Biodiversity	3
BI7108	Selected Topics in Biological Behavior	3
BI7109	Selected Topics in Entomology Distinctive Topics	3



## SCHOOL OF PHARMACY

The Department of Pharmacy at ITB was established on October 6th, 1947 under the faculty named *Faculteit voor Wiskunde en Natuurwetenschappen*. At that time, the faculty was a part of the University of Indonesia. On February 1st, 1949, the faculty name changed to the Faculty of Exacta and Natural Sciences (FIPIA), but was still under the University of Indonesia. The department organization's management structure was very simple, only one person as chairman of the department. Since 1959, the organization was expanded and one secretary of department was assigned to help the Head of Department. Since 2006, due to the development of the pharmacy scientific environment, the department changed to the School of Pharmacy (Sekolah Farmasi, SF) which is headed by a Dean and two Vice Deans (Vice Dean for Academic Affairs and Vice Dean for Resources Affairs).

Currently, the School of Pharmacy consists of four study programs i.e. Pharmaceutical Science and Technology study program, Community and Clinical Pharmacy study program, Master's and Doctoral study programs, and Pharmacist study program.

Our research groups and facilities:

1. Pharmacology Research Group
  - Laboratory of Toxicology
  - Laboratory of Immunology
  - Laboratory of Human Anatomy and Physiology
  - Laboratory of Pharmacology
2. Pharmacodhemistry Research Group
  - Laboratory of Clinical Chemistry and Clinical Biochemistry
  - Laboratory of Analytical Pharmacy
  - Laboratory of Analytical Microbiology
  - Laboratory of Food Safety and Analysis
  - Laboratory of Instrumental Analysis
  - Laboratory of Drug Computation and Modeling
  - Laboratory of Drug Synthesis
3. Pharmaceutical Research Group
  - Laboratory of Basic Pharmaceutical Dosage Form
  - Laboratory of Physical Pharmacy
  - Laboratory of Semisolid and Liquid Pharmaceutical Technology
  - Laboratory of Pharmacokinetics
  - Laboratory of Biopharmacy
  - Laboratory of Sterile Pharmaceutical Dosage Form Technology
  - Laboratory of Solid Pharmaceutical Dosage Form Technology
4. Pharmaceutical Biology Research Group
  - Laboratory of Botanical Pharmacy
  - Laboratory of Natural Product
  - Laboratory of Natural Product Standardization
  - Laboratory of Plant Biotechnology
  - Laboratory of Pharmacognosy

Dean

: Prof. Dr. Daryono Hadi Tj.Apt.,M.Si

Vice Dean for Academic Affairs

: Dr. Kusnandar Anggadiredja, S.Si., M.Si.

Vice Dean for Resource Planning and Management : Dr. Marlia Singgih Wibowo

# PHARMACY

The activities for master's education in pharmacy originally began in 1980, while the Pharmacy Master's Study Program was officially established through a decree of Directorate General of Higher Education, Ministry of Education and Culture which was issued on October 23rd, 1993.

The aim of the Pharmacy Master's Program is to produce graduates with scientific and/or professional skills, high integrity, with the ability to develop themselves in a wider scope of interdisciplinary science, and with the capability to apply their skills and knowledge to the society and nation. There are four options which can be selected based on the student's research interest:

1. Pharmacocochemistry
2. Pharmaceutics
3. Natural Products Pharmacy
4. Pharmacology-Toxicology

## Pharmacocochemistry

This option deals with all chemical aspects of drugs and other bioactive compounds. We offer advanced courses in pharmaceutical analysis and medicinal chemistry fields and perform research in method development for analysis of drug, food, cosmetic and household product, as well as, drug discovery and development. The teaching and research activities are supported by laboratory facilities with modern instrumentations such as HPLC, GC, AAS, UV/VIS-, IR- and Fluorescence-spectrometer. For research in drug design, molecular modeling and QSAR studies, we provide high performance computation facilities. An apparatus for working in organic synthesis is also available. Moreover, NMR spectrometer and elemental analyzer are also available on ITB campus. We designed this option to be suitable for academias, researchers, and candidates from various relevant fields.

## ADDRESS

Institut Teknologi Bandung  
Gedung Yusuf Panigoro (Labtek VII)  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone	: (022) 2504852
Fax	: (022) 2504852
Website	: <a href="http://www.fa.itb.ac.id">www.fa.itb.ac.id</a>
Email	: <a href="mailto:farmasi@fa.itb.ac.id">farmasi@fa.itb.ac.id</a>



### Pharmaceutics

Pharmaceutics is a branch of pharmacy that deals with all aspects of formulating active pharmaceutical ingredients into safe and effective medication for patients. This program consists of two disciplines: Pharmaceutics and Pharmaceutical Biotechnology. We offer courses to cover the following areas: Physical Pharmacy, Pharmaceutical formulation and technology, Biopharmacy, Pharmacokinetics, Nanotechnology and Pharmaceutical Biotechnology. This option is designed to offer opportunities for advanced study in drug discovery technology, therapeutics and process development, pharmaceutical analysis and quality assurance. The aim of this option is to provide students with an in depth point of view in the disciplines, and to provide an independent and fundamental research experiences. The students are prepared for their upcoming career in research and scholarly work in an academic and research institution, industries or government.

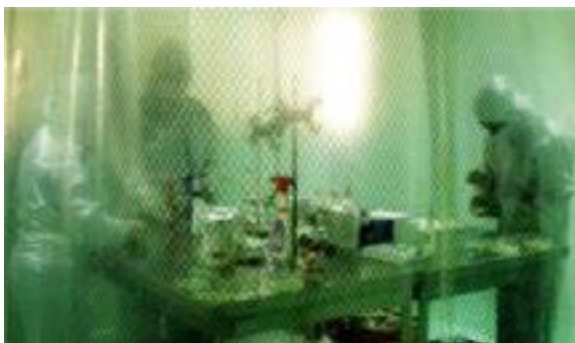
### Natural Product Pharmacy

This program is intended for those who wish to research natural product science or to pursue a career in the phytopharmaceutical industry or a government regulatory body. The course provides a broad overview of natural product science, the impact of natural products as medicine, their analysis and their position as medicine in various societies.

Specifically, the course will cover herbal medicines in healthcare, their safety and efficiency and examples of natural products as medicine. There will also be lectures on the analysis of natural products and their role in the drug discovery process.

### Pharmacology-Toxicology

Pharmacology is the science of nature and properties of drugs, particularly their action. It includes the study of the manner in which the function of living tissues and organisms is modified by chemical substances and the study of the effects of chemical agents on living processes. It is subdivided into pharmacodynamics (the biological effects of drugs) and pharmacokinetics (absorption, distribution, metabolism and excretion of drugs and their metabolites), also expressed as, respectively, the effects of drugs on the body and the effect of the body on drugs. Pharmacology cannot be separated from Toxicology, which is the scientific study of poisons and their effects on the human body. The study is also essential since medicine may act as a poison if administered at a higher dose.



## Curriculum of Pharmacy

### Compulsory core courses

FA5001	Drug Development	2
FA5002	Research Methodology	3
FA5013	Methods on Pharmaceutical Analysis, Phsycochemistry	2
FA5014	Molecular Pharmacology	2
FA6091	Thesis I	5
FA6092	Thesis II	8
FA6093	Thesis Seminar	1
FA6094	Final Examination	1

Total Load : 24 credits

### Compulsory courses (Option: Pharmacochemistry)

FA5003	Analytical Separation	3
FA5004	Drug and Food Microbiology	2
FA5015	Active Compounds Design	3
FA5016	Food Safety and Analysis	2
FA6002	Development of Analytical Methods	2

Total Load : 12 credits

### Compulsory courses (Option: Pharmaceutical)

FA5005	Development of Pharmaceutical Dosage Form	2
FA5006	Physical Chemistry of Solid and Liquid Surfaces	3
FA5017	Biopharmacy	2
FA5018	Pharmacokinetics	3
FA6003	Kinetic Chemistry and Drug Stability	2
FA5011	Structure and Function of Cell and Virus	2
FA5012	Molecular Genetics	2
FA5023	Molecular Biotechnology	4

Total Load : 20 credits

### Compulsory courses (Option: Natural Products Pharmacy)

FA5007	Separation Methods of Natural Products	3
FA5008	Natural Products I	2
FA5019	Natural Products II	3
FA5020	Production and Standardization of Natural Products	2
FA6004	Identification and Structure Elucidation of Natural Products	2

Total load : 12 credits

**Compulsory courses (Option: Pharmacology-Toxicology)**

FA5009	Pharmacology of anti -infection/tumour	2
FA5010	Pharmacotherapy	3
FA5021	Clinical Pathopharmacology and Toxicology	3
FA5022	Methods of Pharmacology and Toxicology	2
FA6005	Advanced Molecular Pharmacology	3
FA6006	Molecular Pathogenesis	3
FA6007	Drug Interaction	2

Total Load : 18 credits

## PHARMACY (Doctoral)

This program is intended to develop the graduate's competencies to: design an independent research proposal and research agenda, conduct research and disseminate the research product at a national or international level, lead an interdisciplinary research team, research institution, government, industry, etc.

Doctorate program curriculum consists of compulsory and elective courses, research proposal writing, qualifying exam, and dissertation (research project defense) of 40 credits minimum.

### ADDRESS

Institut Teknologi Bandung  
Gedung Yusuf Panigoro (Labtek VII)  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : (022) 2504852

Fax : (022) 2504852

Website : [www.fa.itb.ac.id](http://www.fa.itb.ac.id)

Email : [farmasi@fa.itb.ac.id](mailto:farmasi@fa.itb.ac.id)

## Curriculum of Pharmacy

### Compulsory core courses

FA7001	Philosophy of Science	3
FA5002	Research Methodology	3
FA7091	Proposal	5
FA7092	Qualification	3
FA8091	Research and Seminar of research progress 1	5
FA8092	Research and Seminar of research progress 2	5
FA9091	Research and Seminar of research progress 3	5
FA9092	Research and Seminar of research progress 4	5
FA9093	Examination	3
FA9094	Promotion	1
	Elective courses	3

Total Load : 41 credits





# FACULTY OF MINING AND PETROLEUM ENGINEERING

The Faculty of Petroleum and Mining Engineering (Fakultas Teknik Pertambangan dan Perminyakan, FTTM) was originally established as the Faculty of Earth Sciences and Mineral Technology (FIKTM) in 2007 and was changed to the current name in 2007. Our faculty is comprised of five study programs, namely; Mining Engineering, Petroleum Engineering, Geophysical Engineering, Metallurgical Engineering, and Geothermal Engineering. The study programs in FTTM are heavily related to the earth's resources exploring and earth phenomena. In addition to learning about various scientific theories, the students will experience working with data, and doing practical work.

FTTM manages the following 7 research groups:

1. Earth Resources Exploration Research Group
2. Mining Engineering Research Group
3. Petroleum Drilling, Production, and Management Research Group
4. Reservoir Engineering Research Group
5. Metallurgical Engineering Research Group
6. Applied Geophysics Research Group
7. Global Geophysics Research Group

Dean

: Prof. Sri Widiyantoro, M.Sc., Ph.D

Vice Dean for Academic Affairs

: Prof.Ir. Ridho Kresna Wattimena, MT, Ph.D.

Vice Dean for Resource Planning and Management : Dr. Susanti Alawiyah, ST, MT

# PETROLEUM ENGINEERING

This program is designed to train professionals in work-flow concepts which are now prevailing in the oil and gas industries, and to produce engineers that are fully prepared to work effectively in multi-disciplinary teams. The interdependency of the following sciences is emphasized throughout the course, including a major integrated team project involving the interpretation, synthesis and presentation of engineering, geological, and geophysical data.

Telephone : +62 22 2506282  
Fax : +62 22 2506282  
Website : [www.tn.itb.ac.id](http://www.tn.itb.ac.id)  
Email : [wda@fttm.itb.ac.id](mailto:wda@fttm.itb.ac.id)

## Curriculum of Master's Program of Mining Engineering

### Compulsory core courses

TM5101	Reservoir System	3	TM6001	Research Methodology	3
TM5102	Drilling Engineering Design and Completion	3	TM7099	Thesis	6
TM5103	Production System Design	3			

Total Load : 18 credits

### Elective Courses

TM6002	Professional Ethics	3	TM6030	Advanced Petroleum Artificial Intelligence	3
TM6003	Advanced Petroleum Engineering Mathematics	3	TM6031	Advanced Well Stimulation	3
TM6004	Heat and Mass Transfer Phenomenon	3	TM6032	Production Engineering Capita Selection	3
TM6005	Advanced Petro physics	3	TM6033	Advanced Petroleum Project Management and Economical Analysis	3
TM6006	Fluid Flow in Porous Media	3	TM6034	Petroleum Project Finance and Economical Analysis	3
TM6007	Geology and Reservoir Description and Characterization	3	TM6035	Petroleum Project Decision Making and Risks Analysis	3
TM6008	Logging Control Equipment	3	TM6036	Petroleum Project Management and Accounting	3
TM6009	Natural Fracture of Carbonate Reservoir	3	TM6037	Petroleum Optimization Method	3
TM6010	Transient Pressure Analysis	3	TM6038	Environmental Impact Precaution	3
TM6011	Advanced Reservoir Simulation	3	TM6039	Reservoir Management	3
TM6012	Acquisition Enhancement Method	3	TM6040	Reservoir Engineering and Management	3
TM6013	Petroleum Chemistry Acquisition Enhancement	3	TM6041	Petroleum Field Development Planning	3
TM6014	Mixed Petroleum Acquisition Enhancement	3	TM6042	Petroleum Macro-Micro Economics	3
TM6015	Unmixed Acquisition Enhancement	3	TM6043	Petroleum Policy and Planning	3
TM6016	Thermal Urges	3	TM6044	Petroleum Economics Capita Selection	3
TM6017	Non-Thermal Acquisition Enhancement	3	TM6045	Petroleum Industrial Regulation Capital Selection	3
TM6018	CBM Technology	3	TM6046	Energy Resources	3
TM6019	Reservoir Engineering Capita Selection	3	TM6047	Energy Project Finance and Economical Analysis	3
TM6020	Formation Assessment Capita Selection	3	TM6048	Petroleum Project Environmental Impact Precaution	3
TM6021	Natural Gas Capita Selection	3	TM6049	Energy Economics	3
TM6022	Advanced Drilling Engineering	3	TM6050	Energy Modeling	3
TM6023	Rock Mechanics	3	TM6051	Energy Planning and Policy	3
TM6024	Offshore Petroleum Operation	3	TM6052	Energy Regulation	3
TM6026	Advanced Production Engineering	3	TM6054	Energy Project Environmental Management	3
TM6027	Surface Facility Design	3	TM7001	Professional Ethics	3
TM6029	Production Optimization	3	TM7098	Final Project	3

## Curriculum of Doctoral's Program of Mining Engineering

### Compulsory core courses

TM6001	Research Methodology	3	TM8005	Research and Seminar Progress II	5
TM8001	Science Philosophy	3	TM8006	Research and Seminar Progress III	3
TM8002	Qualifying Exam	5	TM8007	Research and Seminar Progress IV	5
TM8003	Research Proposal	5	TM9099	Dissertation Exam (Closed)	3
TM8004	Research and Seminar Progress I	3			

Total Load : 35 credits

### Elective Courses

TM6003	Advanced Petroleum Engineering Mathematics	3	TM6027	Surface Facility Design	3
TM6004	Heat and Mass Transfer Phenomenon	3	TM6029	Production Optimization	3
TM6005	Advanced Petro physics	3	TM6031	Advanced Well Stimulation	3
TM6006	Fluid Flow in Porous Media	3	TM6032	Production Engineering Capita Selection	3
TM6007	Geology and Reservoir Description and Characterization	3	TM6033	Advanced Petroleum Project Management and Economical Analysis	3
TM6008	Logging Control Equipment	3	TM6034	Petroleum Project Finance and Economical Analysis	3
TM6009	Natural Fracture of Carbonate Reservoir	3	TM6035	Petroleum Project Decision Making and Risks Analysis	3
TM6010	Transient Pressure Analysis	3	TM6036	Petroleum Project Management and Accounting	3
TM6011	Advanced Reservoir Simulation	3	TM6037	Petroleum Optimization Method	3
TM6012	Acquisition Enhancement Method	3	TM6038	Environmental Impact Precaution	3
TM6013	Petroleum Chemistry Acquisition Enhancement	3	TM6039	Reservoir Management	3
TM6014	Mixed Petroleum Acquisition Enhancement	3	TM6040	Reservoir Engineering and Management	3
TM6015	Unmixed Acquisition Enhancement	3	TM6041	Petroleum Field Development Planning	3
TM6016	Thermal Urges	3	TM6042	Petroleum Macro-Micro Economics	3
TM6017	Non-Thermal Acquisition Enhancement	3	TM6043	Petroleum Policy and Planning	3
TM6018	CBM Technology	3	TM6044	Petroleum Economics Capita Selection	3
TM6019	Reservoir Engineering Capita Selection	3	TM6045	Petroleum Industrial Regulation Capital Selection	3
TM6020	Formation Assessment Capita Selection	3	TM6046	Energy Resources	3
TM6021	Natural Gas Capita Selection	3	TM6047	Energy Project Finance and Economical Analysis	3
TM6022	Advanced Drilling Engineering	3	TM6048	Petroleum Project Environmental Impact Precaution	3
TM6023	Rock Mechanics	3	TM6049	Energy Economics	3
TM6024	Offshore Petroleum Operation	3	TM6050	Energy Modeling	3
TM6025	Drilling Engineering Capita Selection	3	TM6051	Energy Planning and Policy	3
TM6026	Advanced Production Engineering	3	TM6052	Energy Regulation	3

# MINING ENGINEERING

Mining engineering is an engineering discipline that involves practice, theory, science, technology, and application of extracting and processing minerals from a natural environment. Mining engineering also includes processing minerals for additional value.

Mineral extraction is essential to modern society. Mining activities by their nature cause a disturbance of the environment in and around the area the minerals are located. Mining engineers must therefore be concerned not only with the production and processing of mineral commodities, but also with the mitigation of damage to the environment as a result of that production and processing.

Mining engineering is a complex and interdisciplinary field that includes elements of geology, civil, mechanical, and materials engineering. Mining engineering ensures that mining is carried out efficiently and safely while maintaining sustainability and minimal environment impact.

This program offers the following options/concentrations: exploration, hydrology, geomechanics, mining technology, mineral economics, earth resources management, mineral extraction, coal technology, and corrosion.

In keeping with our collaborative outlook, one of our strengths lies in our ties with the mining industry. Most of our students have employment opportunities in major industries and participation in research activity working in mine fields. This hands-on approach helps our students to develop their practical skills and gain exposure to valuable historical cases. Also, many of our faculty members are active within the industry through consulting activities and involvement in professional societies related to the mining world. The end result is an innovative, industry-responsive, and internationally recognized graduate.

Telephone	: +62 22 2508131 / 2502239
Fax	: +62 22 2504209
Website	: <a href="http://www.mining.itb.ac.id">www.mining.itb.ac.id</a>
Email	: <a href="mailto:dep-ta@mining.itb.ac.id">dep-ta@mining.itb.ac.id</a>

## Curriculum of Master's Program of Mining Engineering

### Compulsory core courses

TA5102	Research Methodology	3	TA6091	Thesis I	2
TA6010	Special Distinctive Topic	2	TA6092	Thesis II	5

Total Load : 12 credits

### Compulsory courses (Option: Earth Resources Exploration)

TA5101	Applied Mathematics	3	TA5212	Mineral Deposit Exploration	4
TA5111	Mineral Genesis	2	TA5213	Applied Geostatistics	2
TA5113	Mineralogy and Mineral Concentration	2	TA6114	Exploration Management	3

Total Load : 16 credits

### Compulsory courses (Option: Earth Resources Management)

TA5109	Earth Resources Mathematics	2	TA5211	Mineral Economics and Energy	3
TA5122	Earth Resources and Energy Management	3	TA5222	Operational Research	2
TA5135	Economic Evaluation and Investation	3	TA5223	AMDAL (Natural Impact Assessment) for Mining Activities	3

Total Load : 18 credits

### Compulsory courses (Option: Geomechanics)

TA5101	Applied Mathematics	3	TA5226	Advanced Rock Mechanics II	2
TA5126	Advanced Rock Mechanics I	3	TA5227	Statistic Analysis	2
TA5127	Continued Media Mechanics	2	TA6123	Tunneling Method	2
TA5225	Explosion Matter Technology and Explosion	2			

Total Load : 16 credits

### Compulsory courses (Option: Mineral Engineering and Metallurgy)

MG5122	Metallurgical Process Engineering I	3	MG5222	Advanced Transport Phenomena	3
MG5151	Advanced Metallurgical Thermodynamics	3	TA5101	Applied Mathematics	3
MG5201	Metallurgical Process Engineering II	3			

Total Load : 15 credits

### Compulsory courses (Option: Coal Utilization Technology)

MG5112	Mineral and Coal Manufacture Process	3	TA5101	Applied Mathematics	3
MG5211	Advanced Coal Utilization	3	TA5114	Coal Quality and Genesis	2
MG6114	Coal Washing Factory Planning	4			

Total Load : 15 credits

### Compulsory courses (Option: Corrosion Engineering)

MG5151	Advanced Metallurgic Thermodynamics	3	MG5251	Physics Metallurgy and Fracture Mechanics	3
MG5152	Advanced Electrochemistry	3	MG5252	High Temperature Corrosion	3
MG5153	Aqueous Corrosion and Management	3			

Total Load : 15 credits



### Compulsory courses (Option: Mineral Economics)

TA5136	Microeconomics	2	TA5236	Macroeconomics	2
TA5137	Mathematical Economics	3	TA6114	Exploration Management	3
TA5211	Energy and Mineral Economics	3	TA6133	Advanced Regional Development	3
TA5234	Econometrics and Forecasting	3			

Total Load : 19 credits

### Compulsory courses (Option: Mining Environment Management)

TA5013	Mining Water Drainage and Management	2	TA5211	Energy and Mineral Economics	3
TA5109	Earth Resources Mathematics	2	TA5222	Operational Research	2
TA5122	Energy and Mineral Resources Management	3	TA5223	AMDAL(Natural Impact Assessment) for Mining Activities	3

Total Load : 15 credits

### Elective Courses

MG5101	Metallurgic Waste Management	2	TA5011	Mining Engineering Sciences	2
MG5111	PBG Physical Chemistry	2	TA5012	Geological Sciences	3
MG5124	High Temperature and Pressure Metallurgy	2	TA5115	Coal and Mineral Deposit Economics	2
MG5200	Advanced Electrometallurgy	3	TA5123	Region Development	2
MG5221	Advanced Metallurgy Kinetics	3	TA5136	Microeconomics	2
MG5223	Surface Behavior and Thermo mechanics	3	TA5223	AMDAL (Natural Impact Assessment) for Mining Activities	3
MG5232	Fatigue and Fracture Mechanics	3	TA5227	Statistic Analysis	2
MG5233	Foundry and Solidification	2	TA5229	Advanced Soil Mechanics	2
MG5234	Mechanic Metallurgy	2	TA5236	Macroeconomics	2
MG5235	Advanced Physics Metallurgy (+ Practicum)	3	TA6012	Hydrothermal Deposit Analysis Technic	2
MG5236	Advanced Metal Failure Analysis	3	TA6013	Advanced Geostatistics for Reserved Ore Estimation	3
MG6051	Advanced Phase Transformation	2	TA6014	Geothermal Resources Exploration	2
MG6059	Pipeline Risks Management	2	TA6015	Mining Ecology	2
MG6060	Pipeline Disability Assessment	2	TA6016	Industrial Waste Contamination Management	3
MG6111	Comminution Dynamics and Simulation	2	TA6017	Land and Reclamation Management	3
MG6112	Mass Transportation	2	TA6018	Social Aspects in Mining Management	2
MG6113	Advanced Floatation	2	TA6115	Drilling Exploration and Borehole Section	3
MG6123	Water Solution and Electrodeic Process	2	TA6122	Hydraulics in Rocks	2
MG6133	Integrated Pipeline Analysis	3	TA6125	Natural Structures Modeling	2
MG6233	Pipeline Loading Simulation	3	TL5201	B3 Waste Management	2
TA5001	Numerical Analysis	3	TL5211	Environmental and Valuation Economics	2

## Curriculum of Doctoral's Program of Mining Engineering

### Compulsory core courses

TA8013	Research Methodology	3	TA8095	Research and Improvement/Progress Seminar III	5
TA8091	Qualifying/Qualification Exam	3	TA8096	Research and Improvement/Progress Seminar IV	5
TA8092	Proposal Compiling/Preparation	5	TA9099	Dissertation Exam (Closed Examination)	3
TA8093	Research and Improvement/Progress Seminar I	5	TI7001	Research Methodology	3
TA8094	Research and Improvement/Progress Seminar II	5	TI7100	Science Philosophy	3

Total Load : 35 credits

### Elective Courses

TA8000	Mineral Resources Management Policy	3	TA8007	Advanced Electroplating	3
TA8001	Mineral Exploration Evaluation	3	TA8008	Metal Characteristic	3
TA8002	Mineral Deposit Modeling	3	TA8009	Advanced Surface Engineering	3
TA8003	Comprehensive Mining Study	3	TA8010	Experimental Planning and Optimization	3
TA8004	Rock Engineering	3	TA8011	Advanced Transport Phenomenon	3
TA8006	Advanced Electrochemistry Engineering	3	TA8012	Advanced Heat Treatment and Surface Treatment	3

# GEOPHYSICAL ENGINEERING

This program aims to provide a balanced education in the following areas:

1. Geophysical theory and methods including the quantification of error and resolution.
2. Problem definition, characteristics of an acceptable scientific solution, and an understanding of the effort required to reach an acceptable solution
3. The interrelationship of geophysics with other scientific and engineering disciplines.
4. Oral and written technical communication.
5. Project management and team work.

To achieve the above educational objectives, the students are exposed to classroom teaching and laboratory work instructions, thesis research, seminars, field trips, preparation of proposals and papers, presentations at professional meetings, short term work assignments on sponsored projects, and interaction with a wide variety of faculty, research staff, other students, and off campus scientists and engineers.

