Master & Doctor of Philosophy Programs in **Mathematics**

Research Fields

- Analysis
- Algebra
- Topology
- Discrete Mathematics
- Optimization
- Computational Mathematics

For more information,
please visit the following website.
www.math.science.cmu.ac.th

Doctor of Philosophy Program in Mathematics

Type 1.1 : Student with Master's Degree

Degree Requirements		48	credits
A. Thesis			
206898	Doctoral Thesis	48	credits

B. Academic Activities

1. Students are required to organize a seminar and present their chosen research papers in English on the topic related to their thesis at least once per semester for at least two semesters throughout their study. Students are also required to attend the seminar when they register for the course.

2. At least 2 research works from doctoral thesis or a part of doctoral thesis must be published or at least accepted to publish in an international journal for which at least one of them must be in ISI, Scopus, IEEE, PubMed or Web of Science database and at least one published work must have the student as the first author.

3. At least 1 research work from doctoral thesis or a part of doctoral thesis must be presented in an international conference accepted by the field of study.

4. A student has to report thesis progression to the Graduate School every Semesters which approved by the Chairman of the Graduate Study Administrative Committee.

C. Non-credit Courses

1. Graduate School requirement   a foreign language
2. Program requirement   - none -

D. Qualifying Examination

1. A student must complete a qualifying examination to evaluate his/her ability before presenting a thesis proposal.
2. An unsuccessful examinee may take re-examination within the following regular semester.
3. An unsuccessful examinee will be transferred to Master's Degree studies with the approval of the Graduate Program Administrative Committee.

E. Comprehensive Examination

   Students must submit the request to take the examination to the graduate school after an approval of the advisor or independent study advisors.

Type 1.2 : Student with Bachelor's Degree

Degree Requirements	72	credits
A. Thesis		

206897   Doctoral Thesis   72   credits

B. Academic Activities
1. Students are required to organize a seminar and present their chosen research papers in English on the topic related to their thesis at least once per semester for at least three semesters throughout their study. Students are also required to attend the seminar when they register for the course.
2. At least 2 research works from doctoral thesis or a part of doctoral thesis must be published or at least accepted to publish in an international journal listed in ISI, Scopus, IEEE, PubMed or Web of Science database and at least one of the published work must have the student as the first author.
3. At least 2 research works from doctoral thesis or part of doctoral thesis must be presented in national or international conference accepted by the field of study for which one of them must be in an international conference.
4. A student has to report thesis progression to the Graduate School every semester which approved by the Chairman of the Graduate Study Committee.

C. Non-credit Courses
1. Graduate School requirement   a foreign language
2. Program requirement   - none -

D. Qualifying Examination
1. A student must complete a qualifying examination to evaluate his/her ability before presenting a thesis proposal.
2. An unsuccessful examinee may take re-examination within the following regular semester.
3. An unsuccessful examinee will be transferred to Master's Degree studies with the approval of the Graduate Program Administrative Committee.

E. Comprehensive Examination
Students must submit the request to take the examination to the graduate school after an approval of the advisor or independent study advisors.

Type 2.1 : For student with Master's Degree

Degree Requirements	a minimum of	48	credits
A. Course work	a minimum of	12	credits
1. Graduate Courses	a minimum of	12	credits
1.1 Field of Specialization	a minimum of	12	credits
1.1.1 Required courses		6	credits

206997	Mathematics Seminar at Doctoral Level 1	3	credits
206998	Mathematics Seminar at Doctoral Level 2	3	credits

1.1.2 Elective courses   a minimum of   6   credits

Student can enroll the followings courses or the others which consent of advisor.

206831	Convex Analysis	3	credits
206832	Variational Analysis	3	credits
206891	Special Topics in Mathematics 1	3	credits
206892	Special Topics in Mathematics 2	3	credits
206893	Special Topics in Mathematics 3	3	credits
206894	Special Topics in Mathematics 4	3	credits
206895	Special Problems at Doctoral Level 1	3	credits
206896	Special Problems at Doctoral Level 2	3	credits

     1.2 Other courses   - none -

2. Advanced Undergraduate Courses   - none -

B. Thesis

206899	Doctoral Thesis	36	credits

C. Non-credit Courses

1. Graduate School requirement   a foreign language
2. Program requirement   - none -

D. Academic Activities

1. At least 1 research work from doctoral thesis or part of doctoral thesis must be published or at least accepted to publish in an international journal listed in ISI, Scopus, IEEE, PubMed or Web of Science database and at least one published work must have the student as the first author.

