

## **DOCTOR OF PHILOSOPHY**

### **Degrees granted: Ph.D. in Electrical Engineering [Program code: PKEE]**

The Doctor of Philosophy (Ph.D.) at the School of Electrical Engineering was introduced to complement the existing research master's program. This program is a multi-disciplinary research award degree for those who already hold a master's degree (in Master of Electrical Engineering or equivalent) and would like to expand and upgrade their knowledge.

This program produces human capital, which is not only intellectual and competent in modern and advanced technology but also versatile and capable of handling problems in real-life situations. Successful completion of the program will prove that candidates have successfully gone through comprehensive and rigorous research training. The Ph.D. thesis is expected to make a major contribution to the discipline by way of new knowledge.

The degree is awarded based on a comprehensive oral examination (*viva voce*) of the thesis submitted by the candidate on the completion of the study. Prospective graduate students should prepare themselves adequately, both in the fundamental subject matter necessary for advanced work and other branches of learning, so they may conduct quality research and successfully complete their programs.

#### **Program Educational Objective (PEO)**

**PEO1** Mastery of knowledge and competency in advanced areas of electrical engineering field.

**PEO2** Professionalism and high standards of ethical conducts within organization and society

**PEO3** Responsive to changing situations by continuously acquiring new knowledge and skills.

#### **Program Learning Outcomes (PLO)**

**PLO1** Attain advanced knowledge on theories, methods and applications related to electrical engineering field.

**PLO2** Demonstrate mastery in conducting research independently in solving problems related to electrical engineering through relevant analytical methods, simulations and/or experiments.

**PLO3** Synthesize engineering knowledge through design and development.

**PLO4** Plan and perform research undertakings responsibly, professionally and ethically.

**PLO5** Communicate and express knowledge and ideas effectively.

**PLO6** Continue life-long learning and apply technology for the betterment of humanity.

### **Program Duration**

The Doctor of Philosophy degree takes typically 3.5 years (7 semesters) with the maximum duration of 8 years (16 semesters). Ph.D. students are supervised by a graduate faculty member or a panel of supervisors. Co-supervisors may be appointed from the industry. The progress of a candidate is assessed through research progress reports submitted at the end of each semester.

### **M.Phil.-to-Ph.D. Conversion**

First class Bachelor Graduates (CGPA  $\geq$  3.70/4.00) may apply for fast-track Ph.D. M.Phil. students may also apply for conversion to Ph.D. program when they have demonstrated excellent achievement in Master-level research and the project can be extended in scope for Ph.D.-level research (terms & conditions apply).

### **Program Structure**

Ph.D. students are required to register and pass the following courses

- Research Methodology course (course code UKEP0010), to be taken once during study. Students are advised to take this course in the first semester of study.
- One University Elective Course (course code U\*\*\* \*\*3), to be taken once during study.
- Research (course code PKEE \*\*00), to be taken every semester until the submission of thesis. The progress of a candidate in any particular semester is assessed through research progress reports submitted at the end of each semester. It is important for the students to know that the submission of the progress report needs to be done by the student themselves via GSMS website <http://spsapp3.utm.my:8080/gsmsv4/>.

### **Thesis Submission and Examination**

In the 3<sup>rd</sup> semester, Ph.D. students will undergo the first stage evaluation process. The objective of this evaluation process is to assist and ensure the research they are conducting is in the right direction and eventually meet the expectation of the research program. Students will receive a copy of the panel report containing suggestion and recommendation that will guide and improve the undertaken work.

At the end of the study, students will submit a thesis for the purpose of an oral examination. Prior to submission of the thesis for the oral examination (viva), students must submit the Notice for Thesis Submission at least 3 months in advance. This is to ensure that approved internal and external examiners have been appointed by the university before the oral examination can take place. Failure to do so may delay the viva process.