



POSTGRADUATE PROGRAM DEPARTMENT OF ENGINEERING PHYSICS

Faculty of Industrial Technology

**Institut Teknologi Sepuluh Nopember (ITS)
Surabaya, Indonesia**

**MASTER DEGREE (S2)
DOCTORAL DEGREE (S3)**

Field of Study

*Photonics
Materials
Energy
Acoustics
Instrumentation*

For further information, contact directly to the Postgraduate Engineering Physics Secretariat through:

- Telephone / Fax/ HP: +62 31 5947188 / 5923626 / +6282334081716
- Email: pascasarjana@ep.its.ac.id, or pascasarjanatf@gmail.com

POSTGRADUATE PROGRAM

The rapid development in cutting-edge technology cannot be separated from the exploration of the principles of basic science (physics, mathematics, chemistry and biology). This development has a logical effect on the increasing demand for researchers who have the ability to synthesize and analyze across fields of science and are able to integrate quickly and adapt themselves to the current needs in science and technology.



Department of Engineering Physics feel called to contribute their best to participate and take part in education at this higher level. Department of Engineering Physics feel that the existence of an adequate doctoral program is one that should be owned completeness. The existence of a doctoral program is expected to facilitate the creation of quality scientific work and quality research, so that it will smooth out the steps of the Physics Engineering Department in particular, and ITS as a whole, to take part in scale and international competitiveness. Thus, the noble goals to provide human resources with excellent capacity and qualified, having academic excellence, as well as practical skills, in various fields is no longer a dream. Human resources with this excellent capacity must be prepared, and this is impossible if only supplied by academic people with education as limited as undergraduate and master level. Thus it is very demanding the availability of a more advanced and specific program.



**POSTGRADUATE PROGRAM
DEPARTMENT OF ENGINEERING PHYSICS - ITS**

INFORMATION
<http://pascasarjana.ep.its.ac.id>



CURRICULUM

The curriculum in the Physics Engineering master degree is prepared based on the provisions set by the Dirjen DIKTI, which is 36 credits, with a duration of 4 semesters. In the first two semesters, core courses are given to form the main competencies of Engineering Physics expertise, along with the seminar thesis proposal to be undertaken. In the last half of the second semester, students are given a choice of subjects - courses that can be chosen flexibly, according to the chosen concentration field and in line with the theme of the work of the thesis to be performed.

COURSES

INDUSTRIAL INSTRUMENTATION

No.	Course Title	Credits
1	ADVANCED ENGINEERING PHYSICS	3
2	ADVANCED INSTRUMENTATION	2
3	ADVANCED ENGINEERING MATHEMATICS	3
4	ADVANCED SISTEM DYNAMICS	2
TOTAL CREDITS		10
1	RESEARCH METHODOLOGY AND THESIS PROPOSAL	3
2	SIGNAL PROCESSING	2
3	OPTIMIZATION	2
4	ADVANCED AUTOMATIC CONTROL	2
TOTAL CREDITS		9
1	INTERNSHIP	2
2	DESIGN ENGINEERING	2
3	ELECTIVE COURSE I	2
4	ELECTIVE COURSE II	2
TOTAL CREDITS		8
1	ELECTIVE COURSE III	2
2	ELECTIVE COURSE IV	2
3	THESIS	5
TOTAL CREDITS		9

INDUSTRIAL INSTRUMENTATION

RENEWABLE ENERGY

FIELD OF STUDY

1. Industrial Instrumentation Engineering
 - Photonics
 - Industrial Instrumentation
 - Medical
2. Renewable Energy Engineering