## ADDRESS

Institut Teknologi Bandung  
Basic Science Center B 2nd Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2509168, +62 22 2534137  
Fax : +62 22 2509168, +62 22 2534137  
Website : [www.gf.itb.ac.id](http://www.gf.itb.ac.id)  
Email : [tutg@gf.itb.ac.id](mailto:tutg@gf.itb.ac.id)



## Curriculum of Master's Program of Geophysical Engineering

### Core compulsory courses

TG6000	Geophysical Mathematics	3	TG6091	Master's Thesis	4
TG6004	Wave and Field in Geophysics	3	TG6101	Geophysical Geology	3
TG6011	Research Methodology	2	TG6290	Field Coursework	2

Total Load : 17 credits

### Compulsory courses (Option: Petroleum Geophysics)

GL5231	Petroleum System	2	TG6043	Reservoir Geophysics	3
TG5015	Advanced Seismic Data Processing	2	TG6045	Petroleum Exploration Geophysics	3
TG5042	Advanced Seismic Data Interpretation	3			

Total Load : 13 credits

### Compulsory courses (Option: Exploration, Engineering and Environment)

TG5145	Electromagnetic Exploration	2	TG6146	Geothermal Exploration	2
TG5216	Gravitational Force and Magnetism Exploration	3	TG6160	Geophysical Engineering and Environment	2
TG5244	Mining Geophysics	2	TG6245	Acquisition and Seismic Data Processing	3

Total Load : 16 credits

### Elective Courses

TG5033	Geophysics Modeling and Tomography	2	TG6044	Advanced Rock Physics	3
TG5124	Disaster Mitigation	2	TG6050	Geophysics Special Topics	2
TG5145	Electromagnetic Exploration	2	TG6203	Geophysics Signal Data Processing	2
TG5146	Geoelectric Exploration	2	TG6206	Earth Crust Thermodynamics	2
TG5148	Hydro geophysics	2	TG6225	Advanced Seismological Engineering	2
TG5220	Advanced Geophysical Instrument	3	SI5121	Advanced Soil Mechanics	3
TG6002	Differential Equation Numerical Simulation	2	TA5126	Advanced Rock Mechanics I	3
TG6031	Marine Geophysics	2	TM6022	Advanced Drilling Technics	3
TG6034	Geostatistics	2	TM6048	Environmental Impact Prevention on Petroleum Projects	3

Curriculum of Doctoral’s Program of Geophysical Engineering

Core compulsory courses

TG7000	Philosophy and Logical Technology Geophysics	3	TG8001	Report Preparation	5
TG7002	Geophysics Numerical Modeling	3	TG8003	Progress Seminar I	5
TG7004	Methodology and Technology Strategic Research Geophysics	3	TG8004	Progress Seminar II	5
TG7090	Qualifying Exam	3	TG9090	Dissertation Exam	8
TG8000	Proposal Preparation	3	TG9091	Doctoral Exam	3

Total Load : 41 credits

Elective Courses

TG7005	Geophysics Technology and Science	3
--------	-----------------------------------	---



Doc. Faculty of Mining and Petroleum Engineering

# GEOTHERMAL

This Master's program was established in 2008. The program is a collaborative program among the Faculty of Mining and Petroleum Engineering, Faculty of Earth Sciences and Technology, and the Faculty of Mechanical and Aerospace Engineering. This program is supported by the following research groups:

1. Geology
2. Applied Geology
3. Geophysical Science and Engineering
4. Earth Resources Exploration
5. Reservoir Engineering
6. Production Technology and Management of Oil and Gas
7. Energy Conversion
8. Environmental Management Engineering

Telephone : +62 22 2534249, 2504955, 2512575  
Fax : +62 22 2504955, 2512575  
Website : [www.geothermal.itb.ac.id](http://www.geothermal.itb.ac.id)  
Email : [geothermal@fttm.itb.ac.id](mailto:geothermal@fttm.itb.ac.id)



## Curriculum of Geothermal

### Core compulsory courses

PB5001	Geothermal System and Technology	3	PB6013	Geothermal Prospect Evaluation	3
PB5004	Geothermal Environmental Analysis	2	PB6099	Final Project	6
PB6009	Geothermal Management and Economics	2			

Total Load : 16 credits

### Compulsory courses (Option: Geothermal Exploration)

PB5002	Volcanology and Geothermal	2	PB6021	Hydrothermal Alteration	3
PB5003	Geological Geothermal Exploration	3	PB5008	Geophysical Geothermal Exploration	3
PB5007	Geochemical Geothermal Exploration	3			

Total Load : 14 credits

### Compulsory courses (Option: Geothermal Engineering)

PB5005	Advanced Heat and Mass Transfer	2	PB5011	Geothermal Production Engineering	3
PB5006	Geothermal Reservoir Engineering	3	PB5012	Geothermal Utilization	3
PB5010	Drilling Design	3			

Total Load : 14 credits

### Elective Courses

PB6014	Micro seismology	2	GL5001	Geological modeling	3
PB6015	Geothermal Production Monitoring and Development	2	GL5014	Fracture and Geomechanics	2
PB6016	Geochemistry of Geothermal Gas	2	GL5032	Mineral Chemistry	2
PB6017	Geothermal Reservoir Simulation	3	GL5033	Isotope Geochemistry	2
PB6018	Flow Modeling	3	GL5045	Geostatistics	2
PB6019	Geothermal Plant	3	GL5212	Geological Remote Sensing	2
PB6020	Direct Utilization	3	TG5145	Electromagnetic Exploration	2
PB6022	Geothermal Capita Selection	2	TG5216	Magnet Field and Gravity Force Exploration	3
AT6015	Hydrogeology for Geothermal	2	TG6050	Geophysics Capita Selection	2



# FACULTY OF EARTH SCIENCES AND TECHNOLOGY

The Faculty of Earth Sciences and Technology (Fakultas Ilmu dan Teknologi Kebumian, FITB) is a newer faculty that was established in 2007. However, this field of knowledge has long existed at Bandung Institute of Technology. Together with the Faculty of Mining and Petroleum Engineering (FTTM), FITB is a portion of the previous Faculty of Earth Sciences and Mineral Technology (FIKTM). The division was based on the differences of the scientific specialties being studied. FITB is comprised of four core study programs, namely Geological Engineering, Geodesy and Geomatics Engineering, Meteorology, and Oceanography. Looking at the distinctiveness of each science, we may conclude that the grouping of the study program into FITB is heavily related to; earth resources exploration, how humans may be able to understand the impact of the activity, and how to utilize it to increase the quality of life. In addition to learning about various scientific theories, the students will also obtain the opportunity to apply their learning to simulations related to the field.

Our research groups:

1. Geology Research Group
2. Applied Geology Research Group
3. Atmospheric Science Research Group
4. Oceanography Research Group
5. Geodesy Research Group
6. Surveying and Cadastre Research Group
7. Hydrographical Science and Engineering Research Group
8. Remote Sensing and GIS Research Group

Our laboratory facilities:

1. Applied Geology Laboratory
2. Geodynamic Laboratory
3. Computational Geology Laboratory
4. Sedimentography Laboratory
5. Paleontology Laboratory
6. Regional and Theoretical Oceanography Laboratory
7. Coastal Oceanography Laboratory
8. Analytical Meteorology Laboratory
9. Applied Meteorology Laboratory
10. Surveying and Cadastre Laboratory
11. Geodesy Laboratory
12. Hydrography Laboratory
13. Remote Sensing and GIS Laboratory
14. Computational Geodesy Laboratory
15. Petrology and Volcanology Laboratory

Dean

: Prof. Ir. Hasanuddin Z. Abidin, M.Sc., Ph.D.

Vice Dean for Academic Affairs

: Ir. Benyamin Sapiie, Ph.D.

Vice Dean for Resource Planning and Management : Dr. Ir. Dina Anggreni Sarsito, MT

# GEOLOGICAL ENGINEERING

Master's program in geological engineering prepares students who wish to learn about the application of modern exploration technologies and approaches based on physics, chemistry, biology, and mathematics. It is divided into three options:

1. General geology consisting of Stratigraphy, Micro and Macro paleontology, Petrology and Mineralization, Sedimentology, Geological Structure / Tectonic Geological Engineering, Spatial Geochemical Environment (oil, gas and minerals)
2. Petroleum Geosciences
3. Geological Engineering

This program prepares the students:

1. to understand the advanced methods of surface and sub-surface geological mapping
2. to choose the appropriate method for solving geological problems
3. to conduct geological research
4. to be able to compose a proper geological report

## ADDRESS

Institut Teknologi Bandung  
Labtek IV 2nd Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62-22-2502197  
Fax : +62-22-2502201  
Website : [www.gc.itb.ac.id](http://www.gc.itb.ac.id)  
Email : [geologi@gc.itb.ac.id](mailto:geologi@gc.itb.ac.id)



## Curriculum of Geological Engineering

### Compulsory core courses

GL5001	Geological Modeling	3	GL6001	Geology Research Methodology	3
GL5101	Geoconcept	2	GL6099	Thesis	6

Total Load : 14 credits

### Compulsory courses (Option: Geology)

GL5141	Advanced Petrology	3	GL5211	Geotectonics	3
GL5151	Advanced Stratigraphy	2	GL6098	Regional Geology	3

Total Load : 11 credits

### Compulsory courses (Option: Petroleum Geosciences)

GL5142	Reservoir Petrography	3	GL5251	Static Reservoir Modeling	2
GL5152	Basin Analysis	2	GL6052	Sequence Stratigraphy	2
GL5211	Geotectonics	3	GL6097	Field Excursion	2
GL5231	Petroleum System	2			

Total Load : 16 credits

### Compulsory courses (Option: Engineering Geology)

AT5001	Hydrogeology	3	GL5026	Engineering Geology of Soil	2
GL5024	Advanced Engineering Geology	3	GL5221	Agro geology	2
GL5025	Engineering Geology of Rocks	2	GL6097	Field Excursion	2

Total Load : 14 credits

## Elective courses

GL5002	Geological Hazard Mitigation	2	GL5062	Applied Micropaleontology	2
GL5011	Micro tectonics	2	GL5063	Quantitative Stratigraphy	2
GL5012	Advanced Structural Geology	2	GL5071	Quaternary Geochronology	3
GL5013	Neotectonics	2	GL5072	Quaternary Geology	2
GL5014	Fracture and Geomechanics	2	GL5073	Human Paleontology and Pale anthropology	2
GL5015	Geohistory	3	GL5081	Geology Seismic Interpretation	2
GL5021	Soil Geology	2	GL5082	Geophysics Exploration	3
GL5022	Landslide Geology	2	GL5122	Applied Geomorphology	2
GL5023	Geoplanology	2	GL5143	Magmatic Rocks Petrology	2
GL5024	Advanced Engineering Geology	3	GL5201	Petroleum Economy	3
GL5025	Engineering Geology of Rocks	2	GL5212	Remote Sensing Geology	2
GL5026	Engineering Geology of Soil	2	GL5221	Agro geology	2
GL5031	Exploration Geochemistry	2	GL6031	Biomarkers Geochemistry	2
GL5032	Mineral Chemistry	2	GL6032	Source Rocks Geochemistry	2
GL5033	Isotope Geochemistry	2	GL6041	Basement Geology	2
GL5034	Soil Geochemistry	2	GL6051	Clastic Sedimentary	2
GL5035	Geothermal Geochemistry	2	GL6052	Sequence Stratigraphy	2
GL5043	Rocks Alteration	3	GL6061	Small Foraminifera	3
GL5044	Sedimentary Rocks Petrology	3	GL6062	Larger Foraminifera	3
GL5045	Geostatistic	2	GL6063	Nannoplankton	3
GL5051	Carbonate Sedimentary	3	GL6064	Quantitative Biostratigraphy	2
GL5052	Seismic Stratigraphy	3	GL6151	Field Development Geology	3
GL5053	Subsurface Geology	3	TM6045	Petroleum Industry Capita Selection	3
GL5061	Palynology	3			



Doc. Faculty of Geological Science and Technology



## GEOLOGY (Doctoral)

Doctorate candidates in this program are equipped to be able to conduct full individual research under supervision of selected professors and associate professors. The proposed research can be in a single field or multiple fields. It is a synthesis of a geological concept in a field, or application of a concept to explain certain geological features in the field. Therefore, the curriculum of doctoral program is flexibly designed and gives the independence to the students to arrange their own programs. However, there are 70% compulsory courses in accordance with the regulations of the Ministry of Education and Culture. The presence of guest lecturers and experts from national and international universities may also be utilized within the curriculum. The prospective candidates are Master's graduates from geosciences fields or other related fields.

### ADDRESS

Institut Teknologi Bandung  
Labtek IV 2nd Floor

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62-22-2502197

Fax : +62-22-2502201

Website : [www.gc.itb.ac.id](http://www.gc.itb.ac.id)

Email : [geologi@gc.itb.ac.id](mailto:geologi@gc.itb.ac.id)

## Curriculum of Geology

### Compulsory core courses

GL6001	Geology Research Methodology	3	GL8096	Research and Progress Seminar II	5
GL7102	Earth Science Philosophy	3	GL9097	Research and Progress Seminar III	5
GL7201	Proposal Writing	5	GL9098	Research and Progress Seminar IV	5
GL7202	Qualifying Exam	3	GL9099	Dissertation Exam	3
GL8095	Research and Progress Seminar I	5			

Total Load : 37 credits

### Elective Courses

GL7001	Capita Selection Geology I	3	GL8021	Tropical Engineering Geology	5
GL7002	Capita Selection Geology II	3	GL8081	Tropical Hydrogeology	5
GL7011	Global Tectonics	5	GL8082	Tracer Hydrogeology	5
GL7051	Stratigraphy Concepts	3	GL8083	Artificial Aquifer Technology	3
GL7061	Pale climatology	5			

# EARTH SCIENCES

Indonesian archipelago and maritime continent has 81,000 km of coast line, and is one of the countries with the longest coast line in the world. Indonesia also has high seismicity and tropical climates with high precipitation. These unique features are the assets of Indonesian natural resources which are needed to be managed by highly competent human resources. Master's graduates of this program are needed to manage widely spread earth resources in more than 450 regencies.

This program was established in 1995. The objective of this program is to produce graduates who have the academic knowledge of earth sciences and a professional attitude. Since January 2011 a new option was established; earthquake and active tectonic (GREAT: Graduate Research on Earthquake and Active Tectonics). The curriculum consists of 36 credits in four semesters, with four fields of concentrations:

1. Oceanography:
  - Modeling and wave analysis
  - Coastal dynamics and management
  - Modeling of ocean environment
  - Air and sea water interaction
  - Oceanography for fisheries
  - Natural Hazard Management
  - Dynamics of current circulation and estuary
  - Geophysical fluid dynamics
2. Seismology:
  - Seismicity modeling and anisotropy
  - Gravity, geomagnetic, and resistivity modeling
  - Geodynamics and seismo-tectonics
  - Earthquake and tsunami assessment
3. Atmospheric science:
  - Monsoon climate and its variations
  - El-Niño Southern Oscillation (ENSO) and its variations
  - Long term climate variations and changes
  - Meso-scale meteorology
  - Hydrometeorology
  - Environmental and engineering meteorology
  - Climate change and policy,
  - Sea-air interaction.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62-22-2500494
Fax	: +62-22-2534139
Website	: <a href="http://www.fitb.itb.ac.id/index.php?content=prodiandid=6">www.fitb.itb.ac.id/index.php?content=prodiandid=6</a>
Email	: <a href="mailto:earthscience@fitb.itb.ac.id">earthscience@fitb.itb.ac.id</a>

## Curriculum of Earth Sciences

### Compulsory core courses

SB5101	Advanced Geostatistics	3	SB5205	Selected Topics	3
SB5102	Advanced Numerical Analysis	3	SB5206	Earth Sciences Research Methodology	3
SB5103	Advanced Signal Analysis	3	SB6099	Thesis	6
SB5104	Inversion Method	3			

Total Load : 24 credits

### Elective Courses

SB5014	Hydrogeometeorology	2	SB6115	Tidal Dynamics	3
SB5211	Physical Oceanography	3	SB6116	Advanced Oceanography Modeling	3
SB5212	Fluid Dynamics in Geophysics	3	SB6117	Estuary Dynamics	3
SB5221	Atmosphere Dynamics	3	SB6125	Climate Modeling	3
SB5222	Monsoon Meteorology	3	SB6126	Cloud and Rainfall Microphysics	3
SB5223	Advanced Hydrogeometeorology	3	SB6127	Ocean – Atmosphere Interaction	3
SB5224	Atmosphere Sciences	3	SB6133	Earth Structure and Material	3
SB5231	Advanced Geopotential	3	SB6134	Earth Disaster Management	3
SB5232	Seismic Data Analysis	3	SB6135	Advanced Seismology	3
SB6113	Ocean Current Dynamics	3	SB6136	Advanced Geodynamics	3
SB6114	Ocean Waves Dynamics	3			

## EARTH SCIENCES (Doctoral)

This program was established in 2003. The objective of this program is to equip the candidates with the ability to conduct full individual research under the supervision of selected professors and associate professors. The proposed research can be single or multiple disciplines. Doctorate research is expected to answer problems particularly related to physical oceanography, seismology, and atmospheric science. The prospective candidates are Master's graduates from geosciences or other related fields. Since January 2011 a new option was established; earthquake and active tectonic (GREAT: Graduate Research on Earthquake and Active Tectonics).

### ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62-22-2514990  
Fax : +62-22-2514837  
SMS Centre : +62 812 204 1446  
Website : [www.fitb.itb.ac.id/airtanah/](http://www.fitb.itb.ac.id/airtanah/)  
Email : [airtanah@fitb.itb.ac.id](mailto:airtanah@fitb.itb.ac.id)

## Curriculum of Earth Sciences

### Compulsory Core Courses

SB5206	Earth Sciences Research Methodology	3	SB8002	Research and Progress Seminar II	5
SB7001	Earth Sciences Philosophy	3	SB9001	Research and Progress Seminar III	5
SB7002	Proposal Writing	5	SB9002	Research and Progress Seminar IV	5
SB7003	Qualifying Exam	3	SB9090	Dissertation Exam	3
SB8001	Research and Progress Seminar I	5			

Total Load : 37 credits

### Elective Courses

SB7011	Regional Oceanography	3	SB7023	Atmosphere Modeling	3
SB7012	Turbulence	3	SB7024	Extreme Weather and Climate	3
SB7013	Tidal Hydrodynamics	3	SB7031	Earthquake Modeling	3
SB7014	Ocean Transport Phenomenon	3	SB7032	Global Seismology	3
SB7021	Equatorial Atmosphere	3	SB7033	Global Plate Dynamics	3
SB7022	Climate Policy and Amendment	3	SB7034	Earth Interior Structure and Physics	3



# GROUNDWATER ENGINEERING

The Groundwater Engineering program is developed due to the specific uniqueness of geology and water systems in Indonesia. Therefore, the hydrogeology of Indonesia must be studied thoroughly.

Basic competences of students in this program are in geosciences and fluid science. For the reason, non-geosciences students are required to take some basic courses in hydrogeology. Some original research is organized in this program as follows: volcanic hydrogeology, karst hydrogeology, hydrogeology of unsaturated zone, aquifer storage and recovery, petroleum hydrogeology, and the relationship between hydrogeology and engineering geology.

Prospective students are undergraduates from geological engineering, mining engineering, petroleum engineering, geophysical engineering, geophysics and meteorology, civil engineering, environmental engineering, earth physics, and physical geography.

The curriculum is focused on groundwater resource problems, groundwater as geological agents, and application of hydrogeology in engineering fields. Courses are packed into 36 credits that can be obtained in 3-4 semesters.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62-22-2514990  
Fax : +62-22-2514837  
SMS Centre : +62 812 204 1446  
Website : [www.fitb.itb.ac.id/airtanah/](http://www.fitb.itb.ac.id/airtanah/)  
Email : [airtanah@fitb.itb.ac.id](mailto:airtanah@fitb.itb.ac.id)

## Curriculum of Groundwater Engineering

### Compulsory Core Courses

AT5001	Hydrogeology	3	AT5206	Groundwater Modeling	3
AT5102	Quantitative Hydrogeology	2	AT5207	Hydrogeochemistry	2
AT5103	Groundwater Geology	2	AT6099	Thesis	4
AT5204	Groundwater Exploration and Investigation Technology	3	GL6001	Geological Research Methodology	3
AT5205	Groundwater Drilling Technology	2	SB5014	Hydrogeometeorology	2

Total Load : 26 credits

### Elective Courses

AT6008	Environment Hydrogeology	2	AT6016	Volcanic Deposit Groundwater System	2
AT6009	Groundwater Basin Management	2	AT6017	Engineering Hydrogeology	2
AT6010	Fracture Media Hydrogeology	2	AT6018	Hydro geologic Information System	2
AT6011	Karst Groundwater System	2	AT6019	Groundwater Recharges	2
AT6012	Indonesia Hydrogeology	2	AT6020	Groundwater Tracer Technology	2
AT6013	Petroleum Hydrogeology	2	AT6021	Special Topic in Hydrogeology	2
AT6014	Aquifer System Typology	2	TG5148	Hydro geophysics	2
AT6015	Geothermal Hydrogeology	2	TL6184	Soil and Groundwater Contamination	2

# GEODESY AND GEOMATICS ENGINEERING

The field of geodesy and geomatics involves an integrated approach from acquisition to applications of geospatially referenced data. Master's program in Geodesy and Geomatics Engineering enhances the student knowledge and provides foundation to perform scientific research in the field of geodesy and geomatics.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62-22-2530701
Fax	: +62-22-2530702
Website	: <a href="http://www.fitb.itb.ac.id">www.fitb.itb.ac.id</a>
Email	: <a href="mailto:dtgd@gd.itb.ac.id">dtgd@gd.itb.ac.id</a>

## Curriculum of Geodesy and Geomatics Engineering

### Compulsory Core Courses

GD5101	Data Analysis Techniques	3	GD5202	Spatial Information System	3
GD5102	Research Methodology in Geodesy and Geomatics	3	GD5203	Spatial Legal Aspects	3
GD5103	Advanced Surveying and Mapping	3	GD6091	Thesis	6
GD5201	Digital Image Processing	3			
Total Load : 24 credits					

### Elective Courses

GD6101	Boundary Demarcation & Delimitation	3	GD6110	Coastal Geography	3
GD6102	Deformation & Geodynamics Analysis	3	GD6111	Spatial Decision Support System	3
GD6103	GPS Meteorology	3	GD6112	Digital Geometry Processing	3
GD6104	Physical Geodesy	3	GD6113	Land Management	3
GD6105	Marine Cadastre	3	GD6201	Spatial Data Infrastructure	3
GD6106	Marine Navigation System	3	GD6202	Advanced Land Administration	3
GD6107	Geographic Modeling	3	GD6203	Disaster Mitigation System	3
GD6108	Coastal Hydrography	3	GD6204	Coastal Zone Engineering	3
GD6109	Aquatic Remote Sensing	3			

# LAND ADMINISTRATION

The field of Land Administration involves an integrated approach to the applications of geospatially referenced data for the Cadastral Information System. The Land Administration describes legal, fiscal and multi-purpose cadastres which are strongly applied to the legal land/spatial/parcel record development and analysis, land/property/asset valuation development and analysis, and legal land/spatial planning for multi-purposes.

Master's program in Land Administration is oriented to applied sciences, it strengthens the students knowledge and increases their skills and ability to cope with recent technologies, methods and products for problem solving based on some applied scientific research in Applied Geomatics and Administrative phenomena such as: land boundary, GPS, remote sensing, photogrammetry, marine cadastral and engineering survey for large scale of orthoproduct mapping, which is integrated with management, economy, law, sociology, culture, agriculture, forestry, and environmental sciences.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62-22-2530701  
Fax : +62-22-2530702  
Website : [www.fitb.itb.ac.id](http://www.fitb.itb.ac.id)  
Email : [dtgd@gd.itb.ac.id](mailto:dtgd@gd.itb.ac.id)

## Curriculum of Land Administration

### Compulsory Core Courses

GD5101	Data Analysis Technique	3	GD5207	System Computer and Application	2
GD5104	Data Acquisition Technique and Mapping System	2	GD5208	Land and Property Valuation	2
GD5105	Land Profession Etiquette and Report System	3	GD6114	Application and Management of Land Information System	3
GD5106	Capita Selecta	2	GD6115	End Project/Final Applied Research	6
GD5204	Cadastre System	2	GD6116	Land Project Management	2
GD5205	Principle and Structure Database	2	GD6117	Studio of Land	2
GD5206	Land Information Management	2			

Total Load : 33 credits

### Elective Courses

GD5107	Land Administration Boundary Mapping	2	GD5211	Strategic Management (System and Process)	2
GD5108	Sociology of Spatial Development	2	GD6118	Marine and Water Cadastre	2
GD5209	Spatial Model of Land Dynamic	2	GD6119	Land Investment Feasibility	2
GD5210	Decision Support System	2	GD6120	Juridical Aspect in Land Administration	2



# GEODESY AND GEOMATICS ENGINEERING (Doctoral)

Recently, the spectrum of geodesy and geomatics became broader and encouraged further development of science and technology related to this field. Doctoral program in Geodesy and Geomatics Engineering facilitates the students to perform independent research, supervised by professors, in order to develop new knowledge and applications in the field of geodesy and geomatics.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62-22-2530701
Fax	: +62-22-2530702
Website	: <a href="http://www.fitb.itb.ac.id">www.fitb.itb.ac.id</a>
Email	: <a href="mailto:dtgd@gd.itb.ac.id">dtgd@gd.itb.ac.id</a>

## Curriculum of Geodesy and Geomatics Engineering

### Compulsory Core Courses

SB5206	Earth Sciences Research Methodology	3	SB8002	Research and Progress Seminar II	5
SB7001	Earth Sciences Philosophy	3	SB9001	Research and Progress Seminar III	5
SB7002	Proposal Writing	5	SB9002	Research and Progress Seminar IV	5
SB7003	Qualifying Exam	3	SB9090	Dissertation Exam	3
SB8001	Research and Progress Seminar I	5			

Total Load : 37 credits

### Elective Courses

GD7203	Advanced Mapping System	3	GD7208	Marine Boundary Science	3
GD7204	Advanced Spatial Data Infrastructure	3	GD7209	Marine & Coastal Resources Optimization	3
GD7205	Advanced Positioning	3	GD7210	Advanced Land Management	3
GD7206	Advanced Deformation and Geodynamics	3	GD7211	Advanced Engineering Survey	3
GD7207	Advanced Earth Gravity Field	3	GD7212	Advanced Remote Sensing	3



# FACULTY OF INDUSTRIAL TECHNOLOGY

Faculty of Industrial Technology (Fakultas Teknologi Industri, FTI) was established in 1973. FTI currently offers the postgraduate programs: Chemical Engineering, Engineering Physics, Instrumentation and Control, Industrial Engineering and Management Program. The reorganization of this program also grouped academic staff in research groups that would serve as the spearheads in ITB's effort towards the realization of its vision and mission.

## Our Vision:

Becoming a leading faculty, dignified, independent, recognized by the world and to lead changes that can improve the welfare of the Indonesia as a nation and the world.

## Our Mission:

Create, share and apply science and technology in the field of industrial technology and to produce competitive human resources to make a better Indonesia and the world.

Dean

: Prof. Dr. Ir. Deddy Kurniadi, M.Eng.

Vice Dean for Academic Affairs

: Dr. Tjokorde Walmiki Samadhi, ST, MT.

Vice Dean for Resource Planning and Management : Suprayogi, ST, MT, Ph.D.

# CHEMICAL ENGINEERING

The Faculty of Industrial Engineering, ITB, is the faculty organizing the oldest Chemical Engineering Education Program in Indonesia. Our program offers Master's and Doctoral Degrees, as well as undergraduate degrees. We provide our students with state of the art facilities:

1. Library
2. Process Simulation Laboratory
3. Analytical Instrument Laboratory
4. Microbiology Laboratory
5. Food Technology Laboratory
6. Chemical Technology Laboratory
7. Bioprocess Technology Laboratory
8. Expertise Laboratories (Chemical Industry Product Engineering, Polymer and Membrane Technology, Ceramic Technology, Chemical Reaction and Catalyst Engineering, Electrochemical Conversion, Microbiology and Bioprocess Technology, Separation Process, Thermo fluids and Utility System, Process Equipment, Process Methodology and Control)
9. Glass and Metal Workshop

## ADDRESS

Chemical Engineering Program,  
Faculty of Industrial Technology, ITB, Labtek X Building,  
Jalan Ganesha 10, Bandung 40132  
Indonesia

Telephone : (022) 2500989  
Fax : (022) 2501438  
Website : [www.che.itb.ac.id](http://www.che.itb.ac.id)  
Email : [cheitb@che.itb.ac.id](mailto:cheitb@che.itb.ac.id)

## Curriculum of Chemical Technology Subprogram (Required)

### Core Courses (Option: Process Engineering)

Semester I			Semester II		
TK5101	Advanced Thermodynamics	3	TK5201	Advanced Chemical Reaction Engineering	3
TK5102	Advanced Transfer	3	TK5202	Advanced Chemical Engineering Process Analysis	3
TK5091	Research Methodology & Proposal	3	TK6071	Process System Engineering	3
			TK6099	Research	6
Total Load : 9 credits			Total Load : 15 credits		

### Core Courses (Option: Process Research)

Semester I			Semester II		
TK5101	Advanced Thermodynamics	3	TK5201	Advanced Chemical Reaction Engineering	3
TK5102	Advanced Transfer	3	TK5202	Advanced Chemical Engineering Process Analysis	3
TK5091	Research Methodology & Proposal	3	TK6062	Data Measurement and Processing	3
			TK6099	Research	6
Total Load : 9 credits			Total Load : 15 credits		

## Elective courses

### Term I

TK5001	Chemical Process Risk Assessment	3	TK5016	Industrial Membrane Technology	3
TK5002	Polymer Science and Technology	3	TK5017	Professionalism and Entrepreneurship Practice	3
TK5003	Selected Topics on Separation Process	3	TK5018	Polymer Processing Technology	3
TK5004	Nano Particle Engineering	3	TK5019	Chemical Process Project Management	3
TK5005	Selected Topics on Process Equipment	3	TK5021	Industrial Electrochemistry	3
TK5006	Particulate Product Engineering	3	TK5022	Corrosion Process and Control	3
TK5007	Selected Topics on Computation Process	3	TK5023	Supercritical Fluid Technology	3
TK5008	Basic of Coal Management and Utilization	3	TK5024	Aquatic Food Source	3
TK5009	Selected Topics on Product Technology	3	TK5025	Metabolite Product Engineering	3
TK5010	Project Feasibility Evaluation	3	TK5026	Biological System Engineering	3
TK5011	Plastic Waste Management	3	TK5027	Chemical Engineering System Optimization	3
TK5012	Energy Management	3	TK5028	Basics of Ceramic Processing	3
TK5013	Industrial Furnace Analysis and Design	3	TK5029	Sustainable Chemical Processing System	3
TK5014	Thermal System Analysis	3	TK5030	Oil and Gas Surface Facilities	3
TK5015	Starch Processing Technology	3	TK5031	Biopolymer	3
TK5032	Gas Processing Technology	3	TK5047	Selected Topics on Bioprocess Engineering	3
TK5033	LNG Processing Technology	3	TK5048	Environmental Biotechnology	3
TK5034	Industrial Experience	3	TK5049	Selected Topics on Waste Treatment	3
TK5035	Petroleum Refinery Technology	3	TK5050	Introduction to Ceramic Engineering	3
TK5036	Catalyst and Catalytic	3	TK5051	Process Statistics	3
TK5037	Selected Topics on Industrial Process	3	TK5052	Food Product Development	3
TK5038	Kemurgi Technology	3	TK5053	Entrepreneurship and Food Product Technology	3
TK5039	Farm Product Processing Technology	3	TK5054	Combustion Engineering	3
TK5040	Chemical Process Development	3	TK5055	Multiphase Flow	3
TK5041	Selected Topics on Process Technology	3	TK5056	Heat Radiation Transfer	3
TK5042	Petroleum and Grease Processing Technology	3	TK5057	Selected Topics Chemical Reaction Engineering	3
TK5043	Plasma Technology	3	TK5058	Process Intensification	3
TK5044	Process System Troubleshooting	3	TK5059	Microsystems Process Technology	3
TK5045	Process System Dynamic Modeling	3	TK5060	Food Packing	3
TK5046	Selected Topics on Process Design	3	TK5061	Chemical Engineering Business Development	3



## Curriculum of Bioprocess Techonology Subprogram (Required)

### Elective courses

#### Term II

TK6061	Advanced Computational Process	3
TK6062	Data Measurement and Processing	3
TK6071	Process System Engineering	3
TK6071	Process System Engineering	3
TK6072	Plant Equipment Analysis	3
TK6073	Plant System Analysis & Design	3
TK6074	Engineering Ethics & Leadership	3
TK6075	Problem Solving	3
TK6091	Seminar	3
TK6092	Scientific Article Writing	3



# ENGINEERING PHYSICS

Master's program in Engineering Physics is a program which focuses on the development of sciences and technologies. This program is designed to give the students the understanding of conceptual design of a system (identification, formulation, analysis synthesis, evaluation, modeling and design), and to conduct research independently based on scientific methodology. This study program offers four different field concentrations, namely:

## 1. Industrial Process Automation

This program is an automation system hierarchy which includes information system flow in industrial automation at plan/field level, process automation level as well as at business and management level.

## 2. Building Physics and Acoustics

This program is related to the building environment, which includes acoustic, thermal study of buildings, lighting, and energy conservation in buildings, etc.

## 3. Lighting Design

This program studies lighting design in a building's interior and exterior.

## 4. Computation and Material Process

This program is to provide advanced knowledge to students about material types, material process and analysis, material simulation and computation, and new functional materials.



### ADDRESS

TP Rachmat (Labtek VI) Building,  
Faculty of Industrial Technology, Institut Teknologi Bandung,  
Jalan Ganesha No. 10, Bandung 40132

Indonesia

Telephone : +62 22 250 4424, +62 22 250 8138

Fax : +62 22 250 6281

Website : <http://www.tf.itb.ac.id>

Email : [pascاتف@tf.itb.ac.id](mailto:pascاتف@tf.itb.ac.id)

## Curriculum of Engineering Physics

### Core Courses

#### Semester I

TF6101	Industrial Physics	3
TF6102	Safety in Industry	3

Total Load : 6 credits

#### Semester II

TF6001	Research Methodology	3
TF6002	Seminar	3
TF6099	Thesis	9

Total Load : 15 credits

### Elective courses

#### Term I

TF5111	Plant Automation	3	TF6114	Control Processing Network	3
TF5121	Noise Control	3	TF6122	Protection System and Fire Control	3
TF5122	Architectural Acoustics Design	3	TF6123	Design of Thermal Environmental	3
TF5131	Thermodynamics of Materials	3	TF6124	Transducer and Sound System	3
TF5221	Room Acoustic Design	3	TF6125	Capita Selection in Lighting	3
TF5231	Structure and Applications of Magnetic Materials	3	TF6126	Case Study in Lighting and Seminar	3
TF6021	Energy in Buildings	3	TF6131	Quantum Mechanic	3
TF6022	Utility and Building Codes	3	TF6132	Computation and Material Simulation	3
TF6111	Advanced Instrumentation	3	TF6133	Sol-Gel Technology	3
TF6112	Data Process Communication	3	TF6134	Molecular Dynamics Simulation	3
TF6113	Automation Laboratory I and Seminar	3	TF6135	Material Process Kinetics	3

#### Term II

TF6211	Plant Information System	3	TF6223	Vision and Visual Perception	3
TF6212	Plant Optimization	3	TF6224	Thermal Comfort	3
TF6213	Automation Laboratory II and Seminar	3	TF6225	Psychoacoustics	3
TF6214	Safety and Reliability of Automation System	3	TF6226	Environment Noise Measurement	3
TF6215	Distributed Process Control System	3	TF6231	Electronic Ceramics	3
TF6216	Asset Management and Maintenance	3	TF6232	Advanced Material Computation and Simulation	3
TF6217	Plant Data Reconciliation	3	TF6233	Semiconductor Materials	3
TF6221	Lighting Design	3	TF6234	Thin Film Engineering	3
TF6222	Lighting Technology	3			3

# INSTRUMENTATION AND CONTROL

The world of industry today is characterized by the fact that it is rapidly changing. On-time productions, high quality, safety in operation as well as optimization in production are factors which are fully considered by the industries. One of the determining factors to fulfill the above criteria is the utilization of proper and efficient instrumentation and control systems. A new innovation to produce modern products can be realized if the industry is supported by reliable instrumentation and control systems. Further, the development of industries in all fields today is heavily affected by the role of automation concepts, which are supported by advanced instruments as well as various control techniques, either conventional or advanced.

Through its designed curriculum and research, this program has the objective to produce graduates with a Master's in engineering which are capable of utilizing and developing the science and technology in instrumentation and professional control, for the purpose of education, research and its application in the industry.

Using the obtained competence and experience, a graduate with a Master's in engineering instrumentation and control is a requirement by many sectors of the industry, strategic industry (such as process and chemical, aeronautics, telecommunication, ship-building, steel, electronics and military industries), medical instrumentation industry, consultation bureau, construction services, universities, and research institutions. Furthermore, a graduate is expected to apply his/her knowledge to carry out or to take up a research project, to solve any instrumentation or control related problems in various needs of society.

Since its establishment in 1991, many graduates have received jobs at government institutions, private and industrial sectors as well as research institutions and universities. educational methods which encourage students to think critically with actual and up-to-date examples as well as series of group design projects. This series of group design projects includes process planning, work system design, assembly line design, production control design, quality control system design, information system design, organization design, and facility layout design.

## ADDRESS

TP Rachmat (Labtek VI) Building,  
Faculty of Industrial Technology, Institut Teknologi Bandung,  
Jalan Ganesha No.10, Bandung 40132  
Indonesia

Telephone : +62 22 250 4424, +62 22 250 8138

Fax : +62 22 250 6281

Website : <http://www.tf.itb.ac.id>

Email : [pink@tf.itb.ac.id](mailto:pink@tf.itb.ac.id)

## Curriculum of Instrumentation and Control Engineering

### Core Compulsory Courses

Semester I			Semester II		
IK6101	Physics in Instrumentation	2	IK6201	Optimization Technique	2
IK6102	Measurement Systems	3	IK6202	Stochastic Process	2
IK6103	Linear Systems	2	IK6203	Instrumentation Systems	3
IK6104	Research Methodology	3	IK6204	Automatic Control Theory	3
IK6098	Thesis I	2	IK6099	Thesis II	4
MA5071	Advanced Mathematics	2			
Total Load : 12 credits			Total Load : 19 credits		

### Elective courses

#### Term I

IK5011	Control Process	2
IK5012	Medical Instrumentation	2
IK5013	Expert Systems	2
IK5014	Optimal Control	2
IK5015	System Identification	2

#### Term II

IK6011	Adaptive Control	2
IK6012	Ultrasonic Instrumentation	2
IK6013	Non-Linear Control System	2
IK6014	On-line and Real-time Systems	2
IK6015	Artificial Intelligence Systems	2
IK6016	Advanced Signal Processing	2
IK6017	Modeling and Simulation	2
IK6018	Filter and Estimation	2
IK6019	Laser and Optical Instrumentation	2



# INDUSTRIAL ENGINEERING & MANAGEMENT

The Master's program in Industrial Engineering and Management is a linear extension of the undergraduate program and a pathway for continuing onto a doctoral program. In this program, the curriculum is designed to be more specialized and aligned with the discipline of industrial engineering and management. The specialization aims to accommodate the development of this discipline through Master's and doctoral research.

The Program Educational Objective of Industrial Engineering and Management program are:

1. Graduates will have competencies to work and to conduct research in a broad range of industrial sector and be capable to apply and develop knowledge and techniques used in Industrial Engineering and Management.
2. Graduates will have readiness to pursue advanced degrees in professional or academic oriented education.
3. Graduates will demonstrate abilities to play important roles at the operational or managerial level of various organizations

The curriculum of Industrial Engineering and Management Program is designed to provide graduates with the following student outcome:

1. An ability to apply knowledge of mathematics, science, and engineering to industrial engineering and management area.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design and /or manage a system, component, or process consist of people, materials, equipment, information, equipment, and energy to meet desired needs within realistic constraints
4. An ability to function on multidisciplinary or cross-cultural team.
5. An ability to identify, formulates, and solves industrial engineering and management problems.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. The broad education necessary to understand the impact of industrial engineering and management solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning.
10. A knowledge of contemporary issues relevant to industrial engineering and management.
11. An ability to use the techniques, skills, and modern engineering tools necessary for industrial engineering and management practices.
12. An ability to develop and execute research activities in industrial engineering and management area.

There are five specializations/options in Industrial Engineering and Management Program including:

### 1. Ergonomic and Engineering Performance (EEP)

This specialization studies humans and the ability for designing an integrated system and engineered performance of work system. It includes; physiological, psychological, and sociological aspects in designing and improving man-machine systems and its work environment. This specialization emphasizes on improvement of technology utility, safety, and quality of work environment.

### 2. Manufacturing System (MS)

This specialization focuses on design, improvement, implementation, and operation of manufacturing systems and production system network in order to transform customer needs into product design and furthermore to manufacture and assemble final products according to customer demand with high quality, a competitive price, and on time delivery.

### 3. Industrial Management (IM)

This specialization focuses on managerial aspects in order to design, improve, install, and operate the integrated system. The specialization involves areas but is not limited to organizational design and development, innovation management, and engineering management.

### 4. Enterprise Information System (EIS)

This specialization focuses on design and improvement of enterprise system by utilizing information system and the aspects of decision making processes in the organization to design, improve, and operate an enterprise.

### 5. Industrial System and Supply Chain (ISSC)

This specialization focuses on design, improvement, installation, and operation of integrated systems at macro level where the relationship between companies in industrial sector become the object of study.

#### ADDRESS

TP Rachmat (Labtek VI) Building,  
Faculty of Industrial Technology, Institut Teknologi Bandung,  
Jalan Ganesha No. 10, Bandung 40132  
Indonesia

Telephone : +62 22 250 9164  
Fax : +62 22 250 9164  
Website : [tatausaha@mail.ti.itb.ac.id](mailto:tatausaha@mail.ti.itb.ac.id)  
E-mail : <http://www.ti.itb.ac.id>



## Curriculum of Industrial Engineering and Management Program

## Core Compulsory Courses

## Semester I

TI5001	Optimization Method	3
TI5002	Multivariate Statistics	3
TI6001	Principles of Industrial Engineering and Management	2
TI6002	Research Seminar	1

Total Load : 9 credits

## Semester II

TI5003	Methodology and System Modelling	3
TI6003	Research Methodology I	2

Total Load : 5 credits

## Semester III

TI6004	Research Methodology II	1
--------	-------------------------	---

Total Load : 1 credits

## Semester IV

TI6099	Thesis	6
--------	--------	---

Total Load : 6 credits

## Elective courses

## Options

			EEP	MS	IM	EIS	ISSC
TI5004	Performance Management System	3			o		
TI5005	Team Based Organization	3			o		
TI5006	Innovation Management	3			o		
TI5007	Biomechanics	3	o				o
TI5008	Work Health & Safety	3	o				
TI5009	Lean Manufacturing	3	o	o			
TI5010	Maintenance System	3		o			
TI5012	Logistic System and Supply Chain	3					o
TI5013	System Dynamic	3	o	o	o	o	o
TI5014	Value Chain System	3					o
TI5015	e-Business Design	3				o	
TI5016	Corporate Strategy	3			o		
TI5017	Financial Markets and Institutions	3			o		
TI5018	Risk Management	3	o		o		
TI5020	Transportation and Distribution System	3					o
TI5022	Quality Management System	3		o	o		
TI5023	Service Design	3			o		
TI5024	Visionary Thinking	3			o		
TI5025	Macro Ergonomics	3	o				
TI5026	Industrial Ergonomics	3	o				

## Elective courses

### Options

			EEP	MS	IM	EIS	ISSC
TI5027	Toyota Production System	3		o			
TI5028	Manufacturing Strategy	3		o			
TI5029	Design & Process Planning Automation	3		o			
TI5030	Inventory System	3		o			
TI5031	e-Logistics	3					o
TI5032	Data Mining and Knowledge Management	3				o	
TI5033	Financial Engineering	3			o		
TI5037	Human Resource Management System	3			o		
TI5038	Compensation System	3			o		
TI6005	Human Factor Research Design	3	o				
TI6006	Simulation System	3	o	o	o	o	o
TI6007	Advanced Statistical Data Analysis	3	o	o	o	o	o
TI6008	Performance Improvement Strategy	3	o		o		
TI6009	Occupational Physiology	3	o				
TI6010	Human Factor System Design	3	o				
TI6011	Regulation and Policy Analysis	3					o
TI6013	Work Psychology	3	o				
TI6020	Manufacturing Optimal Control	3		o			
TI6021	Scheduling Theory	3		o			
TI6023	Management of Modern SME-s	3		o			
TI6024	Information System Strategic Design	3				o	
TI6032	Service Quality	3			o		
TI6034	Production Planning and Control System	3		o			
TI6037	Enterprise Modeling	3				o	

Note : recommended for the option



# FACULTY OF MECHANICAL AND AEROSPACE ENGINEERING

The Faculty of Mechanical and Aerospace Engineering (Fakultas Teknik Mesin dan Dirgantara, FTMD) was established in 2008, and was previously, part of the Faculty of Industrial Engineering (FTI). The Faculty of Mechanical and Aerospace Engineering offers four core programs: Mechanical Engineering, Aeronautical and Astronautical Engineering, Material Engineering, and Nuclear Science Engineering

Our research groups:

1. Mechanical Design Research Group
2. Energy Conversion Research Group
3. Mechanical Production Engineering Research Group
4. Aircraft Design, Operation, and Maintenance Research Group
5. Flight Physics Research Group
6. Lightweight Structures Research Group
7. Materials Science and Engineering Research Group

Our facilities:

1. Physical Metallurgy Laboratory
2. Mechanical Metallurgy Laboratory
3. Foundry Laboratory
4. Basic Manufacturing Processes Laboratory
5. Machine Tools & Production Equipment Laboratory
6. Computing Laboratory
7. Metrology Laboratory
8. Automation & Production Equipment Laboratory
9. Fluid Machinery Laboratory
10. Cryogenic, Refrigeration and Air Conditioning Laboratory
11. Internal, Combustion Engine & Propulsion System Laboratory
12. Thermal Energy Laboratory
13. Mechanics and Mechanical Construction Laboratory
14. Thermal Engineering Laboratory
15. Mechanical Design Laboratory
16. Dynamic Laboratory
17. Aerodynamics Laboratory
18. Lightweight Structure Laboratory
19. Aeronautics Product Design Studio
20. Air Transportation System Laboratory
21. Basic Aircraft System Laboratory
22. Astrodynamics Laboratory
23. Flight Simulation Laboratory
24. Advanced Composite Materials Laboratory

Dean

: Ir. Hari Muhammad, Ph.D

Vice Dean for Academic Affairs

: Prof.Dr.Ir. Zainal Abidin

Vice Dean for Resource Planning and Management : Dr. Ir. Ignatius Pulung Nurprasetyo, MSME

# MECHANICAL ENGINEERING

Mechanical Engineering graduate program emphasizes not only on depth in fundamental mechanical engineering disciplines, but also on an interdisciplinary approach to understanding technologies where mechanical engineers can and should take a leading role. It is emphasized on fundamentals, the ability to think and work outside of one's area of expertise and the ability to frame complex problems.



Doc. Faculty of Mechanical and Aerospace Engineering



## ADDRESS

Institut Teknologi Bandung

Labtek II ITB 2nd Floor

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2504243

Fax : +62 22 2534099

Website : [www.mesin.itb.ac.id](http://www.mesin.itb.ac.id)

Email : [tu@ms.itb.ac.id](mailto:tu@ms.itb.ac.id)

## Curriculum of Master's Program Mechanical Engineering

### Compulsory Core Courses

MS6000	Engineering Analysis I	3	MS6099	Thesis	6
MS6001	Engineering Analysis II	3			

Total Load : 12 credits

### Elective Courses

MS5010	Special Topics in Construction A	3	MS5061	Dynamic System Modeling	3
MS5011	Special Topics in Construction B	3	MS5062	Mechanic Signal Processing	3
MS5012	Machinery Vibration	3	MS5063	Motor Installation and Foundation	3
MS5013	Creativity	3	MS5064	Control System	3
MS5014	Advanced Mechanics in Design	3	MS5070	Robotics	3
MS5015	Advanced CAD/CAE	3	MS5071	Computer Aided Control System Design	3
MS5016	Design Methodology and Optimization	3	MS5072	Artificial Intelligence for Engineering Application	3
MS5017	Design and Construction of Piping System	3	MS5073	Production Management	3
MS5018	Design of Pressure Vessel	3	MS5074	Production Control System	3
MS5019	Finite Element Method	3	MS5090	Air Conditioning System	3
MS5020	Special Topics in Production A	3	MS5091	Heat Exchanger	3
MS5021	Special Topics in Production B	3	MS5092	Two Phase Flow and Heat Transfer	3
MS5022	Advanced Machining	3	MS5093	Gas and Particle System	3
MS5023	Advanced Machine Tools	3	MS5230	Failure Analysis, Methods and Cases	3
MS5024	Non-Conventional Machining	3	MS6010	Advanced Strength of Materials	2
MS5026	Tooling System	3	MS6011	Design Optimization	2
MS5027	Machine Tool Testing	3	MS6012	Material Selection in Mech. Design	2
MS5028	NC Programming	3	MS6013	Design Theory and Methodology	2
MS5029	Object Oriented Programming	3	MS6014	Material Selection and Process in Design	3
MS5030	Special Topics in Material A	3	MS6015	Advanced Design for Manufacture and Assembly	2
MS5031	Special Topics in Material B	3	MS6016	New and Innovative Product Design	2
MS5032	Corrosion and Controlling Methods	3	MS6017	Design Assignment	3
MS5040	Special Topics in En. Conv. A	3	MS6018	Advanced Design of Pressure Vessel	3
MS5041	Special Topics in En. Conv. B	3	MS6019	Advanced Finite Element Method	3
MS5042	Steam Generating System	3	MS6020	CNC Machine Tools	3
MS5043	Design of Hydraulic Systems	3	MS6022	Advanced Mechatronics	3
MS5044	Fluid Machineries	3	MS6023	Advanced Robotics	3
MS5045	Internal Combustion Engines	3	MS6024	Automation of Industrial Equipment	3
MS5046	Gas Turbine	3	MS6027	CAD/CAM	3
MS5047	Rocket Engine	3	MS6030	Advanced Engineering Materials	3
MS5048	Fuels and Combustion	3	MS6031	Metallurgy of Production Process	3
MS5049	Refrigeration & Cryogenic Systems	3	MS6032	Material Design & Selection	3
MS5060	Tribology	3	MS6033	Phase Ident. & Struct. Det. of Mat.	3



## Elective Courses

MS6034	Advanced Material Charact. & Ident.	3	MS6063	Digital Control	3
MS6035	Fatigue & Creep Phenomena in Matr.	3	MS6064	Design and Optimization of Composite Structure	2
MS6037	Engineering Life Assessment Method	3	MS6065	Railway Vehicle Design	3
MS6040	Basic of Thermal Engineering	3	MS6066	Programmable Logic Controller (PLC)	3
MS6041	Advanced Thermodynamics	3	MS6067	Modal Analysis	3
MS6042	Advanced Fluid Mechanics	3	MS6068	Mechanical Vibration	3
MS6043	Advanced Heat Transfer	3	MS6069	Advanced Mechanical Vibration	3
MS6044	Turbo machinery	3	MS6070	Vibration Testing	3
MS6045	Engine System	3	MS6071	Vibration Sign. of Machinery Faults	3
MS6046	Thermal Syst. Opt. & Energy Management	3	MS6072	Advanced Vibration Testing	3
MS6060	Advanced Tribology	2	MS6090	Minor Research Project	3
MS6061	Control System	3	MS6091	Major Research Project	6
MS6062	System Identification	3			



## Curriculum of Doctoral's Program Mechanical Engineering

### Compulsory Core Courses

MS7000	Philosophy of Science and Engineering	3	MS8093	Paper in National Journals/Proceedings	3
MS7001	Research Methodology	3	MS9091	Research and Progress Report III	5
MS7091	Dissertation Proposal Writing	5	MS9092	Research and Progress Report IV	5
MS7092	Qualifying Examination	3	MS9093	Paper in International Journals/ Proceedings	3
MS8091	Research and Progress Report I	5	MS9099	Dissertation Defense Examination	3
MS8092	Research and Progress Report II	5			

Total Load : 43 credits

### Elective Courses

MS7002	Special and Advanced Topics Mechanical Engineering I	3	MS8001	Special and Advanced Topics Mechanical Engineering III	3
MS7003	Special and Advanced Topics Mechanical Engineering II	3			

# AERONAUTICS AND ASTRONAUTICS

Aeronautical / Aerospace Engineering is one of the most challenging fields of engineering with a wide scope for growth. This field deals with the development of new technology in the field of aviation, space aeronautics exploration, and defense systems. It specializes in designing, construction, development, testing, operation and maintenance of both commercial and military aircrafts, spacecrafts and their components as well as satellites and missiles.

As Aerospace engineering involves design and manufacture of very high technology systems, the job requires manual, technical as well as mechanical aptitude. Aeronautical engineers usually work in teams under the supervision of senior engineers, bringing together their skills and technical expertise. Though highly paid, the work is very demanding. An aeronautical engineer needs to be physically fit and fully dedicated to their work. One needs to be alert, have an eye for detail and should have a high level of mathematical precision to be successful.

The specializations include areas like; structural design, navigational guidance and control systems, instrumentation and communication or production methods or it can be in a particular product such as military aircrafts, passenger planes, helicopters, satellites, rockets etc. Engineers may work in areas like design, development, and maintenance as well as in managerial and teaching posts in institutes. There is a very high demand in airlines, aircraft manufacturing units, air turbine production plants or design development programs for the aviation industry. Aerospace environment is sophisticated with rewarding career opportunities involving leading-edge technology.



