

PhD Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	4	12	67
	Elective	2	6	33
Graduation Project (if any)				
Thesis (if any)		-	-	-
Field Experience(if any)				
Others (.....)				
Total		6	18	

2. Program Courses:

18 credit hours and a thesis are necessary to fulfill the requirements of the doctorate of philosophy in industrial engineering. Each student requires to complete 4 core courses (12 hours) of each track and 2 elective courses (6 hours). 2 elective courses may be chosen from the track core courses and/or the elective courses. **Scheduling of courses will be made by each student.** Level 1, 2, 3, and 4 represents the courses of Manufacturing System Engineering track, Industrial Operation Systems and Logistics, Human Factors Engineering and Safety, and Elective courses, respectively.

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	IE650	Advanced Computer Integrated Manufacturing	Core		3
	IE651	Manufacturing Systems Engineering	Core		3
	IE652	Advanced Manufacturing Technology	Core		3
	IE653	Advances in Automating of Manufacturing Systems	Core		3
	IE654	Advanced Topics in Manufacturing Processes	Core		3
	IE655	Manufacturing Strategies	Core		3
Level 2	IE620	Stochastic Modeling	Core		3
	IE621	Supply Chain Management	Core		3
	IE622	Logistics and Distributions Systems	Core		3
	IE623	Advanced Applications in Engineering Optimization	Core		3
	IE624	Operational Advanced Topics in Industrial Management	Core		3
	IE625	Scheduling of Industrial Operations	Core		3
Level 3	IE630	Safety System and Accident Analysis	Core		3
	IE631	Advanced Human Factors Applications	Core		3
	IE632	Machine Systems-Human	Core		3
	IE633	Performance and Behavior Human	Core		3
	IE634	Occupational Biomechanics	Core		3
	IE635	Advanced Methods in Design and Work Measurement	Core		3

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 4	IE611	Advanced Topics in Statistical Engineering	Elective		3
	IE612	Optimization Advanced Topics in Engineering	Elective		3
	IE613	Heuristic Search Methods in Engineering Optimization	Elective		3
	IE614	Engineering Reliability and Maintainability	Elective		3
	IE615	Advanced Topics in Engineering Quality	Elective		3

3. Thesis Defense/Examination:

Rules of Doctorate Comprehensive Exams

First: Goals of the Exam

Comprehensive exams aim at measuring the ability of students in two main respects:

a) Knowledge Acquisition:

Exam tests the depth and comprehensiveness of students' understanding of the main topics of their specialization (and sub-specialization if any).

b) Intellectual Growth:

Exam tests student's ability to think and analyze in a methodical manner; to infer and assess concepts; and to provide proper responses to posed questions.

Second: Components of the Comprehensive Exam

1. The comprehensive exam consists of two parts: written and oral.
2. Both written and oral exams branch off into two parts: one tests student on main specialization and the other on sub-specialization (where applicable).

Third: Exam Committee

1. Related department council sets up a committee of at least three teaching staff members (professors and associate professors) with competence in student's main specialization or sub-specialization (where applicable).
2. The committee may seek help from other specialized members of the department.
3. The committee shall be responsible for preparing, evaluating and determining the outcome of the exam.
4. In cases where a program includes specialization or sub-specialization outside the department, a specialist from the relevant department should participate in exam committee.
5. The committee for both written and oral exam should be the same.

Fourth: The Written Exam

1. Students sit for the exam during the semester following completion of course work. Sitting for the exam can be postponed, on the approval of the department council, for one semester.
2. The duration of the exam is minimally five hours in main specialization and three for each sub-specialization (where applicable). Dividing exam writing into two separate periods is highly recommended.
3. In the event of failing the exam (or part of it) a student may re-sit for the failed part the following semester.
4. Failing the exam (or part of it) a second time would cause the student to be terminated from the program.

Fifth: The Oral Exam

1. Students sit for the oral exam after passing all parts of the written one, on a date determined by the committee
2. Oral exam duration for main and sub specialization (where applicable) is a minimum of two hours.

