

Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) Programs in Electronic and Computer Engineering

Curriculum for Master of Philosophy (MPhil) Program in Electronic and Computer Engineering

The Master of Philosophy (MPhil) program is designed for students who are interested in pursuing a career in research and development in industry or academia. It is also an excellent preparation for those interested in pursuing a PhD degree.

Besides completing an approved postgraduate course sequence, an MPhil student must complete, under the supervision of a research advisor, a research project leading to a master's thesis and pass an oral thesis defense. To be eligible for an MPhil degree, a student must:

- Complete at least 15 credits of approved coursework, of which at least 9 in the area of Electronic and Computer Engineering;
- Take and pass ENGG 6770 Professional Development in Engineering in their first 1.5 years of study. Students may be exempted from certain course events, subject to prior approval of the School. Part-time students may be given extension to complete the course, subject to prior approval of the School;
- Pass LANG 5001 Postgraduate English for Engineering Research Studies, except those who register in part-time mode. Students can be exempted from taking LANG 5001 with the approval of the Department Head and PG Coordinator;
- The credits earned from ENGG 6770, LANG 5001 and ELEC 6900 Independent Study cannot be counted toward the credit requirements;
- Register in ELEC 6990 MPhil Thesis Research; and
- Present and oral defend the MPhil thesis.

Nanotechnology Concentration

In addition to the program requirements specified above, students who opt for the Nanotechnology concentration are required to:

- Take one NANO course;
- Complete NANO 6010 Advanced Topics in Nano Science and Technology for one term; and
- Conduct research in nano area.

Energy Technology Concentration

In addition to the program requirements specified above, students who opt for the Energy Technology concentration are required to:

- Take one ENEG course;
- Complete ENEG 6010 Advanced Topics in Energy Technology for one term; and
- Conduct research in energy area.

Scientific Computation Concentration

In addition to the existing program requirements, students who opt for the Scientific Computation concentration are required to:

- Complete MATH 6915 Scientific Computation Seminar. The 1 credit earned cannot be counted toward the credit requirements;
- Complete one computation related course from the list below as a part of the 12 credits of required coursework:

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| CHEM 5210 | Computational Chemistry |
| MATH 5311 | Advanced Numerical Methods I |
| MATH 5312 | Advanced Numerical Methods II |
| MATH 5350 | Computational Fluid Dynamics for Inviscid Flows |
| MATH 5360 | Weather, Climate and Pollution |
| PHYS 5410 | Numerical Modeling in Physics |

- Conduct research in the area of scientific computation; and
- Give a one-hour seminar on the related research within their first four regular terms of study.

Curriculum for Doctor of Philosophy (PhD) Program in Electronic and Computer Engineering

The Doctor of Philosophy (PhD) program caters for students who wish to pursue a career in advanced industrial research and development, or university research and teaching. It emphasizes training in original thinking and independent research. To be eligible for the PhD degree, a student must:

- Complete at least 15 credits of approved postgraduate coursework, of which at least 9 in the area of Electronic and Computer Engineering;
- Fulfill the school requirements on PhD programs stipulated in the section of *School of Engineering*;
- Take and pass ENGG 6770 Professional Development in Engineering and ELEC 6770 Professional Development in Electronic and Computer Engineering. Students may be exempted from certain ENGG 6770 events, subject to prior approval of the School. Part-time students may be exempted from a maximum of 50% of mini-workshops of ELEC 6770, subject to prior approval of the Department. Students are expected to complete the Professional Development courses in their first two years of study. Subject to approval, part-time students may be given extension to complete the courses.

HKUST MPhil in Electronic and Computer Engineering graduates who have taken and passed ENGG 6770 before may be exempted from taking the same course, subject to prior approval from the Department Head and PG Coordinator;

- Pass LANG 5001 Postgraduate English for Engineering Research Studies, except those who register in part-time mode. Students can be exempted from taking LANG 5001 with the agreement of the Department Head and PG Coordinator;
- The credits earned from ENGG 6770, ELEC 6770, LANG 5001 and ELEC 6900 Independent Study cannot be counted toward the credit requirements;
- Enroll for ELEC 6950 Departmental Seminar, except those who register in part-time mode;
- Pass the qualifying examination within two years after admission, with a maximum of two attempts;
- Pass the thesis proposal before the final thesis defense;
- Register in ELEC 7990 Doctoral Thesis Research; and
- Present and oral defend the PhD thesis.

Nanotechnology Concentration

In addition to the program requirements specified above, students who opt for the Nanotechnology concentration are required to:

- Take one NANO course;
- Complete NANO 6010 Advanced Topics in Nano Science and Technology for one term; and
- Conduct research in nano area.

Energy Technology Concentration

In addition to the program requirements specified above, students who opt for the Energy Technology concentration are required to:

- Take one ENEG course;
- Complete ENEG 6010 Advanced Topics in Energy Technology for one term; and
- Conduct research in energy area.

Scientific Computation Concentration

In addition to the existing program requirements, students who opt for the Scientific Computation concentration are required to: