

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

Curriculum for Master of Philosophy (MPhil) Program in Mechanical Engineering

Students enrolled in the Master of Philosophy (MPhil) program in Mechanical Engineering are required to take 12 credits of PG courses, of which at least two courses (6 credits) must be from the following course list:

MECH 5010	Foundation of Solid Mechanics
MECH 5210	Fluid Dynamics
MECH 5230	Computational Fluid Dynamics and Heat Transfer
MECH 5320	Convective Heat and Mass Transfer
MECH 5410	Advanced Mechanical Behavior of Materials
MECH 5430	Thermodynamics and Kinetics of Materials
MECH 5520	Theories and Practice of CAD/CAM/CAE
MECH 5530	Introduction to Nonlinear Control Systems
MECH 5540	Precision Engineering
MECH 5930	Finite Element Methods
MECH 5950	Introduction to Microsystems: Technology and Devices

The remaining credits can be taken from any ENG/SCI courses at 5000-level or above. Besides, students are required to:

- Take MECH 6090 Seminar in Mechanical Engineering for at least three terms. Subject to the approval of the Department, students can take MECH 6090 for less than 3 terms;
- Take MECH 6990 MPhil Thesis Research every regular term; and
- Take LANG 5001 Postgraduate English for Academic Purposes, the one credit earned from which cannot be counted toward the degree requirements. Students can be exempted from taking LANG 5001 with the approval of the Department Head and PG Coordinator.

Nanotechnology Concentration

In addition to the above program requirements, 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. Students can use NANO 6010 to replace one term of registration of MECH 6090; 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. They can use ENEG 6010 to replace one term of registration of MECH 6090; and
- Conduct research in energy area.

Note: The total number of credit requirement remains the same as the students who do not opt for the Nanotechnology or Energy Technology concentration.

Curriculum for Doctor of Philosophy (PhD) Program in Mechanical Engineering

Students enrolled in the Doctor of Philosophy (PhD) program in Mechanical Engineering are required to fulfill the following:

- Students who possess a master's degree are required to take 12 credits of PG coursework, of which at least two to three courses (a minimum of 6 credits) must be taken from the following course list, depending on the student's qualification and background upon entering the program and subject to the approval of the PG Coordinator.
- Students who do not possess a master's degree are required to take 24 credits of PG coursework, of which at least four courses (12 credits) must be taken from the following course list:

MECH 5010	Foundation of Solid Mechanics
MECH 5210	Fluid Dynamics
MECH 5230	Computational Fluid Dynamics and Heat Transfer
MECH 5320	Convective Heat and Mass Transfer
MECH 5410	Advanced Mechanical Behavior of Materials
MECH 5430	Thermodynamics and Kinetics of Materials
MECH 5520	Theories and Practice of CAD/CAM/CAE
MECH 5530	Introduction to Nonlinear Control Systems
MECH 5540	Precision Engineering
MECH 5930	Finite Element Methods
MECH 5950	Introduction to Microsystems: Technology and Devices

- The remaining credits can be taken from any ENG/SCI courses at 5000-level or above. Besides, all PhD students are required to:
 - Pass an oral qualifying examination (QE) which can be attempted twice at most.
 - i) All PhD students admitted with only a bachelor's degree should attempt the first QE within the first four regular terms of study, or if failed, the second QE within the fifth regular term of study.

- ii) PhD students admitted with a master's degree should attempt the first QE within the first three regular terms of study, or if failed, the second QE within the fourth regular term of study.
- iii) Student who fails the second attempt of QE is not allowed to continue with the PhD studies. Subject to approval, he may be recommended for transfer to the MPhil program.
- Take MECH 6090 Seminar in Mechanical Engineering for at least five terms (subject to Department's approval, students can take MECH 6090 for less than five terms);
- Take MECH 7990 Doctoral Thesis Research every regular term; and
- Take LANG 5001 Postgraduate English for Academic Purposes, the one credit earned from which cannot be counted toward the degree requirements. Students can be exempted from taking LANG 5001 with the agreement of the Department Head and PG Coordinator.

Nanotechnology Concentration

In addition to the specific program requirements, 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. Students can use NANO 6010 to replace one term of registration of MECH 6090; 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. They can use ENEG 6010 to replace one term of registration of MECH 6090; and
- Conduct research in energy area.

Note: The total number of credit requirement remains the same as the students who do not opt for the Nanotechnology or Energy Technology concentration.