3. In the event of failing this exam, a student shall be given another chance the following semester; a second failing would terminate the student from the program.

Sixth: Dates of Exams

Both parts of the comprehensive exam (written and oral) are held once in the semester between the fourth and the tenth week; a minimum of two weeks' time should separate the two.

Seventh: General Rules

1. Student is deemed a doctorate candidate after passing both written and oral parts of the comprehensive exam.
2. The Head of the Department notifies the Deanship of Graduate Studies of both exams' results in a maximum of two weeks' time after decision is made by the exam committee.

4. Thesis and Scientific Supervision:

Following are the rules that regulate supervision and theses preparation.

- Each graduate student should, at start of enrolment in a program, have an academic guide to direct the study, assist in selecting a thesis topic and preparing a research plan according to University Council regulations initiated by Deanship of Graduate Studies.
- The student should submit (where applicable) a thesis proposal to the department. The procedure is permissible after meeting all admission requirements and completing at least fifty per cent of the course work with a cumulative average of at least "Very Good." Once it recommends a proposal for approval, the Department Council should name a supervisor (and an Assistant Supervisor where applicable) of the thesis. In cases that require a Supervisory Committee, the council should name committee members and specify a Chairman. College Council's approval of all previous procedures is necessary before ultimate approval by Graduate Studies Deanship Council.
- Masters theses subjects should be characterized by newness and originality; doctorate dissertations by originality, innovation and active contribution to the development of knowledge in the student's discipline.
- Masters theses and doctorate dissertations should be written in Arabic. It is permissible to have some written in a different language in certain disciplines on the recommendation of respective Department and College Councils, the Graduate Studies Deanship Council and the decision of the University Council, provided that an abstract in Arabic is supplemented to the thesis.
- Theses should be supervised by Professors and Associate Professors of the University faculty members. Assistant Professor, holding this rank for two years, may supervise masters' theses only on having published (or obtained acceptance for publication of) two research items (in student's area of specialization) in a refereed academic journal
- Theses and dissertations may be supervised by outstanding and highly competent experts in the field of scientific research who are not necessarily teaching faculty members of the University, on the recommendation of respective Department and College Councils, the

Graduate Studies Deanship Council and the decision of the University Council. Recommended experts should meet the following conditions:

1. Have a doctorate degree.
2. Have held the degree for at least five years
3. Have at least six of research items (in student's area of specialization) published or accepted for publication in a refereed academic journal.

- Faculty members of other departments may assist in supervision, depending on the nature of the thesis, provided that the main supervisor comes from the student's department.
- Supervisors (individuals or joint) can supervise a maximum of four theses at a time; the number of theses may in urgent cases (on the recommendation of relevant Department Council and the consent of both College and Graduate Studies Deanship Councils) be increased to five. Theses supervision counts as one credit hour each in faculty members teaching loads (when individuals or main).
- If the supervisor cannot continue, or his service in the University comes to end, a substitute is proposed by Department Council, approved by College Council and authorized by Graduate Studies Deanship Council. The contribution of the former supervisor should be accredited in the thesis.
- The supervisor should, at the end of each semester, submit a detailed report to Head of Department on the student's progress in the study, a copy of the report should be sent to the Dean of Graduate Studies.
- On student's completion of thesis, the supervisor should submit a Report to the Head of the Department to announce this and declare thesis suitability for discussion. The act comes as a prelude to the rest of the procedures specified by the Graduate Studies Deanship Council, namely:
- If student is proven not to be serious in study or neglectful of academic obligations, the student then, based on a report by the supervisor of study, shall be warned in a letter from the department. If student is warned twice but does not rectify the situation, the Graduate Studies Deanship Council, on commendation of the Department Council, may terminate his enrolment in the program.
- The time limit between approval of thesis proposal by the Deanship of Graduate Studies and submitting a completed thesis to the department should be minimally two semesters for a master thesis and four for a doctorate