Regulations for Ph.D. Program of CS Department

I. Course Credits

A. Candidates must complete 18 course credits with the prefixes "5xxx~7xxx" where 12 of which must be from courses specific to the computer science discipline. Candidates who directly entering Ph.D. program from undergraduate program or master program must complete 30 course credits with the prefixes "5xxx~7xxx" where 24 of which must be from courses specific to the computer science discipline.

> (1) Courses specific to the computer science discipline are numbered with the prefixes "CS5xxx~7xxx", "ISA" and "COM", excluding the "Thesis", "Special Topics" and foreign language courses. Other courses need the approval by the CS department chairman.
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> (2) Courses lectured by the language center (with the prefixes "LANG") can only be considered as proofs of foreign language ability, but not counted as graduation credits.

B. In every semester, candidates must take at least one course (in the second and later years of Ph.D. program, candidates could just take the "Thesis" course), otherwise will be dismissed. After passing all qualification exams, "Thesis" is the required course in every semester.

C. The following three courses are required for the degree. The *Operating Systems*, the *Computer Architecture* and the *Design and Analysis of Algorithms*.

> (1) Students can waive these courses from taking the same courses at the undergraduate Dept. at the National Tsing Hwa University or other universities with a grade of at least B- or passing the corresponding Ph.D. qualifying exam held by the Dept. of. Computer Science at National Tsing Hwa University.
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> (2) The credits are not included in the graduation course credits.

II. Qualification Exam

A. The qualification exam is primarily written examination and the results are graded as pass or fail.

B. Students are required to pass three subjects, "Operating Systems", "Computer Architecture" and "Design and Analysis of Algorithms".

C. Full-time students are required to pass their examinations within the first four semesters, and part-time students are required to pass within six semesters. (When students are under temporary suspension circumstances and do not attend qualification exams during the temporary suspension semester, this semester is not counted for first four/six semester limitation.) Each subject can be taken at most twice. During temporary suspension semesters, when students take qualification exams, the grades and counts are still kept in students' record.

D. The qualification exam is offered twice yearly in the autumn and spring semesters, during the second week of the semester. All subjects are offered and it is not necessary to take all subjects at once.

E. Master students can also attend qualification exams, and the results are counted as their Ph.D. qualification exam record. Candidates must declare at exam-attendance application time (which is before taking the exams) if they take the exam only for fulfilling course requirements. In this case, the results will not be recorded as their Ph.D. qualification exam.

F. The exams can be credited by the course grades
(1) Students can apply credit only from the following three subjects lectured by CS department in NTHU, "CS-3423 Operating Systems", "CS-4100 Computer Architecture" and "CS-4311 Design and Analysis of Algorithms".
(2) Students must pass the courses. Furthermore, the grades must be at least above 25% of the class, or the grades are A+. (Example: if the grade is B+ but the ratio of all A-~A+ to total is less than 25%, then the grade is eligible for credit.)
(3) Full-time students are required to pass within the first four semesters, and part-time students are required to pass within the first six semesters. The semesters are not counted if students are on temporary suspension.
(4) The grades of these courses taken within the previous five years in CS department of NTHU can be used to credit.

III. Foreign Language Ability

Before graduation, the candidates must obtain one of the following mentioned certification:

A. From the five years after starting the program to the time before graduation, candidates receive scores of 79 or above on the New Internet-based TOEFL exams, or scores of 210 or above on the Computer-based TOEFL exams.

B. From the five years after starting the program to the time before graduation, candidates pass the upper-intermediate level of "General English Proficiency Test (GEPT)" in the first and second stages and receive scores 80 or above.

C. After entrance to the program, candidates take the following courses in a minimum of six credits and receive grades of at least B- or above:
(1) "CS-5912 Scientific and Technological English" and "CS-5913 Academic Research Writing".
(2) NTHU Language Center English Courses with the prefixes "LANG" which marked as "Priority for Graduate Students", "Intermediate Level" or "High Level" in the course catalog.
(3) Other English courses approved by the Department chairman.