Doc. Indra Yudha



## ADDRESS

Institut Teknologi Bandung  
Labtek II ITB 3rd Floor

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2504529

Fax : +62 22 2534146

Website : [www.ae.itb.ac.id](http://www.ae.itb.ac.id)

Email : [info@ae.itb.ac.id](mailto:info@ae.itb.ac.id)

## Curriculum of Master's Program of Aeronautics and Astronautics

### Compulsory Core Courses

AE5001	Advanced Mathematics 1	3	AE6099	Thesis	6
AE6001	Research Methodology	3			

Total Load : 12 credits

### Elective Courses

AE5002	Advanced Mathematics 2	3	AE5051	Aircraft Operations	3
AE5011	Advanced Aerodynamics	3	AE5052	System Safety Engineering	3
AE5012	Viscous Flow	3	AE5053	Advanced Aircraft Maintenance Management	3
AE5013	Turbulent Flow	3	AE5054	Advanced Aircraft Maintenance Engineering	3
AE5014	Computational Fluid Dynamics 1	3	AE5061	Orbital Mechanics	3
AE5015	Continuum Mechanics 1	3	AE5062	Space Vehicle System	3
AE5021	Advanced Structural Damage Tolerance	3	AE5063	Advanced Satellite's Dynamics and Control	3
AE5022	Aircraft Structure Stability	3	AE5064	Re-Entry Flight Mechanics	3
AE5023	Fatigue Aircraft Materials	3	AE6011	Advanced Compressible Flow	3
AE5024	Advanced Finite Element Methods	3	AE6012	Transonic Flow	3
AE5025	Advanced Composite Structures	3	AE6013	Aero Elastics	3
AE5026	Advanced Aircraft Component Analysis	3	AE6014	Computational Fluid Dynamics 2	3
AE5027	Aircraft Material Corrosion	3	AE6015	Continuum Mechanics 2	3
AE5028	Structural Dynamics	3	AE6016	Advanced Propulsion Systems	3
AE5029	Advanced Mechanics of Material and Structures	3	AE6017	Rocket Propulsion	3
AE5031	Advanced Flight Mechanics	3	AE6018	Special Topics in Aerodynamics	3
AE5032	Flight Dynamics in Atmospheric Turbulence	3	AE6021	Special Topics in Lightweight Structures	3
AE5033	Parameter Identification	3	AE6022	Fracture Mechanics	3
AE5034	Modern Flight Control	3	AE6031	Flight Test Techniques	3
AE5035	Flight Simulation Techniques	3	AE6032	Advanced Flight Navigation and Guidance	3
AE5036	Inertial Devices	3	AE6033	Special Topics in Flight Mechanics	3
AE5041	Airworthiness and Certification	3	AE6041	Advanced Design Method	3
AE5042	Design Requirements and Objectives	3	AE6051	Airport Design and Operation	3
AE5043	Aircraft Configuration Design	3	AE6052	Air Traffic Management	3
AE5044	Product Development Management	3	AE6053	Special Topics in Aircraft Maintenance and Operations	3
AE5045	Special Topics in Design	3	AE6061	Spacecraft Design	3
AE5046	Human Factor Engineering	3	AE6062	Special Topics in Astronautics	3

## Curriculum of Doctoral's Program of Aeronautics and Astronautics

## Compulsory Core Courses

AE6001	Research Methodology	3	AE9091	Research and Progress Report III	5
AE7091	Research Proposal	5	AE9092	Research and Progress Report IV	5
AE7092	Qualifying Examination	3	AE9093	Paper Writing in International Journals/ Proceedings	3
AE8091	Research and Progress Report I	5	AE9099	Dissertation Defense	3
AE8092	Research and Progress Report II	5	MS7000	Philosophy of Science and Engineering	3
AE8093	Paper Writing in National Journals/ Proceedings	3			

Total Load : 43 credits

## Elective Courses

AE7001	Capita Selection on Aerospace I	3	AE8001	Capita Selection on Aerospace III	3
AE7002	Capita Selection on Aerospace II	3			

# MATERIAL ENGINEERING

New material developments have been among the greatest achievements in history and they have been central to the growth, prosperity, security, and quality of human life since the beginning of history. It has always the development of new materials that have opened the door to new technology, in all areas. Material science and engineering influence our lives each time we buy or use a new device, machine, or structure. The definition of the academic field of Material Science & Engineering stems from a realization concerning all application of materials: it is the properties of the material that give it its value. A material may be chosen for its strength, its electrical properties, resistance to heat or corrosion, or a host of other reasons; but they all relate to properties. Finally materials must perform their tasks in an economical and societal responsible manner by understanding the relationships between properties, structure, processing, and performance.



Doc. Faculty of Mechanical and Aerospace Engineering

## ADDRESS

Institut Teknologi Bandung  
Labtek X ITB 2nd Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2502265  
Fax : +62 22 2508144  
Website : [www.material.itb.ac.id](http://www.material.itb.ac.id)  
Email : [material@material.itb.ac.id](mailto:material@material.itb.ac.id)

## Curriculum of Master's Program Material Engineering

### Compulsory Core Courses

MT5101	Structure and Mechanical Properties of Materials	3	MT5202	Selection and Design of Materials	3
MT5102	Materials Aspect in Production Technology	3	MT6099	Thesis	6
MT5201	Advanced Materials Characterization	3			

Total Load : 18 credits

### Elective Courses

MT5001	Thermal and Surface Treatment	3	MT5011	Failure Analysis	3
MT5002	Powder Metallurgy	3	MT5012	Capita Selecta in Materials Engineering 1	3
MT5003	Advanced Ceramics Processing	3	MT5013	Capita Selecta in Materials Engineering 2	3
MT5004	Magnetic Materials Engineering	3	MT5014	Metallurgy of Solidification Processing	3
MT5005	Manufacturing of Polymer Composites	3	MT5015	Technique and Metallurgy of Welding	3
MT5006	Fiber Technology	3	MT5016	Industrial Applications of Ceramics	3
MT5007	Biomaterial	3	MT6001	Metallurgy of Plastic Deformation	3
MT5008	Plastic Injection Technique	3	MT6002	Sintering Process	3
MT5009	Non-Destructive Test	3	MT6003	Corrosion and Its Prevention Methods	3
MT5010	Fracture Mechanics	3			

## Curriculum of Doctoral's Program Material Engineering

### Compulsory Core Courses

MS7000	Philosophy of Science and Engineering	3	MT8093	Paper Writing in National Journal/ Proceedings	3
MS7001	Research Methodology	3	MT9091	Research and Progress Report III	5
MT7091	Research Proposal	5	MT9092	Research and Progress Report IV	5
MT7092	Qualification Examination	3	MT9093	Paper Writing in International Journals/ Proceedings	3
MT8091	Research and Progress Report I	5	MT9099	Dissertation Defense	3
MT8092	Research and Progress Report II	5			
Total Load : 43 credits					



# NUCLEAR SCIENCE AND ENGINEERING

This program provides educational opportunities for graduate students interested in advancing the application of nuclear science and engineering for the benefit of society and the environment. We prepare our students to make contributions to generating energy security, health care, and other applications.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62 22 2504243
Fax	: +62 22 2534099
Website	: <a href="http://www.ftmd.itb.ac.id">www.ftmd.itb.ac.id</a>
Email	: <a href="mailto:tu@ftmd.itb.ac.id">tu@ftmd.itb.ac.id</a>

## Curriculum of Master's Program Nuclear Science and Engineering

### Compulsory Core Courses

RN5080	Nuclear Science and Engineering	3	RN6081	Structural Analysis and Seismic Design of Nuclear Power plant	3
RN5081	Safety of Nuclear Plant System	3	RN6082	Nuclear Reactor Laboratory	1
RN5082	Nuclear Power Technology	3	RN6083	Research Methodology	3
RN5083	Nuclear Reactor Analysis	3	RN6099	Thesis	5
RN5084	Nuclear Reactor Analysis	3			

Total Load : 27 credits

### Elective Courses

RN5000	Applied Analytical Method	3	RN6084	Nuclear Material Science	3
RN5001	Thermal Engineering	3	RN6085	Quality Assurance of Nuclear Power Plant	3
RN5085	Probabilistic Safety Assessment	3	RN6086	Nuclear Assessment System	3
RN5086	Control Engineering	3	RN6087	Planning of Energy and Economics of Electrical Power Generation	3
RN5087	Instrumentation and Control System of Modern Nuclear Power Plant	3	RN6088	Capita Selection of Nuclear Energy Engineering	3



# SCHOOL OF ELECTRICAL ENGINEERING AND INFORMATICS

School of Electrical Engineering and Informatics (Sekolah Teknik Elektro dan Informatika, STEI) ITB was officially established on January 1st, 2006. It is a merger of two departments at ITB, i.e. Electrical Engineering Department and Informatics Department. These two departments have a long history of establishing higher education in Indonesia in the fields of Electrical Engineering (since 1947) and Informatics (since 1982). STEI ITB manages two Master's Programs (S2) and a Doctoral Program (S3).

STEI is a higher educational institute oriented towards research:

1. To develop and educate graduates to have a high level of integrity, creative, and ability to continuously learn not only to be adaptive in changing science and technology but also to apply the knowledge to their profession.
2. To be actively engaged in the development of knowledge in Electrical Engineering and Informatics to support Indonesia's development.
3. To educate graduates so that they function as the engine of the nation's prosperity.

STEI offers two master's programs: Electrical Engineering Master's program and Informatics Master's program. Each program aims at increasing the scientific knowledge gained previously in undergraduate degrees. The graduates then use this new knowledge to continue developing their ability in terms of scientific and/or professional development.

Dean

: Dr.Ir. Jaka Sembiring, M.Eng.

Vice Dean for Academic Affairs

: Ir. Dwi Hendratmo Widyantoro, M.Sc., Ph.D.

Vice Dean for Resource Planning and Management : Dr.Ir. Nana Rachmana Syambas, M.Eng.

# ELECTRICAL ENGINEERING

This program provides several areas of specializations (options) for graduate students to choose from, including:

1. Intelligence System and Control
2. Biomedical Engineering
3. Electrical Power Engineering
4. Electronics Engineering
5. Computer Engineering, and
6. Telecommunication Engineering

## Intelligence System and Control

This option gives you an opportunity to learn new skills, develop problem-solving abilities, and make considerable contributions to knowledge in control and intelligence systems. The program puts a balanced emphasis on theory and industrial applications. The students are encouraged to involve themselves in ongoing research topics in the school as part of their master's thesis.

Thesis research topics include: modeling and simulation, robust control, adaptive control, intelligence control and systems, non-linear systems, hybrid systems, discrete-event systems, saturating actuators, model predictive control, multi-variable control, and real-time optimization, industrial control and automation, mechatronics and electrical drive systems, active noise control, embedded systems, controls in robotics and autonomous systems.

## Biomedical Engineering (BME)

BME is a multidisciplinary field that implements science, engineering and technological methods to help solve problems in biology and medicine, in order to improve community health care. It involves the processing of medical information (e.g. alphanumeric data, physiological signals, static and dynamic medical images, sound, and voice) to support medical procedure (e.g. information/data collection, diagnosis, and therapy). Graduates from the program have the opportunity to pursue careers in research and education institutions, hospitals and medical facilities; health related industries as well as other exciting and challenging areas.

**Several course options are available:** anatomy and physiology, medical informatics, physics of living systems, transducers and sensors in BME, Microelectronic Devices and Circuits, BME System Design, Biomedical Physics, Biomedical Instrumentation, Biological Control System, Biomechanics, Biomedical Image Processing, BME Industries, Electromagnetic and Ultrasonic in BME, Biomedical Eng. Ethics.

## ADDRESS

Institut Teknologi Bandung  
Achmad Bakrie Building 2nd Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2502260

Fax : +62 22 2534222

Website : [www.stei.itb.ac.id](http://www.stei.itb.ac.id)

Email : [stei@stei.itb.ac.id](mailto:stei@stei.itb.ac.id)

### **Electrical Power Engineering**

This program provides three options of specialization: power system, energy conversion, and high voltage/current engineering. Power system specialization encompasses any science and engineering for electrical power distribution systems. Energy conversion specialization focuses on science and engineering for non-electric to electric energy conversion and vice versa, conventional and non-conventional electrical power generator, and power electronics. High voltage and current engineering specialization consists of science and engineering for electrical device technology in a power system.

### **Electronics Engineering**

This option provides comprehensive skills and knowledge in microelectronics processing and devices, microelectronics circuit design and microelectronics system design. Collaborating with the national and international microelectronics industry, the curriculum for Electronics Engineering is continuously improved to suit the industry needs. This program is equipped with a clean room for microelectronics processing devices (CVD, ion implantation, sputtering) as well as a design suite for integrated circuit design.

### **Computer Engineering**

This option aims at producing graduates who master the skills and knowledge of computer engineering, and have the ability to analyze, synthesize, and evaluate research activity. These graduates are also expected to gain professional service through research and development (independently or as in a team) and to be able to continue their study to a doctoral degree. Computer engineering is a discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment [IEEECS/ACM, 2004].

### **Telecommunication Engineering**

This option is designed to provide a strong foundation of concepts, theories, and the latest development of science and technology in telecommunication for those who pursue careers in telecommunication operations and services industry and regulations as well as in academics. Three areas of specialization are offered, including wireless communication engineering, telemetric/network engineering, and telecommunication management.

## Curriculum of Electrical Engineering

### Compulsory Core Courses

EL5099	Research Method	3	EL6099	Thesis	6
--------	-----------------	---	--------	--------	---

Total Load : 19 credits

### Compulsory Courses (Option: Intelligence System and Control)

EL5121	Linear Control System	3	EL5124	System Modeling and Identification	3
EL5122	Embedded Control System	3	EL6222	Advanced Robotics	3
EL5123	Artificial Control and System	3	EL6223	Special Topics on Control	2

Total Load : 17 credits

### Compulsory Courses (Option: Biomedical Engineering)

EL5100	Biomedical Engineering and Practice	2	EL5103	Advanced Biomedical System Design	2
EL5101	Physiology Anatomy and Practice	2	EL5104	Introduction to Phenomena Transport in Biomedics	2
EL5102	Life Physics System	2			

Total Load : 10 credits

### Compulsory Courses (Option: Electric Power Engineering)

EL5099	Research Method	3	EL5173	Computation in Electrical Power Engineering	2
EL5170	Advanced Mathematics	3	EL5174	Pre-Thesis	2
EL5171	Advanced Electronics Power	2	EL6099	Thesis	6
EL5172	Energy Operation and Control System	2			

Total Load : 20 credits

### Compulsory Courses (Option: Electronics Engineering)

EL5141	Nanoelectronics	2	EL5143	Embedded System Design and Analysis Methodology	2
EL5142	Artificial Instrumentation System	2	EL5144	VLSI for Digital Signal Processing	2

Total Load : 8 credits

### Compulsory Courses (Option: Computer Engineering)

EL5110	Theory in Information and Coding	3	EL5113	Sequential Engine I	3
EL5111	Advanced Computer Architecture I	3	EL5114	Computer Network II	3
EL5112	Advanced Discrete Mathematics	3	EL5115	Digital System Testing	2

Total Load : 17 credits

### Compulsory Courses (Option: Electronics Engineering )

EL5099	Research Method	3	EL5185	Signal Statistical Analysis	2
EL5181	Network Queue	2	EL5186	Theory in Channel Coding	2
EL5183	Advanced Digital Communication System	2	EL6099	Thesis	6
EL5184	Theory of Information and Source Coding	2			

Total Load : 19 credits



### Compulsory Courses (Option: Telecommunication Engineering II)

EL5084	Radar, Navigation, and Telemetry System	2	EL5186	Theory in Channel Coding	2
EL5180	Electromagnetic	2	EL5187	Advanced Telecommunication Network	2
EL5181	Network Queue	2	EL5188	Nir-Cable Communication System	2
EL5182	Observation System	2	EL6180	Computer Aided RF Circuit Design	2
EL5183	Advanced Digital Communication System	2	EL6181	Computation Method for Microwave	2
EL5184	Theory in Information and Source Coding	2	EL6182	Antenna System	2
EL5185	Signal Statistical Analysis	2			

Total Load : 26 credits

# INFORMATICS ENGINEERING

The informatics Master's program offers several areas of specializations (options) for graduate students to choose from, including:

1. Computer Science
2. Software Engineering
3. Information System
4. Information Technology

## Computer Science

This option is provided based on the needs to develop theoretical knowledge of computer science and its practical application for solving real-world problems. Upon the completion of the program, the students will have a strong foundation and an in-depth understanding of computer science, be able to develop their knowledge for conducting research in computer science, and be able to effectively and efficiently apply relevant technology and tools for developing various applications.

## Software Engineering

This option is offered to provide an increasing need for professionals in software engineering. Students in this program, will be able to develop expertise using computer science tools and technologies, develop computer software in their area of expertise, and be able to understand and apply the concept of large scale and complex software development using internationally recognized standards.

## Information System

This option is aimed at developing the expertise and skills in information system with the vision and knowledge of prospects, principle, and the latest methodology in systems, management and technology development as well as anticipation of the impact of technology itself. The program's curriculum is designed to produce professionals in information systems who are able to develop information resource potentials for the interests of various communities, organizations and businesses. Students in this program are also expected to be able to use information technology to its highest potential.

## Information Technology

This option is offered to fulfill the needs of providing human resources in information technology. The curriculum of the program is designed to address the following aspects: the use of information technology as the enabler for organization, the application of information technology that aligns organization objectives, the development of human resources in information technology, and the development of strategy, planning, implementation and technology deployment for private and government sectors.

## ADDRESS

Institut Teknologi Bandung  
Achmad Bakrie Building 2nd Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2502260

Fax : +62 22 2534222

Website : [www.stei.itb.ac.id](http://www.stei.itb.ac.id)

Email : [stei@stei.itb.ac.id](mailto:stei@stei.itb.ac.id)

## Curriculum of Informatics Engineering

### Compulsory Courses (Option: Computer Science)

IF5150	Computation Theory	3	IF5152	Algorithm Analysis	3
IF5151	Advanced Computer Architecture	3	IF5153	Advanced Operating System	3

Total Load : 12 credits

### Compulsory Courses (Option: Information System Option)

IF5237	Advanced Software Engineering	2	II5144	Information Engineering	2
II5140	Programming Paradigm	2	II5145	Information System Strategy and Regulation	2
II5141	Information System Management	2	II5146	Risk Management of Information System	2
II5142	Data Quality	2	II6140	Project Management	2
II5143	Enterprises Process and Modeling	2	II6141	Information System Governance	2

Total Load : 20 credits

# ELECTRICAL ENGINEERING AND INFORMATICS (Doctoral)

The goal of this program is to prepare students to perform independent research in the area of their interests and to significantly contribute to science within the fields of electrical engineering and informatics. The doctoral degree will be awarded to candidates who demonstrate in-depth understanding of the field and show the ability to perform independent and original research that is publishable in journals. We offer the following concentrations:

1. Biomedical Engineering
2. Computer Engineering
3. Control and Computer System
4. Electronics Engineering
5. Software and Data Engineering
6. Informatics
7. Information Technology
8. Electrical Power Engineering
9. Telecommunication Engineering

The curriculum of this doctoral program is designed to be completed within 6 semesters or 3 years. The program must be completed in less than five years. Doctoral students are required to take fundamental courses during semesters 1 and 2 and in-depth courses during semesters 3 – 4. During the first year they are also expected to write a research proposal. The qualifying exam will be conducted at the end of the second semester. Students must present their research proposal and demonstrate in-depth knowledge of the research area. Students must have passed the qualifying exam within two years. The research will continue through the following semester. Each semester students must submit and present a research progress report. After submitting a dissertation report, doctoral candidates will undergo a series of examinations in order to defend their research.

## ADDRESS

Institut Teknologi Bandung  
Achmad Bakrie Building 2nd Floor  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2502260

Fax : +62 22 2534222

Website : [www.stei.itb.ac.id](http://www.stei.itb.ac.id)

Email : [stei@stei.itb.ac.id](mailto:stei@stei.itb.ac.id)

## Curriculum of Electrical Engineering and Informatics

### Compulsory Core Courses

EL7090	Philosophy of Science	3	EL8095	Research Progress Seminar II	5
EL7095	Qualification Exam	3	EL8098	Research Progress Seminar III	5
EL7096	Proposal Writing	5	EL9095	Research Progress Seminar IV	5
EL7098	Research Progress Seminar I	5	EL9099	Dissertation exam	3
EL8091	Article Writing for National Journal I	3			

Total Load : 37 credits

### Compulsory Courses (Based on selected option)

EL7091	Advanced Electrical and Informatics Engineering I	2	EL7093	Advanced Electrical and Informatics Engineering III	2
EL7092	Advanced Electrical and Informatics Engineering II	2	EL7094	Research Methodology	3

Total Load : 9 credits

### Elective Courses

EL7091	Advanced Electrical and Informatics Engineering I	2	EL6013	Advanced Operating System	3
EL7092	Advanced Electrical and Informatics Engineering II	2	EL6021	Robust Control	2
EL7093	Advanced Electrical and Informatics Engineering III	2	EL6022	Stochastic Control and Estimation	3
EL8092	Article Writing for National Conference I	2	EL6023	Hybrid Control System	2
EL8093	Article Writing for National Conference II	2	EL6042	Cognitive and Multi-agent System	2
EL8096	Article Writing for National Journal II	3	EL6043	Fault Tolerant Instrumentation System	2
EL9091	Article Writing for National Journal III	3	EL6047	IC Design for Radio Transceiver	2
EL9092	Article Writing for International Journal	6	EL6114	Distributed Computation	3
EL9093	Article Writing for International Conference I	3	EL6142	Intelligence Instrumentation System Design	2
EL9094	Article Writing for International Conference II	3	EL6145	Advanced Topics on Electronics Engineering	2
EL9096	Research Progress Seminar V	5	EL6221	Optimum Control	2
EL9097	Research Progress Seminar VI	5	EL6222	Advanced Robotics	3
EL6000	Tissue Engineering	2	EL6246	FPGA-based Digital System	2
EL6001	Advanced Physiology Modeling and Simulation	2	EP6070	Electrical Engine Control	2
EL6002	Biomedical Instrumentation System Design	2	EP6072	Transient Voltage Protection System	2
EL6003	Advanced Digital Image Processing	2	EP6074	Power System Computation	2
EL6005	Special Topics on Biomedical Engineering	2	EP6075	Advanced Electromagnetic Compatibility	2
EL6010	Advanced Computer Architecture II	3	EP6076	Advanced Power System Planning	2
EL6011	Real Time and Embedded System	3	EP6077	Power System Control and Stability	2
EL6012	Advanced Programming	3	EP6079	Electrical Engine Dynamic Behaviour	2

## Elective Courses

EP6171	Electrical Distribution System Planning	2	ET6285	Telecommunication Network Reliability and Quality	2
EP6172	Power System Optimization Application	2	IF6030	Data Modeling	2
ET6080	Special Topics on Radio Communication System	2	IF6033	Component-based Software Engineering	2
ET6081	Special Topics on Telecommunication Network	2	IF6034	Formal Method	2
ET6082	Special Topics on Optical Communication System	2	IF6037	Software Architecture	2
ET6083	Special Topics on Signal Processing	2	IF6038	Real Time Software Engineering	2
ET6084	Special Topics on Multimedia Communication System	2	IF6039	Advanced Database Technology	2
ET6180	Computer Aided RF Circuit Design	2	IF6050	Information Modeling	2
ET6181	Computational Method for Microwave	2	IF6051	Learning Engine	2
ET6182	Antenna System	2	IF6052	Advanced Bio Informatics	2
ET6183	Random Fading Channel	2	IF6053	Compilation Technique	2
ET6184	MIMO System	2	IF6058	Natural Language Processing	2
ET6185	Linear Signal Processing	2	II6041	Information Extraction System	2
ET6280	Access Network Technology	2	II6042	Interaction System Design	2
ET6281	Protocol Engineering	2	II6043	Applied Intelligence System	2
ET6282	Telecommunication Network Planning	2	II6060	High Performance Information Network	2
ET6283	Telecommunication Network Performance	2	II6061	Mobile Device Programming	2





# FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

The Faculty of Civil and Environmental Engineering - Institut Teknologi Bandung (Fakultas Teknik Sipil dan Lingkungan, FTSL - ITB) - was formerly known as the Faculty of Civil Engineering and Planning (established in 1973) in response to the needs of infrastructure and building environment and safety. FTSL-ITB was established in 2006 following a reorganization of ITB and currently comprises three disciplines, namely Civil Engineering, Ocean Engineering, and Environmental Engineering. Academic activities in FTSL-ITB consist of education, research, and community services to ultimately support the development of sustainable infrastructures and building environments as the basic requirement for the economic growth and welfare of the nation.

FTSL has the vision to be a prestigious, reliable, respected, and internationally recognized educational, research and development institution in civil, environmental, and ocean engineering, with the dedication to the development of the nation and country. FTSL's missions are:

1. Guiding the development and change made by the society through innovative and high quality education, research and development, and community services in civil, environmental, and ocean engineering in response to global and local challenges.
2. Offering education in undergraduate, master's, and doctoral levels based on research and development to produce professional, prestigious and innovative graduates, characterized by academic, industrial, and national leadership capabilities.
3. Conducting and supporting research and development programs which are beneficial to the development of the nation and country and/or contributing to the development of science.
4. Delivering professional and responsible expertise and scientific services which are needed by the government, industry and other institutions.
5. Contributing to community service programs in a responsible and sustainable manner.

Dean

: Prof. Ir. Ade Sjafruddin, M.Sc., Ph.D

Vice Dean for Academic Affairs

: Ir. Irsan Soemantri Brodjonegoro, Ph.D.

Vice Dean for Resource Planning and Management : Ir. Indah Rachmatiah Siti Salami, M.Sc., Ph.D.

Academic activities are carried out by FTSL's faculty members who are grouped into 9 research groups, (1) Structural Engineering, (2) Geotechnical Engineering, (3) Water Resources Engineering, (4) Transportation Engineering, (5) Construction Engineering & Management, (6) Ocean Engineering, (7) Water & Waste Water Engineering, (8) Air & Waste Management, and (9) Environmental Management Technology.

FTSL runs a number of postgraduate study programs:

1. Civil Engineering (Master's and Doctoral Degree)
2. Environmental Engineering (Master's and Doctoral Degree)
3. Ocean Engineering (Master's Degree)
4. Professional Master's Program In Water Resources Management (Master's Degree)
5. Highway Engineering and Development (Master's Degree)

# CIVIL ENGINEERING

Continuous advancements and developments in Civil Engineering require support from highly skilled and professional engineers. In response to the needs, a graduate program in Civil Engineering is offered, which is designed for those who intend to strengthen their knowledge and skills in Civil Engineering. All academic activities are presented in an integrated form of class work, courses, seminars, research, thesis preparation, as well as field study and laboratory works. The students will be exposed to advanced knowledge and state-of-the-art technology in Civil Engineering.

The Master's Program requires 36 credits of graduate courses, including 5 credits of Master's thesis and 1 credit of seminar. One may take 10 to 12 credits per semester which is equivalent to 40 to 48 hours of academic activity. Academic activity can be in the form of class lectures, homework assignments, laboratory or studio work, literature studies, research and seminars, etc. The program must be completed within 3 to 4 semesters. All of the courses are conducted in Indonesian. However, the graduates are expected to have a sound understanding of English.

Students are directed to master one of the following specializations:

1. Structural Engineering
2. Water Resources Engineering
3. Geotechnical Engineering
4. Transportation Engineering
5. Construction Engineering and Management
6. Infrastructure Engineering and Management

Students are connected to one of the respective research groups where their research work for thesis writing and the corresponding supervision is carried out.



