CIR-RPG

香港城市大學
City University of Hong Kong

Curriculum Information Record for a Research Degree Programme

Department of Materials Science and Engineering
Effective from Semester A 2023/24
For Students Admitted with Catalogue Term
Semester A 2019/20 to Semester B 2022/23

This form is for completion by the College/School for research degree programme. The information provided on this form is the official record of the Programme. It will be used for City University's database, various City University publications (including websites) and documentation for students and others as required.

Please refer to the *Explanatory Notes* attached to this form on the various items of information required.

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Part I

Programme Title (in English) : Doctor of Philosophy

(in Chinese) : 哲學博士

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Programme Aims

This programme aims to train and produce independent researchers with state-of-the-art expertise who can create original knowledge through innovative research.

Programme Intended Learning Outcomes (PILOs)

(state what the student is expected to be able to do at the end of the programme according to a given standard of performance)

Upon successful completion of this Programme, students should be able to:

1. achieve general intellectual proficiency and specialization in their chosen subject areas;
2. apply appropriate research methodology/tools to conduct independent research for discoveries;
3. formulate and derive effective, innovative and original solutions to fundamental problems in their chosen subject areas for discoveries;

4. communicate effectively with the learned community about the research process and findings for discoveries;
5. discover through in-depth investigation of the chosen subject areas;
6. build up ethical and social responsibilities;
7. perform multi-disciplinary research with new ideas;
8. strengthen independent learning and researching abilities to suit future versatile employment requirements;
9. enhance proficiencies in scientific language and skills in numerical and IT solutions;
10. collaborate effectively and healthily with colleagues.

Part II Programme of Study

1. Research Area(s) in which research students will be admitted to:

- Devices and Systems
- Laser/Opto-electronics/Condensed Matter Physics
- Materials Science and Engineering
- Nanomaterials and Nanotechnology
- Biomedical Physics and Engineering.

2. Programme Core Courses: (12 credits, student can choose FOUR from the below listed courses)

Course Code	Course Title	Level	Units Worth	Remarks
MSE8011	Thermodynamics of Materials	R8	3	
MSE8012	Electronic Properties of Crystalline Solids	R8	3	
MSE8013	Crystallography, Symmetry and Defects of Materials	R8	3	
MSE8014	Phase Transformation in Materials	R8	3	
MSE8016	Materials Characterization Techniques	R8	3	
MSE8017	Materials Chemistry	R8	3	
MSE8018	Mechanics of Materials	R8	3	
MSE8019	Functional Properties of Materials	R8	3	
MSE8020	Structural Properties of Materials	R8	3	
MSE8021	Kinetic and Thermodynamic Properties of Materials	R8	3	
MSE8022	Frontiers in Materials	R8	3	

3. Research Methodology and Ethics Course: (2 credits)

Course Code	Course Title	Level	Units Worth	Remarks
MSE8001	Survival Skills for Research Scientists	R8	2	

4. Programme Electives:

Course Code	Course Title	Level	Units Worth	Remarks
MSE8015	Theory and Practice of Transmission Electron Microscopy and Related Spectroscopy	R8	3	
EE6614	Reliability Engineering in Electronics Industry	P6	3	

5. Other Requirements:

Please provide a general description *OR* fill in additional rows in the following table, as appropriate.

Course Code	Course Title	Level	Units Worth	Remarks
SG8001	Teaching Students: First Steps	R8	1	
--	Collaborative Institutional Training Initiative (CITI) programme	n/a	n/a	An online training course on research integrity. Compulsory for RPg students who admitted in 2018/19 and thereafter. To be completed in the first year of study. Details are available in SGS website.

6. Qualifying Examination (for PhD only):

A written Qualifying Examination is mandatory. It is an additional requirement on top of the existing Qualifying Report and Annual Progress Report assessment. A maximum of two attempts will be allowed. Students are required to pass the qualifying examination within 10-24 months (full-time) or 20-48 months (part-time) after commencement of their PhD studies. Those students who cannot pass the examination by the deadline will result in termination of study.

7. Qualifying/Annual Report Submission:

Students must submit a qualifying report (typed in English) within the specified qualifying period as follows:

- Full-time: Within 6–12 months from start of study
- Part-time: Within 9–18 months from start of study

A qualifying report should include a survey of the relevant literature, an identification of a specific research topic, the research methodology and a discussion on possible outcomes.

After the qualifying period, students must submit progress reports (typed in English) on an annual basis until they have submitted the final version of their thesis for oral examination and completed any other academic requirements.

8. Thesis:

The thesis at the core of the PhD study enables a student to demonstrate his/her independent research work, design and conduct experiments, analyze and formulate physical and engineering problems, correlate and verify data, explain problems lucidly and reach sound conclusions. The data obtained and conclusions reached are placed in logical context substantiated by physics and mathematics. The output of the PhD thesis results from the student's creativity and original ideas. It represents a tangible contribution to science and engineering. The PhD thesis is unique and represents evident contribution to science and /or engineering in the field of study. It contains experimental and/or theoretical output supported by theoretical physics and practical implications.

Normally, students are expected to submit their thesis not earlier than six months before the end of the (normal) study period. Early submission of a thesis requires special approval from the College/School.

Students must submit a thesis for examination by the end of their maximum study period or the stipulated study period.

9. Additional Notes:

Students are also required to complete a compulsory 1 credit unit course "Teaching Students: First Steps" (SG8001). The credit unit earned from SG8001 will not be counted towards the minimum coursework requirement.

The student's research project is normally supported by RGC projects or other projects acquired by the supervisor. Therefore the research interest of the student is aligned with the research project of the supervisor. In accordance with the topic of the thesis, a qualifying panel (supervisor and two other experts in the field) prescribes the courses taken by the student. The qualifying panel monitors the research progress and annually evaluates it based on a written progress report, an oral presentation and an oral examination. As coordinated by the SGS, the final research output presented in the form of thesis is assessed by two internal examiners, one of whom is also the panel chair, and two external examiners who may recommend the thesis for oral examination if it meets the standard required for PhD theses. Other details can be found in the Guidebook for Research Degree Studies published by the SGS.

Prepared / Last Updated by

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