D. Having certifications from an English-speaking country approved by the Ministry of Education.

IV. Thesis Advisor

A. Candidates are required to have an advisor before the end of their second semester in the program. If a candidate cannot find any thesis adviser by the end of the second semester, the candidate should hand in a sheet before the starting of the following semester (i.e., the 1st semester of 2nd year in the Ph.D. program), and give an oral explanation in the academic meeting which will be held by the committees in the beginning of the following semester. If the committees conclude that the candidate does not fit into the Ph.D. program of the department, the student will be dismissed.

B. The thesis advisor must be a professor of the department with a position of assistant professor or higher.

C. Candidates can apply for one co-adviser with a position of assistant professor or higher.

D. Choosing an advisor from other departments or Universities needs the department chairman's approval. It also requires a co-advisor from our department for accompany.

V. Change the Thesis Advisor
A. Candidates cannot change advisors in one-year period before graduation.

B. Candidates who would like to change advisor must present written agreements from both previous and new advisors to the department office for the request.

VI. Research Proposal Oral Examination and Thesis Direction Committee
A. The thesis direction committee is composed of 4 to 5 members recommended by the thesis advisor and invited by the chairman of the department. In this committee, the advisor is a default member and the committee convener. At least half of the members must be professors of the department. Except for the thesis advisor, there must be at least one full professor.

B. The research proposal exam is mainly the public oral examination. To pass the proposal oral examination, the candidate must get at least half of the thesis direction committees' approval (scores of 70 or more). If the candidate fails, there is only one more chance to take the exam after 4 months. If the candidate sill fails the second try, the candidate will lose the qualification as a Doctoral candidate.

VII. Thesis Examination
A. The thesis examination committee should consist of 5 to 9 members and one convener, recommended by the thesis advisor, invited by chairman of the department, and appointed by the Principal of NTHU. The advisor must serve as a default committee member, and both the thesis direction committee members and members from other Universities should make up at least 1/3 of the examination committee (individual members can be counted in both parties).

B. The doctoral thesis must be examined and approved by the academic committee before allowing the candidate to progress to the oral thesis exam. To have the approval from the academic committee, a part or the entire of the thesis work has been completed as a paper satisfying:
(1) The paper has been accepted by a high-quality journal or obviously be commented to be accepted.
(2) Two or more papers have been accepted at high-quality international conferences.
(3) The draft that had been submitted to a high-quality journal for review, and should be submitted to the department office at least three months before the thesis examination. The draft has been reviewed by at least two anonymous experts outside NTHU who are invited by the academic committee. In addition, all of them agree that the paper is considered as an innovative thesis with high quality.

C. The candidates should request and deliver all documents to the academic committee for examination before the 15th of each month, so the committee will do the examination in the rest days of the month.

D. The thesis examination is a public oral presentation. For the examination to take place, at least 5 members of the committee should present, with at least 1/3 of the members are from other Universities. Moreover, examining committee members have the right to ask for a demonstration of the research results.

E. The examination score will be determined by the average results of a anonymous ballot by committee members. If more than 1/3 of the present committee members give a failing score (less than 70), the candidate then fails the examination. If a candidate fails the examination and has not reached the maximum years of study at the university yet, one more chance is allowed to retake the examination either in the following semester or following academic year. Students who fail the second examination will lose their qualifications as a doctoral candidate.

F. If a candidate who directly enters a Ph.D. program but fails on the thesis exam, the candidate could change to get a Master degree.

VIII. Students in Ph.D. program in the department have responsibilities to assist in teaching departmental courses. The department curriculum committee will have a discussion at the departmental meeting on doctoral candidates who are not willing to fulfill this duty, and all the funds for the candidate will be canceled if 2/3 of professors present at the departmental meeting agree.

IX. Increasing the Doctoral Candidates' Breadth of Interdisciplinary Understanding

A. Every semester, all doctoral candidates in this department must attend at least ten lectures hosted by the department. These lectures may include Doctoral candidate thesis proposal presentations and oral thesis defense examinations.

B. In the end of every semester, candidates should list the attended speeches in this semester and give it to the advisor.

C. For the candidates who do not follow the regulation, their thesis advisor could address the candidate's attitude issue.

X. If the above regulations have any problem, it will be dealt by the regulations of the Ministry of Education and our University.

XI. Any amendment to the program above must be approved by the committee of the CS Department before its implementation.