Doc. Indra Yudha

## ADDRESS

Institut Teknologi Bandung  
Gedung Teknik Sipil  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2504556; +62 22 2506445  
Fax : +62 22 2510713  
Website : [www.si.itb.ac.id](http://www.si.itb.ac.id)  
Email : [pasca@si.itb.ac.id](mailto:pasca@si.itb.ac.id)

## Curriculum of Master's Program of Civil Engineering

### Compulsory Core Courses

SI5098	Research Methodology	3	SI6099	Thesis	6
--------	----------------------	---	--------	--------	---

Total Load : 9 credits

### Compulsory Courses (Option: Structural Engineering)

SI5101	Engineering Analysis I	3	Elective Courses	21
SI5111	Elasticity and Plasticity	2		

Total Load : 36 credits

### Compulsory Courses (Option: Geotechnical Engineering)

SI5101	Engineering Analysis I	3	SI5222	Geotechnique in Stability Problem	3
SI5121	Advanced Soil Mechanics	3	SI6121	Soil Behaviour	3
SI5122	Field and Laboratory Soil Investigation	3	SI6122	Soil Dynamics and Earthquake Engineering	3
SI5221	Advanced Foundation Engineering	3	Elective Courses		6

Total Load : 27 credits

### Compulsory Courses (Option: Water Resource Engineering)

SI5001	Advanced Numerical Method	3	SI5232	Advanced Hydraulics	3
SI5101	Engineering Analysis I	3	SI5233	Advanced Engineering Hydrology	3
SI5131	Advanced Fluid Mechanics	3	Elecitve Courses		6
SI5231	Sediment Transport and Erosion	3			

Total Load : 24 credits

### Compulsory Courses (Option: Transportation Engineering)

SI5141	Transport Planning and Modeling	3	SI5242	Transportation System and Simulation Model	3
SI5142	Transportation System Operational Research and Analysis	3	SI6141	Project Group	3
SI5144	Transportation Economics	3	Elective Courses		6
SI5241	Line Engineering	3			

Total Load : 24 credits

### Compulsory Courses (Option: Construction Engineering)

SI5151	Construction Productivity	3	SI5251	Legal Aspects & Contract management	3
SI5152	Project Planning and Controlling System	3	SI5252	Construction Cost Engineering	3
SI5153	Construction Business Management	3	SI5253	Applied Statistic	3
SI5154	Design & Analysis of Construction Operation	3	Elective Courses		6

Total Load : 27 credits

**Compulsory Courses (Option: Construction Engineering and Management)**

SI5151	Construction Productivity	3	SI5251	Legal Aspects & Contract management	3
SI5152	Project Planning and Controlling System	3	SI5252	Construction Cost Engineering	3
SI5153	Construction Business Management	3	SI5253	Applied Statistic	3
SI5154	Design & Analysis of Construction Operation	3		Elective Courses	6

Total Load : 27 credits

**Compulsory Courses (Option: Infrastructure Engineering and Management)**

SI5161	Infrastructure Management	3	SI5262	Assessment and Evaluation of Infrastructure Condition	3
SI5162	Decision Analysis	3	SI5263	Infrastructure Maintenance and Rehabilitation	3
SI5163	Feasibility Study and Funding of Infrastructures	3		Elective Courses	9
SI5261	Infrastructure Operation Management	3			

Total Load : 27 credits

## Elective Courses

SI5001	Advanced Numerical Methods	3	SI6133	Theory of Groundwater Modeling	3
SI5112	Advanced Mechanics of Material	3	SI6134	Analysis of Water Resources System	3
SI5113	Advanced Concrete Technology	3	SI6135	Coastal Structure Design	3
SI5115	Structural Behavior of Concrete	3	SI6142	Safety and Environment Impact Analysis	3
SI5143	Traffic Engineering	3	SI6143	Management of Transportation System & Infrastructure	3
SI5145	Planning and Design of Airports	3	SI6144	Construction Infrastructure Method	3
SI5146	Planning and Design of Ports	3	SI6145	Public Transportation System	3
SI5201	Engineering Analysis II	3	SI6146	Air Transportation Management System	3
SI5211	Behavior of Steel Structures	3	SI6151	Quality in Construction Management	3
SI5212	Advanced Structural Dynamics	3	SI6152	Construction Decisions under Uncertainty	3
SI5243	Pavement and Structure Engineering	3	SI6153	Risk Management In Construction	3
SI5244	Transportation Planning and Policy	3	SI6161	Infrastructure Management	3
SI5245	Terminal Engineering	3	SI6162	Infrastructure Management Information System	3
SI5246	Cost Transportation	3	SI6163	Special Topics in Infrastructure Engineering	3
SI5247	Airport Operational Management	3	SI6211	Optimization in Structure Engineering	3
SI5248	Seaport Operational Management	3	SI6212	Experimental Method in Civil Engineering	3
SI6011	Special Topics: Structural Engineering	3	SI6213	Finite Element Method	3
SI6053	Special Topics: Construction Eng. and Management	3	SI6222	Soil Improvement	3
SI6111	Experimental Dynamics and Control	3	SI6223	Soil Structure Interaction	3
SI6112	Bridge Engineering	3	SI6224	Special Topics in Geotechnical Engineering	3
SI6113	Theory of Stability	3	SI6231	Finite Element and Volume Methods	3
SI6114	Plasticity Design	3	SI6232	Transient Flow In Pipes	3
SI6115	Earthquake Engineering	3	SI6233	Lake Hydrodynamics	3
SI6116	Probability and Reliability in Structural Engineering	3	SI6234	Water Resources Management Planning	3
SI6123	Rock Mechanics	3	SI6235	Decision Support Systems in Water Resources	3
SI6124	Soil and Foundation Dynamics	3	SI6251	Safety in Construction	3
SI6125	Retaining Structures	3	SI6252	Human Resource Management in Construction	3
SI6126	Marine Geotechnical and Offshore Foundations	3	SI6261	Hazard Mitigation in Infrastructure	3
SI6131	Physical Hydraulics Model	3	SI6262	Environmental Management	3
SI6132	Water Quality Modeling	3	SI6263	Construction Financial Management	3

## Curriculum of Doctoral's Program of Civil Engineering

A three year research program leading to a doctoral degree is offered to one holding a Master's degree or a degree that is equivalent to it. Candidates for a doctoral degree are required to do literature review starting in the beginning of enrollment and to submit a thesis proposal by the end of the first semester (six months) or no longer than two semesters (twelve months) upon admission to the program of the Graduate School.

The Doctoral Degree Program consists of 46 credits, and involves two phases:

### Phase I: Pre-Doctoral (23 credits)

1. Compulsory Courses and Elective Courses (15 credits)
2. Qualification Exam (3 credits)
3. Research Proposal for Dissertation (5 credits)

After completing this phase, students will be considered as Doctoral Candidates. The first phase should be completed within a maximum two year period.

### Phase II: Doctoral (23 credits)

Phase II consists of 4 semesters, in which at the end of each semester, a doctoral candidate should submit and pass the exam for Progress Seminars I, II, III, and IV. The Progress Seminars I/II/III/IV are equivalent to five credits. Phase II is concluded with a Final Dissertation Exam which is equivalent to three credits. While the program is designed as a three-year program, the maximum duration for completing both Phase I and II is five years.

#### Semester I

SI7001	Philosophy of Science	3
SI7011	Continuum Mechanics	3
SI7012	Theory of Plates and Shells	3
SI7013	Mechanics of Fracture and Fatigue	3
SI7014	Advanced Finite Element Method	3

Total Load : 15 credits

#### Semester II

SI7002	Dissertation Proposal Writing	5
SI7098	Research Methodology	3
SI7099	Qualification Examination	3

Total Load : 11 credits

#### Semester III

SI8001	Seminar I: Progress I	5
--------	-----------------------	---

Total Load : 5 credits

#### Semester IV

SI8002	Seminar II: Progress II	5
--------	-------------------------	---

Total Load : 5 credits

#### Semester V

SI9003	Seminar III: Progress III	5
--------	---------------------------	---

Total Load : 5 credits

#### Semester VI

SI9004	Seminar IV: Progress IV	5
SI9099	Dissertation Examination	3

Total Load : 8 credits



# ENVIRONMENTAL ENGINEERING

Graduate Programs in Environmental Engineering offer an opportunity to pursue a Master's and doctoral degree. The graduate programs available are field related to environmental protection and management; sustainable development and sanitation infrastructure. All academic activities are presented in an integrated form of class lectures, homework assignments, literature studies, seminars, research, and thesis preparation. All programs are supported by: a number of laboratories, library, drawing studio and computer laboratories with internet accessibility.



Doc. Indra Yudha

## ADDRESS

Institut Teknologi Bandung  
Gedung Teknik Lingkungan  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2502647  
Fax : +62 22 2530704  
Website : [www.tl.itb.ac.id](http://www.tl.itb.ac.id)  
Email : [pasca@tl.itb.ac.id](mailto:pasca@tl.itb.ac.id)

## Curriculum for Master's Program of Environmental Engineering

The Master's Program requires 36 credits of graduate courses, including five Master's thesis and seminar credits. Students may take 10 to 12 credits per semester which is equivalent to 40 to 48 hours of academic activity. Academic activity can be in the form of class lectures, homework assignment, laboratory or studio works, literature studies, research and seminars, etc. The program must be completed within three to four semesters. All of the courses are conducted in Indonesian. However, the graduates are expected to have an understanding of English.

Students are directed to master one of the following specializations:

1. Pollution Prevention and Control
2. Environmental Management and Technology
3. Environmental Health and Safety
4. Environmental and Sanitation Infrastructure

Students are connected to one of the respective research groups where their research work for thesis writing and the corresponding supervision is carried out.

### Compulsory Core Courses

TL5098	Research Method	3	TL5102	Environmental Data Analysis	2
TL5101	Fundamentals of Environmental Engineering	2	TL6099	Seminar and Thesis	5

Total Load : 12 credits

### Compulsory Courses (Option: Pollution Prevention and Control)

TL5103	Advanced Mathematics	2	TL5201	Hazardous Waste Management	2
TL5121	Process Engineering	3			

Total Load : 7 credits

### Compulsory Courses (Option: Environmental Technology and Management)

TL5103	Advanced Mathematics	2	TL5212	Operation Research	2
TL5111	Environmental System Conservation	3	TL5213	Environmental Modeling	2
TL5211	Environmental Economics and Valuation	2	TL6131	Health & Environmental Risk Assessment	3

Total Load : 14 credits

### Compulsory Courses (Option: Environmental Health and Safety)

TL5131	Industrial Waste Control	2	TL5232	Industrial Ventilation	2
TL5132	Industrial Hygiene	3	TL5233	Quality Management	2
TL5201	Hazardous Waste Management	2	TL5234	Safety Engineering	2
TL5212	Operation Research	2	TL6131	Health & Environmental Risk Assessment	3
TL5231	Environmental Toxicology	2			

Total Load : 20 credits

### Compulsory Courses (Option: Environmental and Sanitation Infrastructure)

TL5103	Advanced Mathematics	2	TL5242	Community Based Development	2
TL5141	Water System	3	TL5243	Sewerage System	2
TL5212	Operation Research	2	TL5244	Urban Drainage System	2
TL5241	Environmental and Public Health	2	TL6141	Solid Waste System	3

Total Load : 18 credits

### Elective Courses

TL5180	Coastal Management	2	TL5275	Advanced Air Pollution Control	3
TL5181	Occupational Safety and Health Management System	2	TL5276	Waste to Energy	3
TL5182	Radiation Safety	2	TL5277	Design for Environment	3
TL5183	Noise Control	2	TL5278	Non -Technical Aspect in Waste Management	3
TL5261	Sustainable Water Management System	2	TL6111	Environmental Impact and Assessment	2
TL5262	Sustainable Settlement Drainage	2	TL6180	Environmental Management System Computation	2
TL5263	Eco-hydraulic	2	TL6181	Bio-monitoring	2
TL5264	Environmental Management System	2	TL6182	Environmental Monitoring and Database Logic	2
TL5265	Air Quality Management	2	TL6183	Aquatic Toxicology	2
TL5266	Air Pollution Modeling	2	TL6184	Soil & Ground Water Pollution	2
TL5267	Atmospheric Physic and Chemistry	2	TL6185	Capita Selecta	2
TL5268	Toxic Air Pollution & Monitoring	2	TL6186	Environmental Biotechnology	2
TL5271	Advanced Water Treatment	3	TL6187	Aerosol Technology	2
TL5272	Sustainable Water Engineering	3	TL6188	Occupational Toxicology	2
TL5273	Bioremediation Engineering & Application	3	TL6189	Environmental Law	2
TL5274	Site and Pollution Characterization	3	TL6190	Emergency Response of Hazardous Materials in Industry	2

## Curriculum for Doctoral's Program of Environmental Engineering

A 3-year research program leading to a doctoral degree is offered to one holding a Master's degree or a degree that is equivalent. Candidates for a doctoral degree are required to do a literature review starting in the beginning of enrollment and are required to submit a thesis proposal by the end of the first semester (six months) or no longer than two semesters (12 months) upon admission to the program by the Graduate School.

The Doctoral Degree Program consists of 46 credits, and involves two phases:

### Phase I: Pre-Doctoral (23 credits)

1. Compulsory courses and elective courses (15 credits)
2. Qualification Exam (3 credits)
3. Research Proposal for Dissertation (5 credits)

After completing this phase, students will be considered as Doctoral Candidates. The first phase should be completed within a maximum of a two year period.

### Phase II: Doctoral (23 credits)

Phase II consists of four semesters, in which at the end of each semester, a doctoral candidate should submit and pass the exam for Progress Seminar I, II, III, and IV. The Progress Seminars I/II/III/IV are equivalent to five credits. Phase II concludes with a Final Dissertation Exam which is equivalent to three credits. While the program is designed as a three-year program, the maximum duration for completing both Phases I and II is five years.

## Compulsory Core Courses

TL7001	Philosophy of Science	3	TL9002	Seminar IV: Progress IV	5
TL7002	Dissertation Proposal Writing	5	TL9099	Dissertation Examination	3
TL7098	Research Methodology	3	TL7004	Reactor Engineering	3
TL7099	Qualification Examination	3	TL7005	Environmental Policy	3
TL8001	Seminar I: Progress I	5	TL7006	Chemo dynamics	3
TL8002	Seminar II: Progress II	5	TL7007	Life Cycle Analysis	3
TL9001	Seminar III: Progress III	5			

Total Load : 49 credits

All courses in the Master's Degree Program are also available to doctoral students.

# OCEAN ENGINEERING

Ocean Engineering Master's program was established in 2002 as a specialized program under the Department of Civil Engineering. In 2005, following a reorganization of ITB, Ocean Engineering Master's Program became a graduate program under the Faculty of Civil and Environmental Engineering.

The developments in the Indonesian coastal and offshore field require experts specialized in Indonesian waters. To fulfill the demand of Indonesian ocean experts, the Ocean Engineering Master's Program offers courses and research opportunities in environmental and engineering aspect of coastal and offshore infrastructures. Presently, this program offers two specialized fields of subject: Coastal and Offshore Engineering. The ongoing research concentrates on the development and application of the two specialized fields. The research covers a wide range of topics including but are not limited to: Beach Erosion and Coastal Protection, Stability of Coastal Structures, Design of Port and Harbor, Ocean Environment Modeling, Ocean Environment Measurement, Dynamic Response of Offshore Structures, Response Base Platform Monitoring, Platform Reliability Assessment for Reuse and Recertification and Submarine Pipeline Design and Installation.



Doc. Faculty of Civil and Environmental Engineering

## ADDRESS

Institut Teknologi Bandung  
Gedung T.P. Rachmat (Labtek VI) 3th Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: +62 22 251 1925
Fax	: +62 22 2509117
Website	: <a href="http://www.ocean.itb.ac.id">www.ocean.itb.ac.id</a>
Email	: <a href="mailto:magister@ocean.itb.ac.id">magister@ocean.itb.ac.id</a>

## Curriculum of Ocean Engineering

### Compulsory Core Courses

KL5098	Research Methodology	3	KL5201	Advanced Marine Hydrodynamics	3
KL5103	Advanced Water Wave Mechanics	3	KL5203	Advanced Underwater Acoustics	3
KL5102	Advanced Engineering Mathematics	3	KL6099	Research and Thesis	6
KL5202	Advanced Random Waves	3			

Total Load : 24 credits

### Elective Courses

KL5104	Offshore Structure Dynamics	3	KL6102	Advanced Computational Fluid Dynamics	3
KL5105	Advanced Marine Geotechniques	3	KL6111	Advanced Design of Coastal Structures	3
KL5204	Risk and Reliability Analysis	3	KL6221	Advanced Submarine Pipeline Design	3
KL5205	Corrosion of Structure Material on Marine Environment	3	KL6201	Advanced Marine Environment Modeling	3
KL6001	Special Topic on Ocean Engineering	3	KL6111	Advanced Design of Offshore Structures	3
KL6101	Advanced Coastal Process	3			

## Elective Courses

KL3106	Long Waves	2
KL3206	Construction Method of Ocean Structures	2
KL3207	Introduction to Finite Element Method	3
KL3208	Boundary Element Method	2
KL3209	Reclamation and Dredging	2
KL4112	Modeling in Coastal Engineering	2
KL4113	Hydrology and Fisheries/Salt Pond Infrs	3
KL4114	Coastal Zone Management	2
KL4121	Basic Ship Engineering	3
KL4200	Introduction to Ocean Energy	2
KL4211	Port Management and Operations	2



# WATER RESOURCES MANAGEMENT (Professional)

The Professional Master's Program in Water Resources Management (PMWRM) is offered by the Faculty of Civil and Environmental Engineering – Institut Teknologi Bandung (ITB). It is a graduate education program that produces experts and specialists with high competency in integrated and comprehensive water resources management mainly in tropical regions. In this program, techniques of water management are given and the students' knowledge on water resources management is developed through research and case studies. The degree of Master's in Water Resources Management (MWRM)/ Magister Pengelolaan Sumber Daya Air (MPSDA) is awarded upon completion of the program.

The Master's Program in Water Resources Management enhances the knowledge and skills of the students in order to achieve the following qualities:

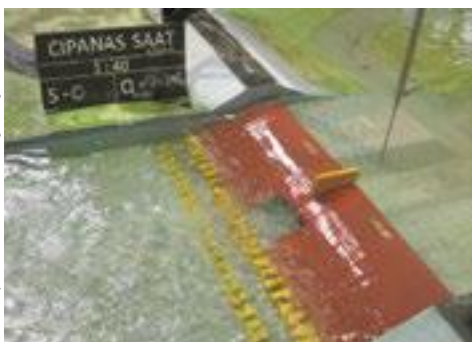
1. Capability to carry out water resource management needs analysis and synthesis as well as water resources development policy formulation
2. Capability to implement the regulations related to water resources management and supervision.
3. Capability to carry out community service in water resources management which are related to engineering material and common construction design which are essential in infrastructure design such as: Engineering Construction Material, Statics, Soil Mechanics and Foundation Engineering. Students will also learn Mapping and Geographic Information System, Water Resources Engineering Economics, Construction Management of Water Resources Project. In the final year, students will be engaged in Industrial Attachment and write their Final Year Project.

The graduates of Water Resources Engineering and Management Study Program may choose and develop their career in many companies (consultant, contractors) or join with government agencies/ministry related with water resources engineering and management. Currently, only a few universities offer study program in this field, while challenges in water resources is increasing and must be answered, hence opportunities to develop career as a water resources engineer is challenging, interesting and still widely open.

## ADDRESS

Institut Teknologi Bandung

Telephone : +62 22 2504293  
Fax : +62 22 2504293  
Website : [www.ftsl.itb.ac.id/prodi/mpsda](http://www.ftsl.itb.ac.id/prodi/mpsda)  
Email : [mpsda@ftsl.itb.ac.id](mailto:mpsda@ftsl.itb.ac.id)



## Curriculum for Professional Master's Program of Water Resources Management

This Master's Program requires 40 credits of graduate courses to be completed in four semesters. The curriculum of this Program consists of Basic Science, Mathematics & Statistics, Development Sociology, Advanced Engineering Science, Hydraulics, Hydrology, Water Quality, Geotechnics, Coastal Hydraulics, Swamp Hydraulics, Ground Water Exploitation, Engineering Systems Analysis and Synthesis, River Engineering, Swamp Engineering, Coastal Engineering, Irrigation Engineering, Integrated Water Resources Management, Water Structures, Structural Reliability Analysis, Ground Water Engineering, Regional Development, R2TR, Environmental Control, Environmental Management, Research and Analytical Skill, Group Work, Thesis Supporting Subjects, Development Policy and English.

### Compulsory Core Courses

SA5103	Applied Hydraulics	2	SA5203	Water Resources Management and Analysis	2
SA5102	Applied Hydrology	2	SA6099	Final Project/Thesis	4
SA5101	Applied Mathematics and Statistics	3	SA6101	Safety of Hydraulics Structures and Engineering	2
SA5104	Geotechnics	2	SA6102	Damage Controlling and Impact of Water Resources	2
SA5201	Integration of Water Resources Development	3	SA6103	Water Resources Catchment and Impact Assessment Analysis	2
SA5202	Analysis of Water Allocation and Quality	2	SA5098	Engineering Ethics	3

Total Load : 29 credits

### Elective Courses

SA5105	Water Resources Development Policy	3	SA5207	Coastal Management and Engineering	2
SA5106	Groundwater Exploitation	2	SA5208	Project Feasibility and Economic Analysis	2
SA5204	River Management and Engineering	2	SA6104	Group Work/Case Study	3
SA5205	Irrigation Management and Engineering	2	SA6105	English	2
SA5206	Coastal & Lake Management and Engineering	2	SA6134	Water Resources System Analysis	3

# HIGHWAY ENGINEERING AND DEVELOPMENT

The Master's Program in Highway Engineering and Development was established at the Institut Teknologi Bandung (ITB) in 1982 at the graduate level to help meet the growing need for advanced highway and traffic engineering education in Indonesia with an emphasis on developmental aspects. This was a result of cooperation between the Indonesian Department of Public Works, Directorate General of Highways (Bina Marga) and the post graduate school (Fakultas Pascasarjana at that time) at ITB. Funding had been largely from a World Bank Highway Loan to Indonesia and from the Overseas Development Administration of the British Government and the Directorate General Bina Marga. At the time of its establishment the Program was run by ITB staff from the Department of Civil Engineering, assisted as necessary by staff from other departments. Assistance, in the form of expatriate academic personnel, had been given to the Program since 1982 by a series of management arrangements, although there had been broad continuity of senior expatriate academic staff throughout. The original external university support was provided by the University College London until 1986, and then continued by the University of Leeds in UK.

The Program evolved with a gradual reduction in expatriate staff inputs to a sustaining level. The bulk of program teaching, except in specific advanced or new subject material, was undertaken by ITB staff. However, in the research component of the program, a significant and important role continued to be undertaken by the expatriate staff, but with gradually increasing responsibility being undertaken by the ITB staff. To assist in this development, ITB staff studied for higher degrees in related subjects at overseas universities in the UK and elsewhere.

## ADDRESS

Institut Teknologi Bandung  
Gedung 1B Kampus ITB Jatinangor  
Jalan Winaya Mukti No. 1 Jatinangor-Sumedang  
Indonesia  
Telephone : +62 22 2502647  
Fax : +62 22 2530704  
Website : [www.ril.itb.ac.id](http://www.ril.itb.ac.id)  
Email : [kantor@ftsl.itb.ac.id](mailto:kantor@ftsl.itb.ac.id)

Up until now the program has a good working relationship with Bina Marga. A number of staff members from Bina Marga have contributed to the program on a regular basis. A good working relationship also exists between ITB and the Indonesian Institute of Road Engineering (Puslitbang Jalan), with whom research consultations have taken place, and the facilities of which are sometimes used for some student research projects. Plans are in hand to include the possibility of encouraging students from other developing countries, particularly those within the region, to join the program.

Some important research that was carried out in the Highway Engineering program has led to significant input into, or have formed the basis of other projects, in particular, work on pavement material engineering and research leading to the development of an Indonesian Manual on Highway and Traffic Engineering. The external management of the Program attracted an international award "The 1991 IBM Award for Sustained Development".

## Curriculum for Master's Program of Highway Engineering and Development

This Master's Program requires 36 credits of graduate courses, including six credits of a master's thesis. Students take 10 to 12 credits per semester, which is equivalent to 40 to 48 hours of academic activity. Academic activity can be in the form of class lectures, homework assignments, laboratory of studio works, literature studies, research and seminars, etc. The program should be completed within three to four semesters. All academic activities are presented in an integrated form of class work, courses, seminars, research, thesis preparation, as well as field study and laboratory works. The students will be exposed to advanced knowledge and state-of-the art technology of Highway and Traffic Engineering.

Presently, the Highway Engineering and Development Program offer two specialized fields of subjects: Highway Engineering and Traffic Engineering. The ongoing research is concentrated in the development and application of the two specialized fields. The research covers a wide range of topics, the primary research topics include but are not limited to: Pavement Modeling, Pavement Materials, Pavement Management System, Traffic Management and Operation, Traffic and Environment, Traffic Modeling, and Traffic Safety. Research topics are incorporated into the program whenever appropriate.

### Compulsory Core Courses

SJ5098	Research Method	3	SJ5211	Properties of Road Making Materials	2
SJ5101	Transportation Engineering Economics	2	SJ5212	Road Construction and Maintenance	2
SJ5111	Geotechnics for Highways	2	SJ5221	Traffic Design	2
SJ5112	Geometric Design of Highways	2	SJ6099	Thesis	6
SJ5121	Traffic Engineering	2	SJ6101	Group Field Project	2
SJ5122	Transportation Modeling for Development	3	SJ6111	Road Pavement Engineering	2

Total Load : 30 credits

### Elective Courses

SJ5213	Terrain Evaluation	2	SJ6121	Advanced Traffic Engineering	2
SJ5222	Advanced Network Control	2	SJ6122	Urban Transportation	2
SJ5231	Bridge Structure Engineering	2	SJ6131	Bridge Maintenance and Management	2
SJ6112	Advanced Highway Engineering	2	SJ6132	Bridge Foundation Engineering	2
SJ6113	Project Management	2			







# SCHOOL OF ARCHITECTURE, PLANNING AND POLICY DEVELOPMENT

The School of Architecture, Planning and Policy Development (Sekolah Arsitektur, Perencanaan dan Pengembangan Kebijakan, SAPPK - ITB) encompasses seven main professional disciplines: architecture, regional and city planning, urban design, transportation, development studies, defense studies, and tourism planning. It aims to produce professionals who can produce a sustainable building environment and who are skilled in investigation, analysis, problem solving and communication, and are motivated to contribute significantly professionally and socially.

The School of Architecture was established on 29 August 2005, which intended to re-organize academic units of ITB, by increasing the total numbers of faculty/school from seven to eleven. The constituents of the school are not new, as it draws from all academic programs and resources from two existing departments (namely: Architecture and Regional and City Planning) previously under the Faculty of Civil Engineering and Planning, and two existing academic programs (namely: Development Studies and Transportation) previously under the Faculty of Industrial Engineering. The newly established school began to operate as an academic implementation unit responsible for education, research and community service activities. Starting January 1st, 2006, the school began administering twelve academic programs ranging from undergraduate to doctoral programs, eight research divisions, with 79 faculty members, 42 supporting staff, and around by December 2010 had 1200 undergraduate and graduate students.

In line with the Statute of ITB, the School of Architecture, Planning and Policy Development is entrusted with a task to nurture scientific knowledge, conduct academic culture and community, and establish worldwide networks and initiatives.