RENEWABLE ENERGY

No.	Course Title	Credits
1	ADVANCED ENGINEERING PHYSICS	3
2	STATISTICAL ENERGY	3
3	ENERGY POTENCY MAPPING	2
4	ADVANCED ENGINEERING MATHEMATICS	3
TOTAL CREDITS		11
1	ENERGY SYSTEM OPTIMIZATION	2
2	RENEWABLE ENERGY SYSTEM	2
3	RESEARCH METHODOLOGY AND THESIS PROPOSAL	3
4	ENERGY CONVERSION TECHNIQUES	2
TOTAL CREDITS		9
1	INTERNSHIP	2
2	ENERGY AUDIT AND MANAGEMENT	2
3	ELECTIVE COURSE I	2
4	ELECTIVE COURSE II	2
TOTAL CREDITS		8
1	ELECTIVE COURSE III	2
2	ELECTIVE COURSE IV	2
3	THESIS	5
TOTAL CREDITS		9

THESIS

The flexibility of the choice of specialization topics in thesis work is offered in two paths, namely the specialization path of instrumentation themes and renewable energy theme specialization pathways. A number of elective subjects can be chosen flexibly to support the work of the thesis.

Industrial theme specialization is designed to provide scientific and technological capabilities to innovate and improve the performance of instrumentation and automation systems.

Besides that, there are also themes that regulate energy consumption in instrumentation and utility systems, which aim to maximize the efficiency of energy use in an instrumentation and utility system. Exploration of the use of hybrid renewable energy with existing energy systems is the main subject matter.

DOCTORAL DEGREE

CURRICULUM

Doctoral Degree in Engineering Physics ITS held by a study period of 6 to 8 semesters, with a study load of 72 credits. For the smooth process of study, will be offered lectures and lectures principal areas of expertise that can be organized by prior arrangement. Or in increasing flexibility, program participants can take part in some skills courses in Masters and / or Bachelor classes. There are 5 (five) specialization pathways, according to the dissertation theme.

SEMESTER	TOTAL CREDIT	CURRICULUM STRUCTURE FOR PHYSICS ENGINEERING DOCTORAL PROGRAM							
		ENGINEERING PHYSICS DEPARTMENT FTI – ITS 2014 -2019							
		DISTRIBUTION COURSES							
		1	2	3	4				
6	11	PROGRESS SEMINAR PHASE - 4	5	CLOSED SESSION DISSERTATION	3	OPEN SESSION DISSERTATION	3		
5	5	PROGRESS SEMINAR PHASE - 3	5						
4	5	PROGRESS SEMINAR PHASE – 2	5						
3	5	PROGRESS SEMINAR PHASE – 1	5						
2	6	FIELD ELECTIVE COURSE - 3	3	DISSERTATION DRAFT PROPOSAL	3				
1	10	ADVANCED RESEARCH METHODOLOGY	2	PHILOSOPHY AND ETHICS IN ENGINEERING	2	FIELD ELECTIVE COURSE - 1	3	FIELD ELECTIVE COURSE - 2	3
Total	42								

RESEARCH

The focus areas of research that will be developed in the Doctoral Degree will be established to support the areas of focus of the national science and technology development, in particular:

1. Field of Renewable Energy Technology
2. Field of Technology and transportation management
3. Field of Health Technology Field
4. Field of Information and Communication Technology (ICT)

FACILITIES

Various facilities to support the teaching and learning process, as well as research and work on thesis include:

1. Access free journals to Sciencedirect.com for various international scientific journals.
2. Reading room facilities, Department of Physics Engineering, with a collection of 1300 titles.
3. A large amount of current literature in the form of e-books that are relevant to the field of study offered.
4. Computer access terminals, with facilities for engineering simulation program access (ANSYS, Matlab + Simulink, LabVIEW, etc)
5. Free WiFi access in all areas of the Department of Engineering Physics
6. Laboratory facilities (7 laboratories in the Department Physics Engineering), as well as laboratory partners in the Physics Engineering Department (BPFK and BBLE-Puspitek)
7. Student Discussion Rooms for Masters student programs.
8. Lecture rooms with air-conditioned and LCD room facilities.

ACTIVITIES



INFORMATION

<http://pascasarjana.ep.its.ac.id>



ADMISSION

<http://pasca.its.ac.id/>