

Course Structure for Ph. D Program
Department of Computer Science and Information Engineering
National Taiwan Normal University

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
112	0.0	22.0	0.0	22.0

Note: The first alphabet "E" on the course name refers to the course in English as a medium of instruction

I. Required Courses: 0.0 credit is required

II. Elective Courses: 22.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
1 Seminar 4.0 credits are required,					
CSC0057	1-1 Seminar on Communication Networks (I)	1.0	0.0	2.0	This course can be retaken
CSC0058	1-2 Seminar on Communication Networks (II)	1.0	0.0	2.0	This course can be retaken
CSC0059	1-3 Seminar on Information Systems (I)	1.0	0.0	2.0	This course can be retaken
CSC0060	1-4 Seminar on Information Systems (II)	1.0	0.0	2.0	This course can be retaken
CSC0061	1-5 Seminar on Multimedia Engineering (I)	1.0	0.0	2.0	This course can be retaken
CSC0062	1-6 Seminar on Multimedia Engineering (II)	1.0	0.0	2.0	This course can be retaken
2 Elective Courses 18.0 credits are required <small>To register the courses provided in other schools or other departments, the student have to follow the related requirements of course registration in CSIE NTNU and NTNU. Besides, the course registration has to be agreed by the research advisor of the student.</small>					
2-1 Communication Networks					
CSC0036	2-1-1 E Advanced Computer Networks	3.0	3.0	0.0	
CSC0020	2-1-2 Distributed Processing Systems	3.0	3.0	0.0	
CSC0052	2-1-3 Queueing Theory	3.0	3.0	0.0	
2-2 Information Systems					
CSC0016	2-2-1 Advanced Operating Systems	3.0	3.0	0.0	
CSC0017	2-2-2 Advanced Algorithms	3.0	3.0	0.0	
CSC0015	2-2-3 Advanced Computer Architectures	3.0	3.0	0.0	
2-3 Multimedia Engineering					
CSC0051	2-3-1 Advanced Image Processing	3.0	3.0	0.0	
CSC0049	2-3-2 Advanced Computer Graphics	3.0	3.0	0.0	
CSC0039	2-3-3 Machine Learning	3.0	3.0	0.0	
2-4 Other					
CSC0065	2-4-1 Special Topic: Information Systems (I)	3.0	3.0	0.0	
CSC0067	2-4-2 Special Topic: Communication Networks (I)	3.0	3.0	0.0	
CSC0002	2-4-3 Data Compression	3.0	3.0	0.0	
CSC0008	2-4-4 Digital Signal Processing	3.0	3.0	0.0	
CSC0013	2-4-5 Stochastic Processes	3.0	3.0	0.0	
CSC0014	2-4-6 Information Retrieval and Extraction	3.0	3.0	0.0	
CSC0018	2-4-7 Theory of Computation	3.0	3.0	0.0	
CSC0023	2-4-8 Natural Language Processing	3.0	3.0	0.0	
CSC0027	2-4-9 Embedded System Design	3.0	3.0	0.0	
CSC0029	2-4-10 E Computer Vision	3.0	3.0	0.0	
CSC0030	2-4-11 Pattern Recognition	3.0	3.0	0.0	
CSC0031	2-4-12 Fuzzy Theory	3.0	3.0	0.0	
CSC0032	2-4-13 E Artificial Neural Network	3.0	3.0	0.0	
CSC0037	2-4-14 E Bioinformatics	3.0	3.0	0.0	
CSC0040	2-4-15 Advanced Database Systems	3.0	3.0	0.0	
CSC8001	2-4-16 Concrete Mathematics	3.0	3.0	0.0	

III. Free Elective Credits: 0.0 credit is required