Dean

: Prof. Dr. Ing.Ir. Widjaja Martokusumo

Vice Dean for Academic Affairs

: Dr.Ir. Denny Zulkaidi, MUP

Vice Dean for Resource Planning and Management : Dr. Sri Maryati, ST,MIP

The SAPPK ITB has extensive links and exchange agreements with a number of leading universities (Europe, Asia, United States, etc.) and world wide institutions (Architecture and Urban Research Institute/AURI, South Korea). Besides the existing Double Degree (DD) programs (with universities in Japan and the Netherlands), starting in the academic year of 2012, the SAPPK ITB and the CDCP-UFL (College of Design, Construction and Planning University Florida) initiated a new two-year's Double Degree (DD) Program, with one whole year at SAPPK-ITB or CDCP-UFL and the subsequent one whole year at CDCP-UFL or ITB, respectively. SAPPK-ITB will train students with courses in the following concentrations: urban and regional planning, architecture, urban design, tourism, and landscape architecture. CDCP-UFL will provide the students with courses in the following concentrations: urban and environmental design, growth management and transportation, housing, community and economic development; planning information and analysis systems, historic preservation, tourism and sustainability.

# ARCHITECTURE

Architecture as a building environment is developed for human needs as dictated by the life of a culture. The fulfillment of physical and spiritual needs is then interpreted into space and form by the architecture. Through spatial design and form, the architect tries to create positive influences on the environment and people. In that sense architecture can be viewed as an adaptive optimization of various normative values and external factors, which continuously seeks balance creating a final form. It is a process that requires creativity, imaginative and innovative research and design based on rational and empirical knowledge.

The architectural program at ITB was established on October 25th, 1950. It envisioned itself as a regional/southeast-Asian hub for learning tropical architecture and sustainable building environment in developing countries. The educational program is focused on the developing a capability to comprehend a wide range of issues required to answer the challenges that lie ahead in the field of architecture. Broad-based curriculum is introduced to catch up with the science of architecture that grows and develops in tandem with changes of human civilization and culture, science and technology, art and design.

The curriculums for undergraduate and graduate degree programs are developed as an integrated structure, taking into consideration the following aspects:

1. The development of professions in the field of architecture.
  2. The development of architecture as a scientific discipline.
- The philosophical underpinnings of the curriculum are: Life-long Learning, Knowledge-based Learning, and Student Centered Learning.

Graduates of the program are expected to be professional, practicing architects and/or development practitioners who have a wide knowledge in architectural design and building environment issues. Their levels of competence are stratified according to the degree awarded:

1. Sarjana or Undergraduate degree program: Basic Knowledge and Competence
2. Magister or Master's degree program: Professional Knowledge and Competence
3. Doctorate or PhD degree program: Knowledge Development and Dissemination of understanding through Scientific Publication

## ADDRESS

Institut Teknologi Bandung  
Labtek IX B

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2504962; +62 22 2590706

Fax : +62 22 2530705

Website : [www.ar.itb.ac.id](http://www.ar.itb.ac.id)

Email : [kadep@ar.itb.ac.id](mailto:kadep@ar.itb.ac.id); [sekres2@ar.itb.ac.id](mailto:sekres2@ar.itb.ac.id)

## Curriculum for Master's Program of Architecture

The Master's Program in Architecture provides students with the opportunity to develop advanced knowledge and skills for professional practice in public as well as private sectors and in academic domains. It allows students the opportunity for in-depth study in fields of architectural design and research.

The curriculum for the Master's degree program is differentiated into two major fields of study:

1. Architectural Design
2. Architectural Research

Graduates of the Architectural Design Master's Degree are eligible for fulfillment of certain requirements for Indonesia Architects Association (Ikatan Arsitek Indonesia) certification.

### Compulsory Courses (Option: Architectural Design)

AR5100	Studio I	6	AR5241	Design Process in Developing Countries	2
AR5111	Design Methods	3	AR6195	Thesis Preparation	2
AR5151	Architectural Research Methods	3	AR6141	Architecture, Culture and Development	2
AR5200	Studio II	6	AR6099	Thesis	6
AR5221	Architecture and Technology	2		Elective Courses	4

Total Load : 36 credits

### Compulsory Courses (Option: Architectural Research)

AR5150	Thematic Research I	4	AR5241	Design Process in Developing Countries	2
AR5151	Architectural Research Methods	3	AR6195	Thesis Preparation	2
AR5152	Quantitative Analysis	3	AR6141	Architecture, Culture and Development	2
AR5250	Thematic Research II	6	AR6099	Thesis	6
AR5221	Architecture and Technology	2		Elective Courses	6

Total Load : 36 credits

### Elective Courses

AR5131	Architecture and Contemporary Culture	2	AR5242	Housing and Settlement Analysis	2
AR5141	Development Project Management	2	AR6111	Historic Building Preservation	2
AR5142	Construction Industry and Development	2	AR6121	Building Cost Planning and Control	2
AR5211	Facility Programming	2	AR6131	Style and Movement in Architecture	2
AR5212	Precedent in Landscape Architecture	2	AR6142	Design and Transformation	2
AR5222	Low-Energy Building	2			



## Curriculum for Doctoral's Program of Architecture

The doctoral program offers a specialized academic endeavor in the fields of architectural design, building technology, housing and human settlement, and architectural history, theory and criticism. The objective of the program is to develop students with independent research skills and an ability to relate a specific research topic to a broad framework of knowledge in a relevant discipline area. Doctoral candidates develop a capability to formulate significant problems; to master appropriate conceptual and methodological skills; and to carry out an original program of research.

Students will be assigned an academic supervision committee with whom they will work to pursue their research. All students are required to take a qualifying examination before initiating their research for doctoral dissertation. Students who have obtained the status of doctoral candidate and have completed their dissertation must pass a final examination and have their dissertation approved by the examination committee.

The doctoral curriculum is divided into three consecutive phases with a total of 43 credits:

1. First phase: research proposal and qualifying examination (20 credits). Students are required to have 12 months residence period on the campus and pass the qualifying examination.
2. Second phase: research and dissertation writing (20 credits)
3. Third phase: Dissertation examination (3 credits)

### Compulsory Core Courses

AR7001	Philosophy of Science	3	AR8195	Dissertation Seminar I	5
AR7002	Colloquium	2	AR8295	Dissertation Seminar II	5
AR7003	Architectural Research Methodology	3	AR9195	Dissertation Seminar III	5
AR7004	Dissertation Research Proposal	5	AR9295	Dissertation Seminar IV	5
AR7099	Qualifying Examination	3	AR9099	Dissertation Examination	3

Total Load : 36 credits

### Elective Courses

AR7005	Applied Statistics	2	AR8001	Publication in Conference and Scientific Journal	2
--------	--------------------	---	--------	--	---



Doc. Widjaja Martikusumo

# REGIONAL AND CITY PLANNING

Regional and city planning activities have been in constant development and are increasingly becoming more complex, covering not only the spatial or physical aspects of the sustainable building environment, but also a multitude of non-physical aspects involving various disciplines and stakeholders. Regional and city planners are required to be knowledgeable about the field and have professional skills pertaining to the allocation and spatial distribution of land use and functions required by society, devising and administering land zoning schemes, resolving conflicts between competing demands for land development, ensuring that housing and public facilities are well located and conveniently placed, and to help decide which developments should proceed with buildings or which areas should be preserved.

The undergraduate program in Regional and City Planning at ITB was established in September 1959, with the initial help of experts from Harvard University under the auspices of the United Nations Technical Assistance Bureau (UNTAB). To keep up with the increasing need for specialized professional expertise, a Master's program in Regional and City Planning was established at ITB in August 1982 with technical assistance from the Development Planning Unit, University College London and the Department of Public Works. The establishment of a doctoral program in Regional and City Planning at ITB was then followed in 1986.

The Regional and City Planning Program at ITB is designed to become the key center for the theory and practice of regional and city planning and policy in Indonesia. ITB provides a high quality program for planning education, scholarly planning research, and the best planning services for the public. The program educates students who wish to combine social concerns and analytical skills in dealing with issues of regional and city planning and policy in Indonesia.

## ADDRESS

Institut Teknologi Bandung  
Labtek IX A

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2504735; +62 22 2509171

Fax : +62 22 2501263

Website : [www.sappk.itb.ac.id](http://www.sappk.itb.ac.id)

Email : [pm-pwk@pl.itb.ac.id](mailto:pm-pwk@pl.itb.ac.id)

Graduates of the program are expected to be professional, practicing planners and/or development practitioners who have wide knowledge in regional and city planning issues. Their levels of competence are stratified according to the degree awarded:

1. Sarjana or Undergraduate degree program: Basic competence for regional and city planning activities with a simple level of interaction and generic behavior.
2. Magister or Master's degree program: Professional competence for regional and city planning activities, including ability to carry out comprehensive study and develop solutions to problems, to raise an awareness of its implication for the society, and the ability to communicate in a persuasive manner.
3. Doctor or PhD degree program: Ability to conduct research independently, to develop knowledge in the field of regional and city planning and to communicate and disseminate it through scientific publication.



## Curriculum for Master's Program of Regional and City Planning

The Master's Program in Regional and City Planning is designed to attain the following objectives:

1. To train professional practitioners who are well equipped with up to date knowledge and analytical skills in the field of regional and city planning.
2. To develop the capacity of planners, development managers, and decision makers at the central, regional and local levels, and to build their ability to think in analytical, integrated and comprehensive ways.
3. To train academic practitioners who are conversant with planning theory, method, and synthesis, and accordingly ready to support and develop similar education programs at other universities in Indonesia.
4. To train researchers in the field of regional and city planning, who excel in problem identification, research methodology, analysis and interpretation, and development of alternative solutions.

The curriculum for the Master's degree program is differentiated into two categories:

1. Regular program, delivered in Indonesian, with four specialized fields:
  - Regional Development,
  - City Planning,
  - Urban Management,
  - Infrastructure and Transportation System.
2. International Double Degree program, delivered in English, with two specialized fields:
  - Development Planning and Infrastructure Management, administered in collaboration with Royal University of Groningen (RUG) and Faculty of Geo-Information Science and Earth Observation (ITC) at the University of Twente in the Netherlands.
  - Regional Development and Policy Analysis, administered in collaboration with several universities in Japan, namely: National Graduate Institute for Policy Studies /GRIPS, Ritsumeikan University, Kobe University, Keio University, Yamaguchi University, and Miyazaki University.

The international double degree program is designated for Bappenas sponsored students who are already engaged as planning officers at central, regional and local government institutions in Indonesia. However, individual students interested in participating in the program are also welcome.

Students will spend the first year of their two year's study period at ITB, and will continue the second year at the relevant partner universities in the Netherlands or Japan. Upon completion of their studies and fulfillment of all academic requirements from both universities, the students will be granted two degrees, one from ITB (degree: Magister Teknik) and the other from the relevant partner university in the Netherlands or Japan (degree: varies according to each university).

The following are courses taken by Double Degree ITB – the Netherlands universities students in semester I and II at ITB.

### Double Degree ITB - Netherlands Semester I

PL5101	Advanced Planning Theory	2
PL5102	Spatial Pattern and Structure	2
PL5103	Advanced Regional and Urban Economics	2
PL5104	Development Institution and Finance	2
PL5105	Advanced Planning Analytical Method	2
PL5106	Regional and Urban Planning	2

Total Load : 12 credits

### Semester II

PL5201	Resources and Environment	2
PL5202	Research Methodology	3
PL5296	Planning Studio	3
PL6005	Land and Housing Development	2
PL6012	Integrated Infrastructure Development	2

Total Load : 12 credits

Note : Thesis and Elective Courses are taken at universities in the Netherlands.

## Double Degree ITB - Japan Semester I

PL5101	Advanced Planning Theory	2
PL5102	Spatial Pattern and Structure	2
PL5103	Advanced Regional and Urban Economics	2
PL5104	Development Institution and Finance	2
PL5105	Advanced Planning Analytical Method	2
PL5106	Regional and Urban Planning	2

Total Load : 12 credits

## Semester II

PL5201	Resources and Environment	2
PL5202	Research Methodology	3
PL5296	Planning Studio	3
PL5213	Development Policy	2
PL6007	Urban Finance	2

Total Load : 12 credits

Note : Thesis and Elective Courses are taken at universities in the Japan.

## Curriculum Structure (Regular & P13 Programs) Semester I

PL5101	Advanced Planning Theory	2
PL5102	Spatial Pattern and Structure	2
PL5103	Advanced Regional and Urban Economics	2
PL5104	Development Institution and Finance	2
PL5105	Advanced Planning Analytical Method	2
PL5106	Regional and Urban Planning	2

Total Load : 12 credits

## Semester II (Option: Transportation and Infrastructure System)

PL5201	Resource and Environment	2	PL5210	Transportation & Infrastructure Planning	2
PL5202	Advanced Research Methodology	3	PL5295	Transportation & Infrastructure System Studio	2
PL5209	Transportation & Infrastructure System	2			

Total Load : 11 credits

## Semester II (Option: Urban Planning)

PL5201	Resource and Environment	2	PL5235	Facilities and Social Infrastructure Planning	2
PL5202	Advanced Research Methodology	3	PL5293	Urban Development Planning Studio	2
PL5205	Urban Development Planning	2			

Total Load : 11 credits

## Semester II (Option: Urban Management)

PL5201	Resource and Environment	2	PL5208	Urban Management Concept and Practice	2
PL5202	Advanced Research Methodology	3	PL5294	Urban Management Studio	2
PL5207	Urban Land Management	2			

Total Load : 11 credits

### Semester II (Option: Regional Development)

PL5201	Resource and Environment	2	PL5204	Rural Development	2
PL5202	Advanced Research Methodology	3	PL5292	Regional Development Studio	2
PL5203	Regional Development	2			

Total Load : 11 credits

### Semester III (Option: Transportation & Infrastructure System)

PL6110	Management of Infrastructure and Transportation	2	PLXXXX	Elective	2
PLXXXX	Elective	2			

Total Load : 6 credits

### Semester III (Option: Urban Planning)

PL6106	Housing Policy	2	PLXXXX	Elective	2
PLXXXX	Elective	2			

Total Load : 6 credits

### Semester III (Option: Urban Management)

PL6131	Conflict Management	2	PLXXXX	Elective	2
PLXXXX	Elective	2			

Total Load : 6 credits

### Semester III (Option: Regional Development)

PL6101	Urbanization and Regional Development (2)	2	PLXXXX	Elective (2)	2
PLXXXX	Elective (2)	2			

Total Load : 6 credits

### Semester IV (Option: Transportation & Infrastructure System)

PL6096	Thesis	6
--------	--------	---

Total Load : 6 credits

### Semester IV (Option: Urban Planning)

PL6096	Thesis	6
--------	--------	---

Total Load : 6 credits

### Semester IV (Option: Urban Management)

PL6096	Thesis	6
--------	--------	---

Total Load : 6 credits

### Semester IV (Option: Regional Development)

PL6096	Thesis	6
--------	--------	---

Total Load : 6 credits

Note: P13 Program students are required to take thesis in the Short Semester.

## Elective Courses

PL5211	Development Issues	2	PL6012	Integrated Infrastructure Development	2
PL5213	Development Policies	2	PL6013	Transportation Modeling	2
PL6001	Spatial Econometrics	2	PL6014	Network and Movement	2
PL6002	Industry and Development	2	PL6015	Advanced Planning Information System	2
PL6004	Tourism Planning	2	PL6016	Planning Topics	2
PL6005	Housing and Land Development	2	PL6017	Seminar on Disaster Aspects in Planning	2
PL6006	Property Appraisal and Evaluation	2	PL6123	Human Resource Development Planning	2
PL6007	Urban Finance	2	PL6130	Education Aspects in Planning	2

## Curriculum for Doctoral's Program of Regional and City Planning

The doctoral program offers a specialized academic endeavor in the fields of regional and rural planning, urban planning and design, regional and urban infrastructure system, and policy planning and development management. The objective of the program is to develop independent research skills and an ability to relate a specific research topic to a broad framework of knowledge in a relevant discipline area. Doctoral candidates will develop a capacity to create knowledge and to communicate and disseminate this knowledge to the academic community and the general public.

Students will be assigned an academic supervision committee with whom they will work to pursue their research. All students are required to take a qualifying examination before initiating their research for doctoral dissertation. Students who have obtained the status of doctoral candidate and have completed their dissertation must pass a final examination and have their dissertation approved by the examination committee.

The doctoral curriculum is divided into three consecutive phases:

1. First phase: Research proposal and qualifying examination (20 credits for students with similar academic backgrounds, 28 credits for students with different academic backgrounds). Students are required to have 12 months residence period on the campus and pass the qualifying examination comprised of planning theory, research methodology, and specialized subject related to their research topic.
2. Second phase: Research and dissertation writing (20 credits).
3. Third phase: Dissertation examination (3 credits).

### Compulsory courses for doctoral students with planning educational background:

#### Semester I

PL7001	Philosophy of Science	3
PL7002	Seminar in Research Methodology	3
PL7111	Seminar in Planning Theory	2

Total Load : 8 credits

#### Semester II

PL7003	Qualifying Examination	3
PL7004	Research Proposal	5
PL7223	Seminar in Development Issues	2

Total Load : 10 credits

#### Semester III

PL8001	Doctoral Seminar I	5
--------	--------------------	---

Total Load : 5 credits

#### Semester IV

PL8002	Doctoral Seminar II	5
--------	---------------------	---

Total Load : 5 credits

#### Semester V

PL9001	Doctoral Seminar III	5
--------	----------------------	---

Total Load : 5 credits

#### Semester VI

PL9098	Dissertation Examination	3
PL9002	Doctoral Seminar IV	5

Total Load : 8 credits

**Compulsory courses for doctoral students with non-planning educational background:**

### **Semester I**

PL7001	Philosophy of Science	3
PL7002	Seminar in Research Methodology	3
PL7111	Seminar in Planning Theory	2
PL7xxx	Elective Courses	4
Total Load : 12 credits		

### **Semester II**

PL7003	Qualifying Examination	3
PL7004	Research Proposal	5
PL7223	Seminar in Development Issues	2
PL7xxx	Elective Courses	2
Total Load : 12 credits		

### **Semester III**

PL8001	Doctoral Seminar I	5
PL7xxx	Elective Courses	2
Total Load : 7 credits		

### **Semester IV**

PL8002	Doctoral Seminar II	5
Total Load : 5 credits		

### **Semester V**

PL9001	Doctoral Seminar III	5
Total Load : 5 credits		

### **Semester VI**

PL9098	Dissertation Examination	3
PL9002	Doctoral Seminar IV	5
Total Load : 8 credits		

### **Elective Courses**

PL7121	Seminar in Spatial Pattern and Structure	2	PL7124	Seminar in Development Institution and Finance	2
PL7123	Seminar in Regional and Urban Economics	2	PL7201	Seminar in Resources and Environment	2

# URBAN DESIGN

Urban design as a distinct field began to gain attention in Indonesia at the end of the 1980s and has expanded considerably since, in response to the needs for better urban design knowledge and skills for design professionals of government officers at local, regional and national planning boards in particular, to support the implementation of national policy on regional autonomy. Planning board officers nationwide are required to prepare and evaluate urban design policies, strategies, concepts, guidelines, master plans and development programs, as well as become involved in the detailed design and management of urban spaces, which demand better appreciation of urban structure and context.

Urban design approaches, concepts and principles learned from developed countries are not fully implementable to solve the multitude of problems that challenge Indonesia at present and in the future, due to great differences in socio-cultural, political, economic and natural physical contexts. Indonesia ultimately needs to develop its own urban design and development approaches, concepts and principles, which are based on and accordingly relevant to its own contexts and experiences.

The initiative to establish a Master's degree program in Urban Design at ITB began in 2001. The Program introduces students to the fundamental theories, methods, and substantive content of urban design, as well as provide them with professional knowledge and skills through a series of urban design studio practice. Strong emphasis is given to the process of designing and creative contribution toward the solutions of urban problems through design.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2530706; +62 22 2504962  
Fax : +62 22 2530705  
Website : [www.sappk.itb.ac.id/en](http://www.sappk.itb.ac.id/en)  
Email : [sekres2@ar.itb.ac.id](mailto:sekres2@ar.itb.ac.id)



## Curriculum for Master's Program of Urban Design

The Magister program in Urban Design aims to produce skilled, creative and professional urban designers who are able to undertake decisions in urban design and development, to work within a multidisciplinary team, to uphold ethical and sustainability principles of the environment, as well as are ready to compete in the global market.

The curriculum is designed to equip students with the capacity to undertake innovative problem-solving approaches to urban issues through design; as well as to comprehend and appreciate local characteristics as the basis for an integrated and multidisciplinary approach to a humane urban design and development concept. At its core are studio projects that address emerging design issues and course work subjects that cover morphological, ecological, cultural, legality and other dimensions of urbanism.

### Compulsory Core Courses

RK5101	Theory of Urban Design	2	RK5213	Research Methodology	3
RK5102	Urban Design Principles	2	RK5290	Urban Design Studio II	3
RK5103	Urban Design Methods	2	RK6111	Urban Design Control	3
RK5190	Urban Design Studio I	3	RK6190	Urban Design Studio III	4
RK5211	Urban Design Praxis	2	RK6099	Thesis	6
RK5212	Urban Conservation	2			

Total Load : 32 credits

### Elective Courses

RK5104	Contemporary Issues in Urban Design	2	PL5208	Concept and Practice of Urban Management	2
RK5214	Special Topics in Urban Design	2	PL5235	Public Facility Planning	2
AR5131	Architecture and Contemporary Culture	2	PL6004	Tourism Planning	2
AR5211	Facility Programming	2	PL6005	Housing and Land Development	2
AR5212	Precedent in Landscape Architecture	2	PL6106	Housing Policy	2
AR5242	Housing and Settlement Analysis	2	PL6131	Conflict Management	2
AR6111	Historic Building Preservation	2	TR5104	Transportation and Land Utility	2
AR6142	Design and Transformation	2	SP6111	Development Theories	2
PL5205	Urban Development Planning	2	SP6113	Technology and Social Change	2
PL5207	Urban Land Management	2	SP6121	Environmental Governance	2

# DEVELOPMENT STUDIES

Development Studies is a multi-disciplinary field of study that deals with three aspects of development: theory, strategy, and ideology. Development Studies at the School of Architecture, Planning and Policy Development ITB focuses on the understanding of theories, normative principles, and strategies of development within a holistic framework that takes into account aspects of economy, politics, socio-cultural, technology, humanity and sustainable environment. It endeavors to provide state of the art education in the field to achieve academic excellence, and to enhance its role in the development process of Indonesian society.

The academic program is designed to enable participants with both 'hard' and 'soft' sciences background to benefit from it. Therefore the program is relevant for policy makers, public administrators, business persons and bankers, politicians, engineers, NGO staff, and researchers. The program provides an academic environment that allows students from diverse backgrounds to interact and exchange ideas as well as information with researchers from various centers at ITB.

The learning system is designed to be responsive to developmental issues that exist in society. Case study materials and contextual issues are discussed, and developmentors are invited as guest lectures. Students are encouraged to investigate issues encountered in their immediate environment for further exploration and deeper study through thesis work.

## ADDRESS

Institut Teknologi Bandung  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : +62 22 2534237; +62 22 2511828

Fax : +62 22 2511828

Website : [www.sappk.itb.ac.id/en/](http://www.sappk.itb.ac.id/en/)

Email : [spitb@sp.itb.ac.id](mailto:spitb@sp.itb.ac.id); [spitb@melsa.net.id](mailto:spitb@melsa.net.id)

## Curriculum for Master's Program of Development Studies

Students of Development Studies program are encouraged to think critically, while being provided with analytical and modeling skills, and are trained to develop strategies.

Students are exposed to development issues from a multitude of perspectives progressing their ability to formulate strategies that are realistic and ethical. Through class discussion and thesis supervision, students are guided to conduct a synthesis of multi-disciplinary sciences in order to answer developmental problems encountered in their working environment.

The curriculum for Master's degree program is differentiated into three specialized fields:

1. Theoretical aspect
2. Methodological aspect
3. Sectoral Aspect

### Compulsory Core Courses

SP6111	Development Theories	2	SP6216	System Dynamics for Policy Analysis	3
SP6112	Economic Principles	3	SP6219	Integrative Research Methodology	3
SP6113	Technology and Social Changes	3	SP6120	Innovation System and Development	2
SP6114	Environmental Governance	2	SP6000	Thesis	6
SP6217	Technology Governance in the Society	3			

Total Load : 27 credits

### Compulsory Courses (Option: Theoretical Aspects of Development)

SP6115	Ethics and Development	2	SP6219	Public Policy and Governance	3
--------	------------------------	---	--------	------------------------------	---

Total Load : 5 credits

### Compulsory Courses (Option: Methodological Aspects of Development)

SP5101	Advanced Planning Theory	2	SP6046	Development Evaluation	3
--------	--------------------------	---	--------	------------------------	---

Total Load : 5 credits

### Compulsory Courses (Option: Tourism Development)

SP6045	Management of Tourism Destination	2	SP6047	Tourism Planning	3
--------	-----------------------------------	---	--------	------------------	---

Total Load : 5 credits

### Elective Courses

SP6031	Energy Security and Development	2	SP6044	Tourism Development Policy	2
SP6032	Coastal and Sea Development System	2	SP6033	Techniques in Policy Analysis	2
SP6038	E-Governance and Democracy	2	SP6034	Network of Actors Theory for Social Research	2
SP6039	Governance of Extreme Conditions	2	SP6035	Environmental Valuation Methods	2
SP6040	National Metrology System	2	SP6036	Project Management	2
SP6041	Policy on Standard and Metrology	2	SP6037	Project Evaluation and Auditing	2
SP6042	Tourism Information System	2	PL5101	Advanced Planning Theory *)	2
SP6043	Tourism Promotion and Marketing	2			

\*) Not applicable for students specializing in Methodological Aspects of Development

# TRANSPORTATION

The broad impact of transportation systems requires an interdisciplinary approach to the planning, design, construction and operation of these systems, especially for a country like Indonesia whose regions are geographically spread out, heavily constrained by harsh natural elements like seas, rivers, forests and mountains, and heterogeneously divided by socio-cultural differences and diversities.

Transportation Program at the School of Architecture, Planning and Policy Development ITB encompasses a wide range of academic disciplines. It draws together a compulsory of essential knowledge from transportation system analysis, transportation planning and policy, transportation operating and control systems, infrastructure management and logistic system, supported by more generic sciences such as modeling system, engineering system, traffic engineering, and economics. Any technical solutions to transportation problems are to be promoted in integration with socio-cultural, economic, political and environmental concerns.

Transportation Program is designed as such to satisfy the demand for transportation professionals who comprehend multiple dimensions of transportation planning and management, enabling them to make decisions leading to more economically, socially, and environmentally sustainable transportation systems nationwide at present and in the future.

