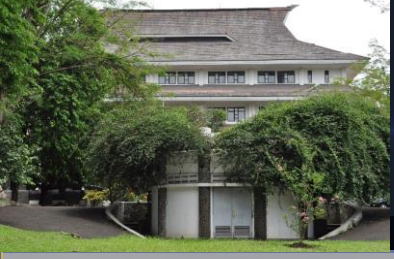

GRADUATE PROGRAM IN **COMPUTATIONAL SCIENCE**

Faculty of Mathematics and Natural Science
Bandung Institute of Technology

PROFILE

Master Program in Computational Science has vision to contribute to the strengthening of the Faculty of Mathematics and Natural Sciences as a center for the development of science and mathematics, through strengthening one of the three pillars of science development: the pillar of experimentation, the pillar of theory, and the pillar of computing.

Computational science has important role in several areas such as :

1. Understanding of natural phenomena that is chaotic, non-deterministic, and cannot be solved by analytic methods,
2. Simulations that connect theory and experiment,
3. Prediction or forecasting,
4. Dynamic and static system modeling,
5. Data organization and calculation.

In supporting this role, research collaboration has been carried out between FMIPA researchers and students with colleagues in universities, research institutes, and industry.

TEACHING STAFF

Teaching staff of Master Program in Computational Science come from various disciplines, i.e. Mathematics, Physics, Chemistry and Astronomy. Details of the teaching staff can be seen at https://csx.itb.ac.id/people/

CURRICULUM

Mandatory Courses
Semester 1: Advanced Numerical Analysis (3 credits), Algorithms and Software Design (2 credits), Programming in Science (2 credits), Network and Parallel Data Processing (2 credits)
Semester 2: Research Methodology (2 credits)
Semester 3: Thesis Proposal (2 credits)
Semester 4: Thesis (4 credits)

Elective Courses:
Introduction to Computational Science, Grid Based Computing Method, High Performance Computing, Introduction to Material Design, Molecular Dynamics, Density Functional Theory, Artificial Intelligence, Data Mining in Science, Particle Based Computing Method, Agent Based Computing Method, Independent Research in Computational Science 1-7, Special Project in Computational Material Design, Special Project in Data Science Processing, Special Project in Theoretical Science and Mathematics, Special Project in Computational Method Development.

OUTSTANDING PROGRAM

Master Program in Computational Science has **Double Degree Program** with Master Program in Computational Science, Kanazawa University (Japan), Osaka University (Japan), and Master Program in Informatics Engineering, Lleida University (Spain). Selected students from ITB will have opportunity to participate in the Double Degree Program which is held for 2 semesters at ITB and 2 semesters at universities abroad. Kanazawa University and Lleida University staff can also provide some course material at ITB either directly or by using distance learning.

FMIPA

Registration Info :
www.usm.itb.ac.id
www.sps.itb.ac.id

Master Program in Computational Science
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Telephone/fax. +62222515032/+62222502360
Website : https://csx.itb.ac.id
Email : csx@fmipa.itb.ac.id

MASTER PROGRAM IN COMPUTATIONAL SCIENCE

FACILITIES

Learning Room, which is equipped with AC, Smart Board, and High Speed Internet Access.
Discussion Room, Musholla, and **Student Activities Room.**
HPC (High Performance Computing) Laboratory, which contains 20 nodes of high performance computers, 4 computing servers, and 2 Mac Pro servers for visualization.
Akses jurnal internasional i.e. Elsevier, Springer, IEEE, SIAM, ACS.

SUPPORTING ACTIVITIES

Master Program in Computational Science and Kanazawa University routinely hold the International Symposium on Computational Science (ISCS) which is a place for students to present research results and learn about how to manage organization.

ALUMNI

Master Program in Computational Science at ITB equips graduates with:

1. Comprehensive knowledge and skills regarding to computational approaches in science,
2. The ability to develop, model, simulate, create efficient algorithms, and use optimization methods to solve problems in science and mathematics,
3. The ability to take an interdisciplinary approach in finding solutions to problems in science and mathematics,
4. Skills in several techniques, methods, tools and the ability to choose the right tools and methods for solving certain problems, and
5. The ability to work together with their colleagues, both in the same or different areas.

With this provision, our graduates will have the skills and competencies to enter work fields such as: insurance, banking, finance, information technology, telecommunications, automotive industry, pharmaceutical and chemical industry, oil and gas industry, science research institutions, and others.

RESEARCH