National Chiao Tung University

Department of Applied Mathematics

Implementation Guidelines for Cross-Disciplinary Program

I. These Implementation Guidelines are prescribed by National Chiao Tung University Department of Applied Mathematics (hereinafter referred to as Our Department) based on NCTU Cross-Disciplinary Program Implementation Regulations to provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits in order to encourage students to conduct cross-disciplinary study, build the depth of cross-disciplinary study, and assist students to expand second specialty.

II. The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes or colleges in National Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (with a minimum of 28 credits and no more than 32 credits). The cross-disciplinary program that students take will include the cross-disciplinary program module curriculum of the department they belong to as well as the cross-disciplinary program module curriculum from the second specialty department or college. The module curriculum of the second specialty could be remarked as "Cross-Disciplinary Specialty" on the diploma.

III. Implementation objects of these Guidelines:

1. The implementation guidelines are applicable to the students in 104th academic year or thereafter.

2. For the student of our department who would like to take cross-disciplinary program

   (1) The application could be submitted to our department during the second semester of the first year or the second semester of the second year. The department or college of the second specialty that the student would like to apply for must be remarked on the application form, while the application deadline would be announced one month in advance by the Curricular Committee at our department. The information of evaluation documents needed to be prepared as well as the quota opened to the students of our department to study for this program in the given year will be released on the announcement. The application should be sent to the department or college of the second specialty for evaluation after it is approved by the Curricular Committee of our department. Students could only take the cross-disciplinary program after successful evaluation by both sides.

   (2) The courses of cross-disciplinary program studied by students in our department should be listed on "The Required Course List (A)" These courses include required courses of the university (including 28 credits of general education subjects), core curriculum at our department, cross-disciplinary module curriculum at our department, and the cross-disciplinary module curriculum of the second specialty department or college (hereinafter referred to as cross-disciplinary module curriculum at other department) with at least 128 graduate credits. The cross-disciplinary module curriculum at other department would be recognized as

cross-disciplinary specialty, and it will be remarked after the title of our department on the diploma.

    (3)   For students at our department who study for cross-disciplinary program but are not able to complete the program, they shall give up the cross-disciplinary program and transfer to study for the bachelor degree program at the original department.

3. For students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty

    (1)   They could submit the application to the department that they belong to during the second semester of the freshman year or the second semester of the sophomore year. They could only take the cross-disciplinary program after approved by both their original department and our department.

    (2)   The courses for the students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty include required courses of the university (including 28 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on "The Required Course List (B)" with at least 128 graduate credits. Applied Mathematics will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

IV. Our department assigned one or two full-time teacher to be the mentor of the cross-disciplinary program and formed mentor group with teachers of cross-disciplinary program at other department or college to give guidance to cross-disciplinary program students.

V.   If there is any unaccomplished matter of these guidelines, it shall be handled in accordance with the school constitution of our university as well as other relevant regulations.

VI. These guidelines were designated by Curricular Committee at department level and passed at the Department Affair meeting, approved by Curricular Committee at college and university level sequentially then submitted to the Council of Academic Affairs for approval-for-reference before putting it into practice; the same shall be done upon any amendment thereto.

The Required Course List (A)

for the students in Department of Applied Mathematics applying for cross-disciplinary program.

Category	Course Name	Credit	Department	Remark
Core curriculum at our department（36 credits）	Calculus(I)(II)	8	Department of Applied Mathematics	Required course
	Linear Algebra(I)(II)	6		
	Introduction to Computer Science(I)(II)	6		
	Physics(I)(II)	8		
	Introduction to Analysis(I)(II)	8		
Cross-disciplinary modules at our department（30 credits）	Vector Calculus	3		
	Differential Equations	3		
	Introduction to Partial Differential Equations	3		
	Probability Theory	3		
	Introduction to Practice of Mathematics Software	3		
	Algebra(I)	3		
	Discrete Mathematics	3		
	Computational Mathematics	3		
	Statistics	3		
	Complex Analysis	3		
Cross-disciplinary modules at other department （28-32 credits）	The cross-disciplinary modules offered by departments or colleges at our university; choose one to complete.			
Total		122-126	Required courses of the university (including 28 credits of general education subjects, 8 credits of foreign language course inclusive with the maximum 40 credits countable)	
Minimum Graduate Credits		128		

The Required Course List (B)

in cross-disciplinary module curriculum of Applied Mathematics

for the students of other departments

Category	Course Name	Credit	Department	Remark
Cross-disciplinary modules at our department（29 credits） It could be remarked as "Cross-Disciplinary Specialty: Applied Mathematics" on the diploma after the module curriculum is completed.	Introduction to Analysis(I) (II)	8	Department ofApplied Mathematics	Required course
	Linear Algebra(I)	3		At least 7 of the 12 courses should be completed
	Linear Algebra(II)	3		
	Algebra(I)	3		
	Algebra(II)	3		
	Differential Equations	3		
	Introduction to Partial Differential Equations	3		
	Probability Theory	3		
	Vector Calculus	3		
	Discrete Mathematics	3		
	Computational Mathematics	3		
	Statistics	3		
	Complex Analysis	3		
Total Credits（29 credits）				