## ADDRESS

Institut Teknologi Bandung

Labtek IX B

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2500996

Fax : +62 22 2500996

Website : [www.sappk.itb.ac.id/en/](http://www.sappk.itb.ac.id/en/)

Email : [office@transport.itb.ac.id](mailto:office@transport.itb.ac.id)

## Curriculum for Master's Program of Transportation

Graduates of the program are expected to be professional planners and/or managers who have wide knowledge in transportation planning and management issues, and expertise in one of the specialized fields highly demanded by the community:

1. Transportation System Analysis
2. Transportation Planning and Policy
3. Transportation Economics and Business
4. Transportation and Regional Development

### Compulsory Core Courses

TR5101	Transportation System Analysis	2	TR5201	Transportation Forecasting and Modeling	2
TR5102	Traffic and Movement Analysis	2	TR5202	Research Methodology	3
TR5103	Transportation Planning	2	TR5205	Transportation Economics	2
TR5104	Transportation and Land Utility	2	TR6001	Thesis	6
TR5105	Transportation Analysis Method	2			

Total Load : 23 credits

### Elective Courses

TR5106	Transportation System Simulation Model	2	TR6005	Transportation Business Management	2
TR5108	Public Transport System	2	TR6006	Airport Management	2
TR5114	Transportation Funding	2	TR6007	Supply Chain Management	2
TR5203	Logistic Management	2	TR6008	Tariff Policy	2
TR5204	Transportation and Environment	2	TR6009	Transportation Infrastructure Management	2
TR5206	Transportation Safety	2	TR6010	Seaport Management	2
TR5207	Project Evaluation	2	TR6011	Transportation Human Resources Management	2
TR5211	Transportation Seminar	2	TR6012	Cargo Transportation	2
TR6002	Transportation Policy Analysis	2	PL5103	Advanced Regional and Urban Economics	2

## Curriculum for Doctoral's Program of Transportation

The doctoral program offers a specialized academic endeavor in the fields of transportation planning and management. The objective of the program is to develop independent research skills and an ability to relate a specific research topic to a broad framework of knowledge in a relevant discipline area. Doctoral candidates develop a capacity to create knowledge and to communicate and disseminate this knowledge to the academic community and the general public.

Students will be assigned an academic supervision committee with whom they will work to pursue their research. All students are required to take a qualifying examination before initiating their research for doctoral dissertation. Students who have obtained the status of doctoral candidate and have completed their dissertation must pass a final examination and have their dissertation approved by the examination committee.

The doctoral curriculum is divided into three consecutive phases:

1. First phase: Research proposal and qualifying examination (23 credits). Students are required to have 12 months residence period on the campus and pass the qualifying examination.
2. Second phase: Research, dissertation writing, additional elective courses (20 credits for students with similar academic background, 24 credits for students with different academic background).
3. Third phase: Dissertation examination (3 credits).

### Compulsory Core Courses

TR7001	Advanced Transportation System Analysis	3	TR8001	Dissertation Seminar I	5
TR7004	Philosophy of Science	3	TR8002	Dissertation Seminar II	5
TR7005	Research Methodology	3	TR9001	Dissertation Seminar III	5
TR7002	Dissertation Research Proposal	5	TR9002	Dissertation Seminar IV	5
TR7003	Qualifying Examination	3	PL9003	Dissertation Examination	3

Total Load : 40 credits

### Elective Courses

TR5211	Transportation Seminar *)	3	TR9201	Advanced Transportation Topics	3
TR6002	Transportation Policy Analysis *)	3	XXxxxx	Elective Subject from Master's of Transportation Program *)	2
TR7102	System Modeling	3	XXxxxx	Elective Subject from Master's of Transportation Program *)	2

\*) Recommended elective courses for students with different educational backgrounds

## DEFENSE STUDIES

Courses on Defense Studies at ITB were first offered in August 2005 as a specialized field of study under the graduate program in Development Studies. Curriculum and teaching staff development was initially supported by experts from Cranfield University, Defense academy of the United Kingdom, in collaboration with the Department of Defense, the Republic of Indonesia. The unique character of the program and proximity to the nation's security institutions has along the way laid the foundation of educational partnerships with other well known institutions, including Giessen University and Friedrich Ebert Stiftung.

Master's program in Defense Studies of the School of Architecture, Planning and Policy Development ITB was officially launched on December 30th, 2008. The establishment of the program aims to provide academically rigorous and policy-relevant defense and security studies, in the framework to rapidly reinforce building capacity in areas critical to national security and sovereignty.

The learning system adopted by the program will enable students, consisting of civilians from diverse educational and professional backgrounds, to develop strong analytical frameworks for comprehending today's strategic security issues at national, Asia Pacific and global levels. The teaching faculty includes leading academics and professionals with relevant expertise, to strike the balance between theory and practice.

### ADDRESS

Institut Teknologi Bandung  
Labtek IX B

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2534237; +62 22 2511828

Fax : +62 22 2511828

Website : [www.sappk.itb.ac.id/en/](http://www.sappk.itb.ac.id/en/)

Email : [spitb@sp.itb.ac.id](mailto:spitb@sp.itb.ac.id)



## Curriculum for Master's Program of Defense Studies

Students of Defense Studies are exposed to strategic defense and security issues from the multitude of perspectives, with hands-on exercises and case studies, to comprehend the challenges of the 21st century peace and security environment. Through class discussions and final project supervision, students are guided to achieve perspectives on a wide variety of issues and to improve their insight, logical way of thinking and analytical ability.

The curriculum for Master's degree program is organized into two specialized fields of study:

1. Strategic Studies (SS)
2. Security Governance (SG)

To maintain its standard of quality and compatibility at national as well as international levels, the curriculum is designed with reference to levels of competence set up by:

1. Cranfield University, Defense Academy of the United Kingdom, Shrivenham, United Kingdom
2. Institute of Defense and Security Studies (IDSS), Nanyang Technological University, Singapore

### Compulsory Core Courses

MP5011	Art, Science and Technology of War	3	MP5022	Defense Economic and Finance	3
MP5012	Culture, Society and National Resilience	3	MP5023	Defense System and Technology Innovation	3
MP5013	Defense and Security Sector Governances	3	MP6001	Ethics in Profession	3
MP5021	Defense Management	3	MP6002	Final Project	6
Total Load : 27 credits					

### Elective Courses

MP5014	Transnational Security (SS)	3	MP6011	Defense Simulation and Modeling	3
MP5015	Conflict Resolution (SS)	3	MP6012	Spatial Planning for Defense System	3
MP5024	Defense Acquisition and Logistics (DM)	3	MP6021	Special Topics in Defense Studies	3
MP5025	Disaster and Risk Management (DM)	3	MP6022	Human Resources Management in Defense	3

# TOURISM PLANNING

The challenge to prepare a master plan for national tourism development in the early 1990s has become a milestone for ITB to take tourism as a serious subject matter. Tourism at that time was the country's strategic foreign exchange earner, due to the decrease of national income from oil and gas. A strong political will to further develop tourism industries has encouraged the undertaking of tourism studies and has increased the demand for tourism planning. Accordingly, courses on tourism were offered as electives at the ITB Regional and Urban Planning Department. The subject gradually attracted interest of students from the planning department as well as from other fields of study.

ITB is not the first school of higher education to undertake a graduate program on tourism. Undergraduate education on tourism in Indonesia is predominantly vocational in nature, serving the increasing need of the growing industry. In response to the aggravating issues in tourism development, resulting from accelerated growth of the industry with all its consequences, ITB in 1993 established a Center for Tourism Research to stimulate interest among students and faculty members. The Center is aimed at accumulating knowledge and experiences through researches as well as lessons learned from cooperation with many local and national governments. With the accumulation of knowledge during that period, course materials on tourism became enriched and expanded. In 2006, a Master's program on tourism was initiated as an attachment to the Master's of Development Studies program. After thoughtful consideration and preparation, a full-fledge Master's program on Tourism Planning was then established in 2010.

## ADDRESS

Institut Teknologi Bandung  
Labtek IX B

Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone : +62 22 2500996

Fax : +62 22 2500996

Website : [www.sappk.itb.ac.id/en/](http://www.sappk.itb.ac.id/en/)

Email : [pm\\_pariwisata@sappk.itb.ac.id](mailto:pm_pariwisata@sappk.itb.ac.id)

## Curriculum for Master's Program of Tourism Planning

Students of Tourism Planning are required to attend classes, as well as become exposed to real problems that need to be solved in the planning studios. Students will also be given the opportunities to attend elective courses offered by other related study programs: regional and urban planning, architecture, urban design, and transportation planning. Tourism Planning is a 36 credit Master's program that can be undertaken in 3 consecutive semesters on a full-time basis.

### Compulsory Core Courses

PP5101	Planning Process	2	PP5105	Tourism Development Dynamics	2
PP5102	Elements and Tourism System	3	PP5201	Tourism Research	2
PP5103	Tourism Development Planning	2	PP5202	Tourism Impact	2
PP5104	Tourism Resource Analyses	3			

Total Load : 27 credits

### Elective Courses

AR6141	Architecture, Culture and Development	2	RK5212	Urban Conservation	2
AR5241	Design Process in Developing Countries	2	PL5213	Development Policies	2
SP6111	Development Theories	2	PL5235	Public Facility Planning	2
PL5106	Regional and City Planning	2	PL5201	Resources and Environment	2
PP6001	Case studies (ecotourism, rural/village tourism, heritage tourism, etc.)	2	XXxxxx	Other Electives Courses Listed at ITB	2



# FACULTY OF VISUAL ART AND DESIGN

The Department of Arts and Design ITB was established in 1984. Since 2006, the department changed to the Faculty of Arts and Design (Fakultas Seni Rupa dan Desain, FSRD). Currently, three core programs are offered:

1. Arts
2. Design
3. Sociotechnology

Research groups:

1. Arts Research Groups
2. Aesthetics and Art Science Research Groups
3. Craft and Tradition Research Groups
4. Human and Spatial Interior Research Groups
5. Human and Industrial Product Research Groups
6. Visual Communication and Multi-media Research Groups
7. Humanity Sciences Research Groups



## VISUAL ART

Master's in Visual Arts Program is a two-year, 36 credit-hour degree that emphasizes in advancing creative spirit, development of aesthetic sense, and extending knowledge in the field of visual arts. The program focuses on visual arts as creative research practice by encouraging stylistic pluralism and diversity of artistic attitudes. It offers two emphases: one Studio practice culminating in a substantial exhibition, performance of art-work, and a research-thesis on areas relevant to studio work; two Research practice culminating into a research-thesis on the area of aesthetic, art-theory, art history, and/or related studies in the domain of visual arts.

### ADDRESS

Institut Teknologi Bandung  
Gd. Seni Rupa 1st Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: 022-2515291
Fax	: 022-2515291
Website	: <a href="http://www.s2sr.itb.ac.id">www.s2sr.itb.ac.id</a>
Email	: <a href="mailto:informasi@fsrd.itb.ac.id">informasi@fsrd.itb.ac.id</a>

## Curriculum of Visual Art

### Compulsory Courses (Option: Creation Interest Option)

SR5001	Art Research Methodology II	3	SR5202	Art Creation Methodology II	2
SR5002	Art Creation I	2	SR5203	Morphology of Art	2
SR5005	Art Creation II	3	SR6004	Art Creation III	3
SR5101	Aesthetics III	2	SR6099	Thesis	6
SR5102	Semiotics I	2	SR6101	Arts Criticism III	2
SR5201	Art and Civilization	2			

Total Load : 29 credits

### Compulsory Courses (Option: Creation Interest Option)

SR5001	Art Research Methodology II	3	SR5203	Morphology of Art	2
SR5004	Art Research I	2	SR5204	Art History	2
SR5101	Aesthetics III	2	SR6005	Art Research II	2
SR5102	Semiotics I	2	SR6099	Thesis	6
SR5104	Sociology of Art II	2	SR6101	Art Criticism III	2
SR5201	Art and Civilization	2	SR6205	Anthropology of Art II	2

Total Load : 29 credits

### Elective Courses

SR5106	Contemporary Arts	2	SR6108	Visual Language	2
SR5205	Art, Science and Technology	2	SR6206	Psychology of Art II	2
SR5209	Semiotics II	2	SR6207	Philosophy of Art	2
SR6107	Traditional Art of Nusantara	2			



# DESIGN

Master's in Design (M.Ds.) program is a two-year, 36 credit-hour degree that emphasizes on systematic and methodological investigation of design as idea, object, process/method, and/or knowledge. It focuses on design as inclusive research practice with interdisciplinary focus enabling students to pursue advanced studies through course work and independent study. The program provides seven boundaries of design research: design and artifact, design and material, design and system, design and visual culture, design and environment, design and human behaviours, or design and information. Within these boundaries, students are encouraged to expand individual disciplinary talents and master the changing opportunities in the field of design that culminating in a project-based thesis or research-based thesis.

## ADDRESS

Institut Teknologi Bandung  
Gd. Seni Rupa 1st Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone	: 022-2515449
Fax	: 022-2516250
Website	: <a href="http://www.s2desain.fsr.itb.ac.id">www.s2desain.fsr.itb.ac.id</a>
Email	: <a href="mailto:s2ds@ccar.itb.ac.id">s2ds@ccar.itb.ac.id</a>

## Curriculum of Design

### Compulsory Core Courses

DS6101	Theory of Design I	2	DS6209	Methods of Design/Craft Production	2
DS6103	Design and Culture I	2	DS6211	Design Management	2
DS6105	Managing Information for Design Research	2	DS6106	Pre-Final Project/Pre-Thesis	4
DS6108	Design and Human Factors	2	DS6099	Final Project/Thesis	6
DS6202	Theory of Design II	2			

Total Load : 24 credits

### Elective Courses

DS5013	Design and Culture II	2	DS5021	Communication and Media	2
DS5014	Design and Media	2	DS5022	Ergonomics Product III	2
DS5015	Contemporary Issues in Design	2	DS5023	Semantics Product III	2
DS5016	Statistics for Social Sciences	2	DS5024	Design Entrepreneurship II	2
DS5017	Theory of Communication	2	DS5025	Sustainable Design II	2
DS5018	Production Management	2	DS5026	Design Intellectual Rights II	2
DS5019	Design and Lifestyle II	2	DS5027	Design and Building Environment II	2
DS5020	Professional Ethics	2			

## VISUAL ARTS AND DESIGN (Doctoral)

Faculty of Visual Arts and Design offers a doctoral program for students who want to investigate fundamental problems in the nature and practice of Visual Arts and Design. The program is grounded in either studies of visual arts (paintings, printmaking, sculptures, and ceramics) or studies of design (product, visual, communication, interior, and craft) but strongly encourages interdisciplinary studies in the domain of creative practice and creative research. It draws on the strength of the Faculty of Visual Arts and Design and the resources of ITB as a leading research university with excellence in arts, design and humanities; engineering, science, and business.

The Doctoral program in visual Arts and Design is at the cutting edge of creating new knowledge in art and design studies. Broad in scope, the program involves inter-disciplinary interest at both micro and macro levels, as it prepares students to become public intellectuals and transformative practitioners in the creation, dissemination, critical analysis, and appreciation of art-work and designed object; as well as for those wishing to serve as lecturers in visual arts and design studies.



Doc. Faculty of Art and Design

### ADDRESS

Institut Teknologi Bandung  
Gd. Seni Rupa 1st Floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia

Telephone : 022-2515449  
Fax : 022-2516250  
Website : [www.s3.fsrđ.itb.ac.id](http://www.s3.fsrđ.itb.ac.id)  
Email : [informasi@fsrd.itb.ac.id](mailto:informasi@fsrd.itb.ac.id)

## Curriculum of Design

### Compulsory Core Courses

SD7001	Qualification Exam	3	SD7104	Seminar III (Evaluation Phase 3)	5
SD7002	Dissertation Examination	3	SD7201	Research Proposal	5
SD7101	Philosophy of Science	3	SD7202	Seminar II (Evaluation Phase 2)	5
SD7102	Research Methodology	3	SD7203	Seminar IV (Evaluation Phase 4)	5
SD7103	Seminar I (Evaluation Phase 1)	5			

Total Load : 37 credits

### Elective Courses

SD7003	Visual Art, Design, and Inter-disciplinary Studies	3	SD7008	Paper Writing for International Proceedings	2
SD7004	Philosophy of Culture	3	SD7009	Paper Writing for National Journals	3
SD7006	Visual Culture	3	SD7010	Paper Writing for International Journals	6
SD7007	Paper Writing for National Proceeding	1			

# CRAFT

Craft is one of the study programs in the Faculty of Art. Craft is in the midst of design and art. Design focuses on the technical standpoint as well as the functional value, whereas art emphasizes philosophical value of an artwork and its meaning or message that the artist wanted to convey to the observer. Between both of them, craft focuses on the design and production of a functional product with emphasis on aesthetic value, quality of design, and the meaning or philosophical message.

In the past, objects that were included in craft products were objects of high aesthetic value and usually honored i.e. keris, ulos cloth, batik cloth, and others. Nowadays the craft developed rapidly in line with the spirit of its time, technology developments, trends and the dynamically ever-changing lifestyles. However, the craft still absorbs the values and traditional elements in its products, to preserve the image of Indonesian tradition, in the present context.

People are often confused to differentiate between craft and handicraft. Therefore, the study program of Craft in ITB is more focused on the mastery of design skills in creating the concept, form and style (fashion) in a broad sense, which then become very important in supporting the growth of creative industries. On the other hand, Handicraft is designed to be more exclusive and has added values in many aspects, because the process relies on the skills of hand (handmade).

In the final stages of the Craft course, students are directed to be more able to cooperate with other disciplines such as chemistry, architecture, interior design, and management.

On the other concepts, craft may be reproduced to meet the needs in quantity, but it is not without limitation. Craft products are hard to imitate because of its uniqueness in the use of materials, as well as in the unification process and in the finishing of the work; it is always dynamic hence there is theoretically no identical product.

## ADDRESS

Institut Teknologi Bandung  
Center for Art Design and Language (CADL) of ITB 2nd floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia  
Telephone : +62 22 2534095  
Fax : +62 22 2516250  
Website : [www.kria.fsrds.itb.ac.id](http://www.kria.fsrds.itb.ac.id)  
Email : [Tu\\_kriya@yahoo.co.id](mailto:Tu_kriya@yahoo.co.id)

The study program of Craft in ITB is currently divided into two course majors:

1. **Textile Crafts major**, which covers several subjects, including:
  - Textile definition
  - Textile craft design world, such as textile material, color, texture, pattern, ornamentation, and cultural background.
  - Understanding of lifestyle, fashion, trends, and technology that accompanies it.
  - Various craft production techniques: weaving, dyeing, batik, knitting, printing, embroidery, and so on, as well as exploration of the basic techniques into innovative craft products.
  - Leading issues of the world, such as eco-friendly products (back to nature, eco-fashion, green design, eco-design), products with local cultural value (local content, indigenous raw materials, indigenous culture), and the manufacturing process of craft products and aesthetics.
2. **Ceramics Craft major**, which covers subjects mentioned above but only with a different medium—ceramic material with its own techniques. The subjects are:
  - Various mediums of ceramic, such as: earthenware, stoneware, porcelain.
  - Traditional decorative meaning associated with the meaning of the selected shape, to create ideas that fit in with present imagery.
  - Various decorative and its definition.
  - Physical and aesthetics properties of various mediums to form a craft masterpiece, which can then be mass produced without losing its exclusiveness.
  - Various production techniques of ceramics craft: from basic materials processing stage, the formation of materials, burning process, models and molds creation and, as well as basic knowledge about the application of glazes on ceramic raw materials.

## Curriculum of Craft majoring in Textile

### Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

### Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

### Semester III

KR2001	Image Analysis	5
KR2102	Ornament	3
KR2103	Fashion Accessories	3
KR2104	Digitalized Technical Drawing of Craft	3
KR2101	History of Design	2

Total Load : 16 credits

### Semester IV

KR2005	Form Analysis	5
KR2206	History of Fashion	2
KR2207	Digitalized Presentation of Craft	3
KR2208	Sociology of Craft	2
KR2201	Design Method	2

Total Load : 14 credits

### Semester V

KR3009	Fashion Research	5
KR3110	Textiles Material and Process	3
KR3111	Resist Dyes (Batik and Tie Dye)	3
KR3112	Pattern Drafting	3
KR3113	Interlacing	3
KR3101	Design Critics	2

Total Load : 19 credits

### Semester VI

KR3014	Textile Craft II (Interior)	5
KR3215	Seminar for Craft	3
KR3216	Surface Textile	3
KR3217	Indonesian Traditional Textile	2
KR3218	Weaving	3
KR3219	Fashion Illustration	3

Total Load : 19 credits

### Semester VII

KR4020	Textile Craft III (Indigenous Fiber and Natural Dyes)	5
KR4090	Textile Job Training	3
KR4092	Preliminary Final Project Textiles	3
KR4124	Fashion Management	3
KR4122	Craft Entrepreneurship	3

Total Load : 17 credits

### Semester VIII

KU206X	Religion and Ethics	2
KU2071	Pancasila and Civic Education	2
KR4208	Art, Design and Environment	3
KR4094	Final Project	6

Total Load : 13 credits

Elective courses: 10 credits

Total CREDITS :144 Credits



## Curriculum of Craft majoring in Ceramic

## Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

## Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

## Semester III

KR2001	Image Analysis	5
KR2102	Ornament	3
KR2103	Fashion Accessories	3
KR2104	Digitalized Technical Drawing of Craft	3
KR2101	History of Design	2

Total Load : 16 credits

## Semester IV

KR2005	Form Analysis	5
KR2206	History of Fashion	2
KR2207	Digitalized Presentation of Craft	3
KR2208	Sociology of Craft	2
KR2201	Design Method	2

Total Load : 14 credits

## Semester V

KR3026	Ceramics I (Basic Form and Tableware)	5
KR3127	Technology of Glaze Materials	3
KR3128	Decorative Ceramic I	3
KR3129	Basic Ceramic Body Forming Techniques	3
KR3130	Knowledge and Engineering of Ceramic Raw Materials	3

Total Load : 19 credits

## Semester VI

KR3031	Ceramic II (Accessories and Interior Product)	5
KR3215	Seminar for Craft	3
KR3232	Ceramic Firing Technology	3
KR3233	Ceramic Field Work	3
KR3234	Digital Application for Ceramic	2

Total Load : 19 credits

## Semester VII

KR4036	Lifestyle Tradition	5
KR4091	Ceramic Job Training	3
KR4093	Preliminary Final Project Ceramic	3
KR4124	Fashion Management	3
KR4122	Craft Entrepreneurship	3

Total Load : 17 credits

## Semester VIII

KU206X	Religion and Ethics	2
KU2071	Pancasila and Civic Education	2
KR4208	Art, Design and Environment	3
KR4094	Final Project	6

Total Load : 13 credits

Elective courses: 10 credits

Total CREDITS :144 Credits

Elective Courses

KR3242	Batik	2
KR3243	Tie Dye	2
KR4139	Decorative Ceramic II	3
KR4141	Form and Style	2
KR4240	Sculptural Ceramic	3
DI3005	Exhibition Design	2
DK4109	Visual Culture of Nusantara	2
DP3111	Design and Human Factor I	2
DP4202	Creative Product Strategy	2

Doc. Faculty of Art and Design



# INTERIOR DESIGN

Study program of interior design studies the relationship between human and his various activities within the space in the building, physically, psychologically, and aesthetically (related to beauty). In this study program, students will be invited to think laterally in solving human problems that are associated with space.

To create a good interior design, some subjects will be taught including the subject on furniture, theory of colors, theory of shapes, history of design and architecture, psychology, structure, construction, physics of building, and others. In addition to those subjects, students will also be assisted in forming their discipline, ethics, and dedication toward their profession. For example, space designed for children will be different with the space designed for adults. Physical shapes and sizes between children and adults are very unlike which will result in differences in spatial dimension. Moreover, the needs and interests as well as the tendency for shapes and color between children and adults are also very different.

During the study at the Interior Design program, students will also learn about the spaces in apartment buildings, houses, shops, offices and public spaces i.e. hotels, airports, shopping malls, hospitals, and others.

## ADDRESS

Institut Teknologi Bandung  
Center for Art Design and Language (CADL) of ITB 2nd floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia  
Telephone : +62 22 2534126  
Fax : +62 22 2516250  
Website : [www.interior.fsrdir.itb.ac.id](http://www.interior.fsrdir.itb.ac.id)  
Email : [fsrditb@yahoo.com](mailto:fsrditb@yahoo.com)

## Curriculum of Interior Design

### Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

### Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

### Semester III

DI2001	Interior Design I	5
DI2102	Principles of Interior Design	2
DI2103	Interior Spatial Exploration	3
DI2104	Interior Material and Color	3
DI2105	Interior Design Ergonomy	2
DI2106	Interior Design Presentation	3
DI2101	History of Design	2

Total Load : 20 credits

### Semester IV

DI2002	Interior Design II	5
DI2202	Review of Architecture	2
DI2203	Furniture Design I	4
DI2204	Interior Acoustic and Lighting	2
DI2205	Interior Construction and Details	2
DI2206	Introduction Psychology of Interior Design	2
DI2201	Design Method	2

Total Load : 19 credits

### Semester V

DI3001	Interior Design III	5
DI3102	Workshop Design II	4
DI3103	Interior Design Typology	2
DI3104	Interior Building Utilities	2
DI3101	Design Critics	2

Total Load : 15 credits

### Semester VI

DI3002	Interior Design IV	5
DI3201	Furniture Design III	4
DI3202	Interior Design Seminar	3
DI3203	Interior Design Ethics	2

Total Load : 14 credits

### Semester VII

DI4001	Interior Design V	5
DI4098	Internship	3
DI4092	Preliminary of Final Project	3
DI4102	Interior Design Project Management	2

Total Load : 13 credits

### Semester VIII

KU2071	Pancasila and Civic Education	2
KU206X	Religion and Ethics	2
DI4208	Art, Design and Environment	3
DI4094	Interior Design Final Project	6

Total Load : 13 credits

Elective courses: 15 credits

Total CREDITS :145 Credits

Elective Courses

DI3003	Review of Traditional Furniture	2
DI3004	Review of Traditional Interior Design	2
DI3005	Exhibition Design	2
DI3006	Introduction of Interior Design Statics	2
DI3007	Cultural Aspect of Interior Design	2
DI4004	Interior Design Business	2
DI4005	Sustainability in Interior Design	2
DI4006	Heritage Interior Design Conservation	3
DI4007	Healing Environment	2
DI4008	Interior Design for Preservation Building	2



Doc. Faculty of Art and Design

# INDUSTRIAL DESIGN

Industrial Design is a study program that studies the design and manufacture of products as the solution for the problem which is based on the study of human comfort as the users and the development of its surrounding industrial principles. For example, in addition to making products that are safe and comfortable to use, it should also be economical and in accordance with the needs and desires of its users.

In an attempt to solve a problem in the field of industrial design, several approaches are taken towards interdisciplinary aspects, including: aesthetic, social, cultural, technology, management, environment, and science.

## Competency of Graduate

Industrial Design graduate competence is with the specificity on the field of product design, where one is expected to have:

- Ability to design products creatively and able to implement particular scientific applications in the design of a comprehensive product with various approach/premise on the problem.
- Ability to examine objects and problems of product design.
- Ability to communicate product design ideas either orally, written, or visually.
- Ability to work well both interdisciplinary or independently in accordance with each expertise.