2. At least 1 research work from doctoral thesis or part of doctoral thesis must be presented in an international conference accepted by the field of study.

E. Qualifying Examination

1. A student must complete a qualifying examination to evaluate his/her ability before presenting a thesis proposal.
2. An unsuccessful examinee may take re-examination within the following regular semester.
3. An unsuccessful examinee will be transferred to Master's Degree studies with the approval of the Graduate Program Administrative Committee.

F. Comprehensive Examination

Students must submit the request to take the examination to the graduate school after an approval of the advisor or independent study advisors.

Type 2.2 : For student with Bachelor's Degree

Degree Requirement	a minimum of	74	credits
A. Course work	a minimum of	26	credits
1. Graduate Courses	a minimum of	26	credits
1.1 Field of Specialization	a minimum of	26	credits
1.1.1 Required courses		17	credits

Select courses from the two following groups. Selected courses must come from the same group.

1.1.1.1 Mathematics group

206713	Topology	3	credits
206720	Algebra	3	credits
206731	Real Analysis 1	3	credits
206791	Seminar in Mathematics 1	1	credit
206792	Seminar in Mathematics 2	1	credit
206997	Mathematics Seminar at Doctoral Level 1	3	credits
206998	Mathematics Seminar at Doctoral Level 2	3	credits

1.1.1. 2Applied mathematics group

206743	Theory of Differential Equations	3	credits
206997	Mathematics Seminar at Doctoral Level 1	3	credits
206998	Mathematics Seminar at Doctoral Level 2	3	credits
219731	Applied Analysis	3	credits
219753	Numerical Analysis	3	credits
219791	Seminar in Applied Mathematics 1	1	credit
219792	Seminar in Applied Mathematics 2	1	credit

1.1.2 Elective courses	a minimum of	9	credits

Select from the courses number (206…) or (219…) level 700 at least 3 credits and the courses number (206…) level 800 at least 6 credits from the following or the others which consent of advisor.

206714	Algebraic Topology	3	credits
206721	Theory of Finite Groups	3	credits
206722	Field Theory	3	credits
206723	Ring and Module Theory 1	3	credits
206724	Algebraic Semigroup Theory	3	credits
206725	Universal Algebra	3	credits
206729	Algebraic Graph Theory	3	credits
206730	Fixed Point Theory and Applications	3	credits
206732	Real Analysis 2	3	credits
206733	Complex Analysis	3	credits
206734	Functional Analysis	3	credits
206735	Distribution Theory and Applications	3	credits
206736	Graph Theory and Applications	3	credits
206738	Combinatorics	3	credits

206739	Banach Space Theory		3	credits
206745	Nonlinear Differential Equations	3		credits
206746	Fourier Transform and Its Applications	3		credits
206751	Advanced Numerical Analysis	3		credits
206771	Theory of Probability 1	3		credits
206772	Theory of Probability 2	3		credits
206783	Operational Research Techniques 1	3		credits
206789	Selected Topics in Mathematics	3		credits
206831	Convex Analysis		3	credits
206832	Variational Analysis		3	credits
206891	Special Topics in Mathematics 1		3	credits
206892	Special Topics in Mathematics 2		3	credits
206893	Special Topics in Mathematics 3		3	credits
206894	Special Topics in Mathematics 4		3	credits
206895	Special Problems at Doctoral Level 1		3	credits
206896	Special Problems at Doctoral Level 2		3	credits
219720	Matrix Analysis		3	credits
219741	Partial Differential Equation		3	credits
219761	Mathematical Modeling		3	credits
219765	Mathematics in Quantum Mechanics		3	credits
219766	Mathematical Control Theory		3	credits
219767	Mathematics in Electromanetic Theory		3	credits
219768	Mathematics in Fluid Dynamics		3	credits
219781	Foundation of Optimization		3	credits
219789	Selected Topic in Applied Mathematics		3	credits

    1.2   Other courses   -none-
  2. Advanced Undergraduate Courses   -none-

B. Thesis

    206898   Doctoral Thesis   48 credits

C. Non-credit Courses

1. Graduate School requirement   a foreign language
2. Program requirement   -none-

D. Academic Activities

1. At least 2 research works from doctoral thesis or a part of doctoral thesis must be published or at least accepted to publish in an international journal for which at least one of them must be in ISI, Scopus, IEEE, PubMed or Web of Science database and at least one published work must have the student as the first author.

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Note : Courses in the field of concentration are (206..., MATH...) and (219..., AMATH...)