

Course Structure for Ph. D Program
Department of Industrial Education
National Taiwan Normal University

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
115	Graduate Program 10.0 Graduate Program in English 10.0	Graduate Program 14.0 Graduate Program in English 14.0	Graduate Program 4.0 Graduate Program in English 4.0	Graduate Program 28.0 Graduate Program in English 28.0

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

I. Required Courses: 10.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
IEC0014	1 E Statistical Methods for Multivariate Analysis	2.0	2.0	0.0	
IED0074	2 E Research Methods in advanced Industrial Education	2.0	2.0	0.0	
IED0075	3 E Philosophy of Technological and Vocational Education	2.0	2.0	0.0	
IED0117	4 E Seminar (I)	1.0	1.0	0.0	
IED0118	5 E Seminar (II)	1.0	1.0	0.0	
IED0111	6 E Seminar (III)	1.0	1.0	0.0	
IED0112	7 E Seminar (IV)	1.0	1.0	0.0	

II. Elective Courses: 0.0 credit is required

III. Courses Offered to Students in Different Divisions

A-1. Required Course for Graduate Program, 0.0 credit is required

A-2. Elective Course for Graduate Program, 14.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
1 Technical and vocational education system and policy field		4.0 credits are required			
IEC8002	1-1 E Special Topics in Contemporary Technical-Vocational Education Policies	2.0	2.0	0.0	
IED0064	1-2 E Special Topics in Technical Vocational Education in European and American Countries	2.0	2.0	0.0	
IED0068	1-3 Studies in Technical and Vocational Education and Economic Development	2.0	2.0	0.0	
IED0069	1-4 E Studies in Policy and Law of Technological and Vocational Education	2.0	2.0	0.0	
IED0070	1-5 Studies in Vocational Technical Education and Social Development	2.0	2.0	0.0	
IED0089	1-6 Special Topics in Technical Vocational Education of Asia-Pacific Area	2.0	2.0	0.0	
IED0106	1-7 Industry-academy Cooperation in Technological and Vocational Education	2.0	2.0	0.0	
2 Technical and vocational education administration and management field		4.0 credits are required			
IED0054	2-1 E Special Topics in Vocational Technical Education Planning	2.0	2.0	0.0	
IED0092	2-2 E Technical-Vocational Education Administration and Supervision	2.0	2.0	0.0	
IED0120	2-3 Special Topics in Technical-Vocational Education School Management	2.0	2.0	0.0	
IED0128	2-4 E Studies in Assessment of Technological Vocational Education	2.0	2.0	0.0	
3 Technical and vocational education curriculum and teaching field		4.0 credits are required			
IEC0003	3-1 E Studies in Learning Theory of Technological and Vocational Education	2.0	2.0	0.0	
IEC8004	3-2 Special Topics in Creative Thinking and Innovation of Technical-Vocational Education	2.0	2.0	0.0	
IED0083	3-3 E Studies in Career Planning and Consultation	2.0	2.0	0.0	
IED0123	3-4 E Special Topics in Teaching Methods of Technical-Vocational Education	2.0	2.0	0.0	
IED0124	3-5 Special Topics in Test and Measurement Assessment of Technical-Vocational Education	2.0	2.0	0.0	
IED0125	3-6 Special Topics in Technical-Vocational Education Curriculum Development	2.0	2.0	0.0	
IED0129	4 E Research on Industrial Innovation and Strategies	2.0	2.0	0.0	
IEC8007	5 Seminar in Technical Vocational Educational Administration	2.0	2.0	0.0	
IEC8012	6 A Research on Applying Artificial Intelligence on Technological and Vocational Education	2.0	2.0	0.0	
IEC0023	7 Studies in E-Commerce Management	2.0	2.0	0.0	
IEC0026	8 Digital Learning Environment Design	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
IED0016	9 Courseware Design in Multi-media	3.0	3.0	0.0	
IED0122	10 Special Topics in Digitalized Administration of Technical-Vocational Education	2.0	2.0	0.0	
IEC8014	11 Study on E-learning System	2.0	2.0	0.0	
IED0103	12 Studies in Application of Fuzzy Theory in Technical and Vocational Education	2.0	2.0	0.0	
IEC8001	13 Special Topics in Human Resource Management	2.0	2.0	0.0	
IEC8003	14 Organization Innovation and Development	2.0	2.0	0.0	
IEC0016	15 The Philosophy and History of Technology	2.0	2.0	0.0	
IEC8018	16 Innovation Management	2.0	2.0	0.0	
IEC0019	17 Technology Innovation and Transfer	2.0	2.0	0.0	
IEC0021	18 Strategic Management	2.0	2.0	0.0	
IEC0024	19 Knowledge - based Economy	2.0	2.0	0.0	
IEC0027	20 Technology and Social Culture	2.0	2.0	0.0	
IEC8009	21 Decision Theory and Analysis	3.0	3.0	0.0	
IEC8011	22 New Product Planning and Analysis	3.0	3.0	0.0	
IEC8015	23 Technology and Methodology	3.0	3.0	0.0	
IED0121	24 Special Topics in Industry Human Resource Development and Planning	2.0	2.0	0.0	
IEC8017	25 Entrepreneurship Management	2.0	2.0	0.0	
IED0080	26 Studies in Labor Policy	2.0	2.0	0.0	
IED0082	27 Studies in Enterprise Learning Organization	2.0	2.0	0.0	
IED0084	28 Studies in Industrial Policy	2.0	2.0	0.0	
IEC0012	29 Experimental Design	2.0	2.0	0.0	
IEC8006	30 Advanced Educational Statistics (II)	2.0	2.0	0.0	
IED0130	31 Analysis of Technology Dynamics	2.0	2.0	0.0	
IEC8013	32 Special Topics in Digitalized Learning of Technical-Vocational Education	3.0	3.0	0.0	
IEC8016	33 Research on the Development of Industries through Artificial Intelligence	3.0	3.0	0.0	

B-1. Required Course for Graduate Program in English, 0.0 credit is required

B-2. Elective Course for Graduate Program in English, 14.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
1 Technical and vocational education system and policy field		4.0 credits are required			
IEC8002	1-1 E Special Topics in Contemporary Technical-Vocational Education Policies	2.0	2.0	0.0	
IED0064	1-2 E Special Topics in Technical Vocational Education in European and American Countries	2.0	2.0	0.0	
IED0069	1-3 E Studies in Policy and Law of Technological and Vocational Education	2.0	2.0	0.0	
2 Technical and vocational education administration and management field		4.0 credits are required			
IED0054	2-1 E Special Topics in Vocational Technical Education Planning	2.0	2.0	0.0	
IED0092	2-2 E Technical-Vocational Education Administration and Supervision	2.0	2.0	0.0	
IED0128	2-3 E Studies in Assessment of Technological Vocational Education	2.0	2.0	0.0	
3 Technical and vocational education curriculum and teaching field		4.0 credits are required			
IEC0003	3-1 E Studies in Learning Theory of Technological and Vocational Education	2.0	2.0	0.0	
IED0083	3-2 E Studies in Career Planning and Consultation	2.0	2.0	0.0	
IED0123	3-3 E Special Topics in Teaching Methods of Technical-Vocational Education	2.0	2.0	0.0	
IED0129	4 E Research on Industrial Innovation and Strategies	2.0	2.0	0.0	

IV. Free Elective Credits

A Free Elective Credit for Graduate Program, 4.0 credits are required

B Free Elective Credit for Graduate Program in English, 4.0 credits are required