## ADDRESS

Institut Teknologi Bandung  
Center for Art Design and Language (CADL) of ITB 2nd floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia  
Telephone : +62 22 2514832  
Fax : +62 22 2516250  
Website : [www.produk.fsrdd.itb.ac.id](http://www.produk.fsrdd.itb.ac.id)  
Email : [fsrditb@yahoo.com](mailto:fsrditb@yahoo.com)

## Curriculum of Industrial Design

### Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

### Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

### Semester III

DP2001	Industrial Design I	5
DP2101	History of Design	2
DP2103	Product Semantics	2
DP2105	Material and Process I	3
DP2107	Presentation Technique	3
DP2109	Design Ergonomics	3

Total Load : 18 credits

### Semester IV

DP2002	Industrial Design II	5
DP2201	Design Method	2
DP2204	Basic Engineering in Product Design	2
DP2206	Material and Process II	3
DP2208	Digital Modelling I	3

Total Load : 15 credits

### Semester V

DP3001	Industrial Design III	5
DP3101	Design Critics	2
DP3103	Digital Modelling II	3
DP3105	Lifestyle Product Design	2
DP3107	Built Environment Product Design	2

Total Load : 14 credits

### Semester VI

DP3204	Design Management	2
DP3002	Industrial Design IV	5
DP3202	Design Business	3
DP3206	Sociology of Design	2
DP3208	Innovation Product 1	2

Total Load : 14 credits

### Semester VII

DP4003	Industrial Design V	5
DP4090	Industrial Design Professional Practice	4
DP4092	Product Design Portfolio	3
DP4101	Product Design Innovation II	2

Total Load : 14 credits

### Semester VIII

DP4208	Art, Design and Environment	3
KU2071	Pancasila and Civic Education	2
KU206X	Religion and Ethics	2
DP4094	Final Project of Industrial Design	6
DP4201	Design Writing and Publication	2

Total Load : 15 credits

Elective courses: 18 credits

Total CREDITS :144 Credits



# Elective Courses

DP2111	Craft Design	2
DP3109	Artifact Design	2
DP3111	Design and Human Factor I	2
DP3113	Seating Design	2
DP4202	Creative Product Strategy	2
DP4204	Interactive Product Design	2
DP4206	Service Product Design	2
DP4207	Design of Public Facility	2

Doc. Faculty of Art and Design



# VISUAL COMMUNICATION DESIGN

Visual Communication Design (DKV) is a branch of the design sciences that studies how to deliver messages using creative expressions to achieve certain goals, such as providing information or persuasion (as in advertising). The techniques and media that use visual elements to convey the message are also studied. Therefore, the visual communication designer should be able to process the message in an effective, informative, and communicative way.

There are basic subjects being taught in the study program of Visual Communication Design: developing forms of visual language (play of images) and processing messages (play of words) for both social and commercial purposes, either from individuals or groups. Visualization must be creative and innovative, while the core messages should be communicative, efficient, and effective. Both must support each other to be well delivered to the target.

The scope of work of a visual communication designer is very vast, ranging from designing product label, a logo which reflects an institution or company (branding), promotional package and campaign of a program, to the mass media advertising. Unlike artists (in this case, graphic artists) whose work is created as their personal expression, the works produced by a designer of visual communication emphasized on the concept that aimed and intended for targeted audiences.

There are three majors in the study program of Visual Communication Design that can be selected ahead of Semester V:

1. Graphic Design
2. Advertising Visual Communication
3. Multimedia Communication

Graphic Design and Advertising Visual Communication are processing visual language in static media. Thus, the skills of communication, typography, illustration and photography become factors that must be mastered. With their expertise, graphic designers can create logos, editorial designs, sign systems, packaging design, product promotional packages, and others. Advertising designers are capable of designing an attractive and efficient visualization for the purpose of persuasion, repackaging the image of a product/program/campaign with a good visual language which culminated in the change of behavior of the targeted audience. Meanwhile, Multimedia Communications leads to the dynamic time and audio based media. Animations, web design, interactive media, to directing the film are few examples of profession as multimedia designer.

## ADDRESS

Institut Teknologi Bandung  
Center for Art Design and Language (CADL) of ITB 2nd floor  
Jl. Ganesa 10, Bandung 40132  
Indonesia  
Telephone : +62 22 2516567  
Fax : +62 22 2516567  
Website : [www.dkvsf.srd.itb.ac.id](http://www.dkvsf.srd.itb.ac.id)  
Email : [fsrditb@yahoo.com](mailto:fsrditb@yahoo.com)

## Curriculum of Visual Communication majoring in Graphic Design

### Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

### Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

### Semester III

DK2001	Basic Visual Communication Design	4
DK2101	History of Design	2
DK2103	Basic Typography	3
DK2105	Basic Illustration	3
DK2107	Basic Photography	3
DK2109	Communication Process	2

Total Load : 17 credits

### Semester IV

DK2002	Applied Visual Communication Design	4
DK2201	Design Method	2
DK2202	Applied Typography	3
DK2204	Applied Illustration	3
DK2206	Applied Photography	3
DK2208	Production Method of Visual Communication Design	2
DK2210	Communication Psychology	2

Total Load : 19 credits

### Semester V

DK3001	Graphic Design 1	4
DK3115	Animation	3
DK3103	Printing Technology	3
DK3109	Packaging Design	3
DK3119	Research Methodology of Visual Communication Design	2
DK3117	Visual Language	2
DK3101	Design Critics	2

Total Load : 19 credits

### Semester VI

DK3002	Graphic Design II	5
DK3008	Graphic Design Seminar	3
DK3202	Graphic Design Portfolio	3

Total Load : 11 credits

### Semester VII

DK4001	Graphic Design III	5
DK4101	Graphic Design Perspective	3
DK4090	Visual Communication Design Internship	3
DK4107	Visual Communication Design Management	3

Total Load : 14 credits

### Semester VIII

KU206X	Religion and Ethics	2
KU2071	Pancasila and Civic Education	2
DK4208	Art, Design and Environment	3
DK4099	Visual Communication Design Final Project	6

Total Load : 13 credits

Elective courses: 15 credits

Total CREDITS :144 Credits

## Curriculum of Visual Communication majoring in Multimedia Communication

## Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

## Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

## Semester III

DK2001	Basic Visual Communication Design	4
DK2101	History of Design	2
DK2103	Basic Typography	3
DK2105	Basic Illustration	3
DK2107	Basic Photography	3
DK2109	Communication Process	2

Total Load : 17 credits

## Semester IV

DK2002	Applied Visual Communication Design	4
DK2201	Design Method	2
DK2202	Applied Typography	3
DK2204	Applied Illustration	3
DK2206	Applied Photography	3
DK2208	Production Method of Visual Communication Design	2
DK2210	Communication Psychology	2

Total Load : 19 credits

## Semester V

DK3003	Multimedia Design I	4
DK3115	Animation	3
DK3105	Visual Narrative	3
DK3111	Motion Graphic	3
DK3119	Research Methodology of Visual Communication Design	2
DK3117	Visual Language	2
DK3101	Design Critics	2

Total Load : 19 credits

## Semester VI

DK3004	Multimedia Design II	5
DK3010	Multimedia Design Seminar	3
DK3204	Videography	3

Total Load : 11 credits

## Semester VII

DK4003	Multimedia Design III	5
DK4103	Interactive Media	3
DK4090	Visual Communication Design Internship	3
DK4107	Visual Communication Design Management	3

Total Load : 14 credits

## Semester VIII

KU206X	Religion and Ethics	2
KU2071	Pancasila and Civic Education	2
DK4208	Art, Design and Environment	3
DK4099	Visual Communication Design Final Project	6

Total Load : 13 credits

Elective courses: 15 credits

Totals CREDITS :144 Credits

## Curriculum of Visual Communication majoring in Advertising Communication

### Semester I

SR1101	Basic Principles of Visual Art and Design	2
SR1102	Drawing I	4
SR1103	Basic Visual I 2D	3
SR1104	Basic Visual I 3D	3
KU1101	Introduction to Engineering and Design I	2
KU102X	English	2
KU1001	Sports	2

Total Load : 18 credits

### Semester II

SR1201	Creativity and Humanity	2
SR1202	Drawing II	4
SR1203	Basic Visual II 2D	3
SR1204	Basic Visual II 3D	3
KU1201	Introduction to Engineering and Design II	2
KU1011	Indonesian Language: Scientific Writing	2
KU1071	Introduction to Information Technology A	2

Total Load : 18 credits

### Semester III

DK2001	Basic Visual Communication Design	4
DK2101	History of Design	2
DK2103	Basic Typography	3
DK2105	Basic Illustration	3
DK2107	Basic Photography	3
DK2109	Communication Process	2

Total Load : 17 credits

### Semester IV

DK2002	Applied Visual Communication Design	4
DK2201	Design Method	2
DK2202	Applied Typography	3
DK2204	Applied Illustration	3
DK2206	Applied Photography	3
DK2208	Production Method of Visual Communication Design	2
DK2210	Communication Psychology	2

Total Load : 19 credits

### Semester V

DK3005	Advertising Design I	4
DK3115	Animation	3
DK3107	Theory of Advertising	3
DK3113	Copywriting	3
DK3119	Research Methodology of Visual Communication Design	2
DK3117	Visual Language	2
DK3101	Design Critics	2

Total Load : 19 credits

### Semester VI

DK3006	Advertising Design III	5
DK3012	Advertising Design Seminar	3
DK3206	Advertising Business Management	3

Total Load : 11 credits

### Semester VII

DK4005	Advertising Design III	5
DK4105	Visual Branding	3
DK4090	Visual Communication Design Internship	3
DK4107	Visual Communication Design Management	3

Total Load : 14 credits

### Semester VIII

KU206X	Religion and Ethics	2
KU2071	Pancasila and Civic Education	2
DK4208	Art, Design and Environment	3
DK4099	Visual Communication Design Final Project	6

Total Load : 13 credits

Elective courses: 15 credits

Total CREDITS :144 Credits

## Elective Courses

DK3014	Perceptual Psychology	3
DK3016	Social Psychology	2
DK3208	Children Book Illustration and Design	3
DK4109	Visual Culture of Nusantara	2
DK4111	Infographic	3
DK4113	Experimental Multimedia	3
DK4115	Experimental Graphic	3
DK4117	Comic	3
DK4119	Introduction of Advertising	3
DK4121	Typeface Design	3
DK4204	Sociology Communications	3
DK4206	Game Design	3
DK4210	Experimental Animation	3
DK4212	Marketing Communication	3









# SCHOOL OF BUSINESS AND MANAGEMENT

Dean : Prof.Dr.Ir. Sudarso Kaderi Wiryono, DEA  
Vice Dean for Academic Affairs : Prof.Dr.Ir. Utomo Sardjono Putro, M.Eng  
Vice Dean for Resource Planning and Management : Dr. Aurik Gustomo, ST., MT

# MANAGEMENT SCIENCE

The mission of this program is to educate scholars to become expert researchers, and to produce a wide range of research for the advancement of management science in Indonesia. Our graduates are expected to have managerial knowledge, quantitative and qualitative thinking methodologies, decision making skills, statistical data analysis, and ability to report and to describe their opinion in the form of a thesis.

Our courses are designed for the graduates to have developed skills in formulating research problems as well as in research execution. Our graduates have excellent careers in academics and also in many fields of government and private companies.

Our program offers six concentrations:

1. People and Knowledge Management
2. Operations and Performance Management
3. Business Strategy and Marketing
4. Business Risks and Finance
5. Entrepreneurship Studies and Technology Management
6. Decision Making and Strategic Negotiations

## ADDRESS

Institut Teknologi Bandung  
Gedung Sekolah Bisnis dan Manajemen  
Jl. Ganesa 10, Bandung 40132

Indonesia

Telephone	: +62 22 2531923
Fax	: +62 22 2504249
Website	: <a href="http://www.sbm.itb.ac.id">www.sbm.itb.ac.id</a>
Email	: <a href="mailto:info@sbm-itb.ac.id">info@sbm-itb.ac.id</a>

## Curriculum of Management Science

Matriculation Stage:

Student candidates with no management education background must undertake the matriculation program which is comprised of these following subjects:

### Matriculation

MSM004	Fundamentals of People Management	2	MB5101	Management Thought and Research	3
MSM001	Fundamentals of Operational Management	2	MB5102	Social Science Studies in Management	3
MSM003	Fundamentals of Marketing Management	2	MB5103	Research Methods in Management	4
MSM002	Fundamentals of Financial Management	2	MB5104	Decision Science	2
MSM005	Fundamentals of Statistics for Business and Management	2			

Total Load : 10 credits

### Semester I

Total Load : 12 credits

### Semester II

MB5201	Review of Management Theories	3		Elective Course 3	3
MB5202	Advanced Statistics	3	MB5105	Management Research Design	3
	Elective Course 1	3	MB6099	Thesis	6
	Elective Course 2	3			

Total Load : 12 credits

### Semester III

Total Load : 12 credits

### Elective Courses

MB6001	Colloquium	2	MB6041	Financial Modeling	3
MB6002	Advanced Management Topic 1	3	MB6042	Financial Risk Management	3
MB6003	Advanced Management Topic 2	3	MB6043	Behavioral-Based Finance	3
MB6011	Competence Based People Management	3	MB6044	Financial Econometrics	3
MB6012	Knowledge Management and Learning Organizations	3	MB6045	Islamic Financial System	3
MB6013	Leadership Theory	3	MB6046	Advanced Corporate Finance	3
MB6014	Conflict and Change Management	3	MB6061	Entrepreneurship Studies	3
MB6015	Organizational Behavior	3	MB6062	Management of Innovations	3
MB6034	Operation Management Simulation	3	MB6063	Product Development Management	3
MB6021	Market Research	3	MB6064	Corporate Entrepreneurship	3
MB6022	Advanced Branding Strategies	3	MB6065	Small Business Development	3
MB6023	Service Marketing Study	3	MB6066	Family Business	3
MB6024	Consumer Behavior Analysis	3	MB6051	Value Structuring and Decision Making	3
MB6025	Technology Commercialization	3	MB6052	Creative Problem Solving	3
MB6031	Performance Support System	3	MB6053	Confrontation Analysis	3
MB6032	Advanced Supply Chain Management	3	MB6054	Systems Thinking	3
MB6035	Human Logistics	3	MB6055	Agent Based Modeling and Simulations	3
MB6036	Advanced Operation Strategy	3	MB6099	Thesis	6

# MANAGEMENT SCIENCE

## (Doctoral)

The ITB Doctor of Science in Management Program (DSM-ITB) provides students with an outstanding and intellectually meticulous research environment. The aim of this program is to create a new generation of scholars who have the following characteristics:

1. Possess the ultimate comprehension, mastery, and authority on management science as well as the relevant analytical tools in such topics as economics, people and organizational behavior, mathematics, and statistics. These skills will be useful in problem solving, theory development, and business implementation.
2. Possess the analytical-synthesis-evaluation ability to study the relevant literature useful in identifying, mapping, and developing the latest in management science.
3. Possess a creative and methodological mindset to design and conducts independent research on recent management issues, and publish the completed work in an accredited journal.
4. Possess the ability to pursue new findings which have both national and international merit, on the topics of organization complexity, technology, and human behavior in facing a global, competitive, and changing environment.
5. Ability to communicate and implement the research findings towards developing management science.
6. Produce research findings which will lead to further research development.
7. Possess the capacity to recognize the contribution made by other researchers.

### ADDRESS

Institut Teknologi Bandung  
 Gedung Sekolah Bisnis dan Manajemen  
 Jl. Ganesa 10, Bandung 40132  
 Indonesia  
 Telephone : +62 22 2531923  
 Fax : +62 22 2504249  
 Website : [www.sbm.itb.ac.id](http://www.sbm.itb.ac.id)  
 Email : [info@sbm-itb.ac.id](mailto:info@sbm-itb.ac.id)

Management Science implements various disciplines in which it explains the concept of managing resources (people, methods, machines, and money) to achieve the expected organizational goals. Consequently, DSM-ITB is developed not only for those who have a management or economic background, but also those who have the desire to develop and implement management science in their professional endeavors. DSM-ITB is a Linear Doctoral Program of the Undergraduate Program, the Graduate Program in Business, and the Graduate Program in Management Science. However, DSM-ITB also accepts students from other social sciences from engineering and other disciplines as well.

Therefore the following categories apply at DSM-ITB:

1. Those who hold a degree in either the Graduate Program in Business or the Graduate Program in Management Science will follow the Linear Doctoral Program with 46 credit hours.
2. Those who hold a Master's degree in non-management science will follow the Non-Linear Doctoral Program DSM-ITB for three years comprising six semesters with 52 credit hours.

## Curriculum of Management Science

Students at DSM-ITB will select one of six concentrations from these research areas:

1. People and Knowledge Management
2. Operations and Performance Management
3. Business Strategy and Marketing
4. Business Risk and Finance
5. Entrepreneurship Study and Technology Management
6. Decision Making and Strategic Negotiation

### Non-Linear Doctoral Program Curriculum

The Non-Linear Doctoral Program is divided into four parts comprising of 21 credits for lecturing, five credit hours for the dissertation proposal, 23 credits for research, and three credits for other activities.

#### Semester I

MB7101	Science Philosophy in Management	3
MB7102	Advanced Economics	3
MB7103	Advanced Behaviour Knowledge	3
	Elective 1	3

Total Load : 12 credits

#### Semester II

	Elective 2	3
	Elective 3*	3
MB7201	Research Methodology	3
MB7202	Qualifying Exam	3

Total Load : 12 credits

#### Semester III

MB8101	Research Proposal	5
MB8102	Progress Seminar I	5

Total Load : 10 credits

#### Semester IV

MB8201	Progress Seminar II	5
--------	---------------------	---

Total Load : 5 credits

#### Semester V

MB8103	Progress Seminar III	5
--------	----------------------	---

Total Load : 5 credits

#### Semester VI

MB8202	Progress Seminar IV	5
MB9099	Dissertation Exam	3

Total Load : 8 credits

\*) Include six credits added courses

### Linear Doctoral Program Curriculum

Alternatively, the Linear Doctoral Program has fewer credit hour requirements because it is designed for students who already have management backgrounds. The Linear Doctoral Program is divided into four parts comprising of 15 credit hours for lecturing, five credit hours for the dissertation proposal, 23 credit hours for research, and three credit hours for other doctoral courses.

#### Semester I

MB7101	Science Philosophy in Management	3
MB7102	Advanced Economics	3
MB7103	Advanced Behaviour Knowledge	3
	Elective 1	3

Total Load : 12 credits

#### Semester II

	Elective 2	3
MB 7202	Qualifying Exam	3

Total Load : 6 credits

#### Semester III

MB8101	Research Proposal	5
MB8102	Progress Seminar I	5

Total Load : 10 credits

#### Semester IV

MB8201	Progress Seminar II	5
--------	---------------------	---

Total Load : 5 credits

#### Semester V

MB8103	Progress Seminar III	5
--------	----------------------	---

Total Load : 5 credits

#### Semester VI

MB8202	Progress Seminar IV	5
MB9099	Dissertation Exam	3

Total Load : 8 credits

### Elective Courses

MB 7211	Performance Support Management	3	MB 7229	Behavior Based Finance	3
MB 7212	Advanced Supply Chain Management	3	MB 7230	Financial Econometrics	3
MB 7213	Operation Modeling	3	MB 7231	Islamic Financial System	3
MB 7214	Simulation in Operation Management	3	MB 7232	Advanced Corporate Finance	3
MB 7215	Network Optimization	3	MB 7233	Entrepreneurship Study	3
MB 7216	Advanced Operation Strategy	3	MB 7234	Innovation Management	3
MB 7217	Competence Based Human Resource Management	3	MB 7235	Product Development Management	3
MB 7218	Knowledge Management & Learning Organization	3	MB 7236	Corporation Entrepreneurship	3
MB 7219	Leadership Theory	3	MB 7237	Small Business Development	3
MB 7220	Conflict Management and Changes	3	MB 7238	Family Business	3
MB 7221	Organization Behavior	3	MB 7239	Value Structure and Decision Making	3
MB 7222	Marketing Research	3	MB 7240	Creative Problem Solving	3
MB 7223	Branding Strategy	3	MB 7241	Confrontation Analysis	3
MB 7224	Study of Service Marketing	3	MB 7242	Systemic Thinking	3
MB 7225	Analysis of Consumer Behavior	3	MB 7243	Agent and Simulation Based Model	3
MB 7226	Technology Commercialization	3	MB 7244	Advanced Topic in Management 1	3
MB 7227	Financial Modeling	3	MB 7245	Advanced Topic in Management 2	3
MB7228	Finance Risk Management	3			



# BUSINESS ADMINISTRATION

The Master's Program in Business Administration (MBA-ITB), established in 1990, is a highly respected MBA programs in Indonesia. The program is designed to meet the current business requirements. The development of innovative, critical, and interpersonal capabilities embedded in the program is crucial to stimulate effective business leaders and entrepreneurs. We offer two programs: Regular and Executive. The Regular program consists of 21 months of course work with in option to do three month internship in a company. The Executive program is computed into 24-months targeted for business professionals who have an interest to advance their careers. Currently, we have two regular programs: Young Professional and Creative & Cultural Entrepreneurship (MBA-CCE). The first is intended for those who seek a career as business leaders while the second one is tailored for those who aspire to be entrepreneurs in a creative industry.

More than 2,100 MBA-ITB alumni work as business leaders, professional managers, and entrepreneurs. ITB's School of Business and Management provides a high-standard education program that develops its students for leadership and employment. Graduates are expected to acquire competence in functional management, have a responsibility to make decisions based on ethical norms, and possess an entrepreneurial spirit or to be reliable entrepreneurs. SBM ITB provides a Career Services System as an interface between Employers and Jobseekers. Please visit <http://career.sbm.itb.ac.id> to see more information regarding SBM ITB Career Services.

Learning processes at MBA ITB incorporates in-class and out of the classroom learning. So-called a "creative learning" method, students are challenged to study outside their comfort zone in the form of excursions and Neuro Linguistic Program, debate, group work, mentoring by practitioners, independent study, seminars and guest lectures, business plan competition, and field trips.

## ADDRESS

Institut Teknologi Bandung  
Gedung Sekolah Bisnis dan Manajemen  
Jl. Ganesa 10, Bandung 40132  
Indonesia  
Telephone : +62 22 2504308  
Fax : +62 22 2504897  
Website : [www.sbm.itb.ac.id](http://www.sbm.itb.ac.id)  
Email : [info@sbm-itb.ac.id](mailto:info@sbm-itb.ac.id)

## Curriculum of Business Administration

The MBA-ITB consists of core units, electives, and a final project totaling 39 credit points (SKS). Students are required to complete core units and a final project while elective units are taken in accordance with their respective specialization.

### Compulsory Core Courses

MM5001	Business Law and Business Ethics	3	MM5009	Finance	3
MM5002	People in Organization	3	MM5010	Strategic Decision Making and Negotiation	2
MM5004	Operation Management	3	MM5011	Knowledge/science and Innovation	3
MM5005	Business Economics	2	MM5012	Business Strategy	3
MM5006	Accounting	2	MM6099	Final Project	3
MM5008	Marketing Management	3			

Total Load : 12 credits

### Elective courses: Human Capital Option

1. Elective courses : Operation S
2. Elective courses : Human Capital
3. Elective courses : Risk and Finance
4. Elective courses : Marketing
5. Elective courses : Technology and Innovation
6. Elective courses : Entrepreneurship (E-Track)
7. Elective courses : MBA Cultural in Creative Entrepreneur

### Compulsory Courses (Option: Business Leadership)

MM5001	Business Law and Business Ethics	3	MM5009	Finance	3
MM5002	People in Organization	3	MM5010	Strategic Decision Making and Negotiation	2
MM5004	Operation Management	3	MM5011	Knowledge/Science and Innovation	3
MM5005	Business Economics	2	MM5012	Business Strategy	3
MM5006	Accounting	2	MM6023	International Business	3
MM5007	Business Leadership	3	MM6099	Final Project	3
MM5008	Marketing Management	3			

Total Load : 36 credits

### Compulsory Courses (Option: Energy Management Option)

MM5001	Business Law and Business Ethics	3	MM5012	Business Strategies	3
MM5002	People in Organization	3	MM6099	Final Project	3
MM5004	Operation Management	3	TM6046	Energy Resources	3
MM5006	Accounting	2	TM6047	Economics and Financial Analysis of Energy Project	3
MM5008	Marketing Management	3	TM6049	Energy Economics	3
MM5009	Finance	3	TM6050	Energy Modeling	3
MM5010	Strategic Decision Making and Negotiation	2			


Total Load : 37 credits

### Compulsory Courses (Option: Telecommunication Management)

EL5162	Business Data Communication & Networking	2	MM5004	Operation Management	3
EL5163	Wireless Communication	2	MM5006	Accounting	2
EL6060	Telecommunication Economics & Assurance Revenue	2	MM5008	Marketing Management	3
EL6061	Telecommunication Planning System & Services	2	MM5009	Finance	3
EL6062	Telecommunication Management	2	MM5010	Strategic Decision Making and Negotiation	2
EL6063	Regulation & Telecommunication Policy	2	MM5012	Business Strategies	3
MM5001	Business Law and Business Ethics	3	MM6099	Final Project	3
MM5002	People in Organization	3			
Total Load : 37 credits					

### Elective Courses

MM5003	Innovation and Entrepreneurship	3	MM6032	Islamic Banking System	3
MM5007	Business Leadership	3	MM6033	Advanced Financial Planning	3
MM6011	Remuneration and Performance Appraisal	3	MM6034	Advanced Finance	3
MM6012	Human Asset/Capital	3	MM6035	New Venture Planning	3
MM6013	Crossed Culture Management	3	MM6036	New Venture Management	3
MM6014	People as Agent of Change	3	MM6037	Business Growth Management	3
MM6015	Amendment Management	3	MM6038	Corporate Entrepreneurship	3
MM6016	Branding and Marketing Communication	3	MM6039	Product Development Management	3
MM6017	Value Determination Strategy	3	MM6040	Technology Innovation Management	3
MM6018	Strategic Marketing Track Management	3	MM6041	Design Thinking	3
MM6019	Strategic Service Marketing	3	MM6042	Art Design and Culture	3
MM6020	Global Business Strategy	3	MM6043	The Contextual Nature of Creativity	3
MM6021	Cooperation Strategy	3	MM6044	Entrepreneurial Modeling	3
MM6022	Strategic Business Expansion	3	MM6051	Business Statistics	2
MM6023	International Business	3	MM6052	Consumer Behavior	3
MM6024	Corporate Performance Management	3	MM6053	Applied Marketing Research	3
MM6025	Supply Chain Design	3	MM6054	Business Information Management	3
MM6026	Operation Strategy	3	MM5003	Capital Market Analysis	3
MM6027	Global Project Management	3	MM5007	Investment Projects Analysis	3
MM6028	Total Quality Management	3	MM6011	Sharia Contract & Products	3
MM6029	Corporate Risks Management	3	MM6012	Entrepreneurship and Venture Management	2
MM6030	International Finance	3	MM6013	Managerial Economics	2
MM6031	Investment and Capital Market	3	MM6014	Corporate Management	2



## HYMN OF ITB

With pride, we call out thy name  
The glorious almamater, the cherished ITB  
How immense is thy contribution for the country  
For the noble ideals of welfare society

Verse:  
O Lord we pray, for Thy consent and guidance  
In duties and devotions, for the haven and the nation

Music & lyrics: Yudia Pancaputra

in harmonia progressio

**Institut Teknologi Bandung**

Jl Ganesha 10 Bandung 40132 INDONESIA

[www.itb.ac.id](http://www.itb.ac.id)