

Master in Engineering Science Engineering Graduate Studies De La Salle University-Manila



1. Background/Situationer

During the First Semester of S.Y. 2000-2001, there were about 220, 000 engineering students enrolled in the 572 engineering offerings of 210 institutions in the sixteen (16) regions of the Philippines.

About 40% or 88,000 students are freshmen taking Mathematics and Physics courses. Using an average of 10 engineering faculty teaching Mathematics and Physics courses per school, there will be 2,100 faculty members. No more that 2% of these faculty members have Master's degrees.

2. Project Description

The broad goal of the Faculty Development Project is to improve the performance of the Philippine Engineering Education.

The purpose of the project is to provide a core of highly-trained faculty, who are engineers, teaching Mathematics and Physics courses in the engineering programs at private / public colleges and universities.

To achieve these goals, selected faculty members, who are engineers, will be sponsored by Commission on Higher Education (CHED) to take up Master in Engineering Science at selected engineering schools in the country. The first batch will consist of 100 scholars.

3. Rationale of the Program

The engineering Graduate Studies (EGS) – College of Engineering, De La Salle University-Manila offers a Master in Engineering Science, which seeks to develop a pool of highly trained teaching engineers in Mathematics and Physics. The Masters Program will provide a core of qualified faculty who will spearhead in raising the level of quality of engineering education in the private and public colleges and universities.

4. Objectives of the Program

The Master of Engineering Science aims to upgrade the academic qualifications of the engineering faculty to the level of master's degree. The program also seeks to help the engineering faculty to advance professionally through theoretical and practical knowledge and to improve their teaching methods particularly in Mathematics and Physics.

5. Description of the Program

The program is a non-thesis option to be taken on a full time or part-time basis on campus. The program requires mastering a field of specialization through course work. The program involves intensive Mathematics, Physics and other related courses designed for higher level. Courses are complemented with a special project, which trains the graduate students to apply the theories and methods learned in class to actual / practical problems.

The Master in Engineering Science is a two-year program. The maximum program residency is eight (8) years.

6. Admission Requirements

1. The Graduate Admissions Office (GAO) office will administer the standard university admission policies.
2. The minimum requirements for admission to the program are:
 - a. Applicants must have Bachelor's degree in Engineering
 - b. Must have a good academic records (CGPA of at least 2.5)
3. Applicants must submit the following documents for evaluations:
 - a. Original Transcript of Records
 - b. Letters of Recommendations from the Department head / chair with the approval of the dean or head of the sending institution and from former professors.
 - c. Health certificate from a doctor and to be verified by the DLSU-University Clinic
 - d. Birth Certificate

- e. A Passing result for Graduate Entrance Examination to be administered by DLSU-ITEO
 - f. Depending on their entrance exam results, students may need to take the standard university remedial English courses (ENG501M and ENG502M)
4. The Graduate Admission Committee shall review the application and may interview the applicant if necessary. The committee shall determine the acceptability of the applicant.
 5. Upon acceptance to the program, the student in consultation with the Director of the Engineering Graduate Studies office / Admission Committee members will design a Program of Study.

7. Graduation Requirements

An oral examination is a requirement in the Master in Engineering Science Program after the student has completed and passed the academic requirements including the special project. The student has to pass an oral examination on the topic selected for the special project. The examination is to be administered by the Engineering Graduate Studies Office.

8. Curriculum

The proposed Master in Engineering Science Program is a 36-unit course program with the required units for course work and special project distributed as follows:

Remedial English	:	(6 units)*
Core Courses	:	12 units
Major Courses	:	12 units
Elective Courses	:	9 units
Special Project	:	3 units
Orientation	:	(1 unit)**
Total	:	36 units

* Remedial English-ENG501M (3 units) and ENG502M (3 units) are required for all graduate students. However, based on the results of the admission exam, which includes a qualifying exam, a student maybe exempted form this requirement.

** Non-DLSU graduates are required to pass a one-unit non-credit Orientation course.

Proposed Curriculum:

Core Courses: (12 units)

Core courses are intended to deepen the fundamental knowledge of the student in preparation for higher levels Mathematics and Physics. Students are required to take all the 4 courses listed below.

* Newtonian Mechanics with laboratory	3 units
* Electrodynamics with laboratory	3 units
* Mathematics	6 units
Advance Mathematical Methods	
Vector and Tensor Analysis	

Major Courses: (12 units)

Major courses are courses intended to strengthen the students theoretical / practical knowledge in Mathematics and Physics. Students are required to select 2 courses in both areas.

Mathematics:

- Discrete and Combinatorial Mathematics
- Optimization
- Function of complex Variables
- Finite Element Methods
- Numerical Methods and computer Programming Applications
- Advanced Statistical Methods and Probability Theory (Random / Stochastic Processes)

Physics:

- Lagrangian Dynamics
- Thermodynamics and Statistical Mechanics (lecture and laboratory)
- Wave Mechanics and Optics (lecture and laboratory)
- Nuclear Physics

- Electromagnetic Theory
- Solid State Physics

Elective: (9 units)

Students are allowed to take up 3 elective courses (from the list of courses under the Major Courses) in a specific area that would satisfy their special project interests from the regular course offerings in the various field of Engineering / Physics / Engineering Education. The student is assigned to an adviser for his / her special project. The adviser and the student can design an elective course that would contribute to the student's special project.

Special Project: (3 units)

Students who have completed all academic requirements may enroll in the special project. The student before enrollment will be assigned to a faculty adviser. The student and the adviser will agree on the project to be undertaken.

The Special Project must demonstrate the student's ability to solve actual problems or present projects using the theories and methods learned in the program. The project May be a solution to specific problem, either in the teaching of Mathematics and Physics or in actual engineering practice in industry.

Upon completion of the project and with the approval of the adviser, the student prepares the Final Project Report. Three copies will be submitted to the EGS Office. The students undergo an Oral Examination on the content of the Final Project Report before a panel composed of the Faculty Project Adviser and two Faculty Members.

Program of Study Master in Engineering Science

Student Name: _____

Special Project Adviser: _____

School Year 2006-2007

Term	Course Title	Units
1 st	Core Courses	9 units
	English 501M*	3 units
	Orientation**	1 unit
2 nd	Major Courses	6 units
	Core Course	3 units
	English 502M*	3 units
3 rd	Major Course	6 units
	Elective	3 units

School Year 2007-2008

Term	Course Title	Units
1 st	Elective	6 units
2 nd	Special Project	3 units
3 rd	Oral Exam	