工學院國際 學分學程實施辦法

一、 為鼓勵學生具備國際化競爭之工程領域知識與能力，特訂定本辦法。

二、 凡本校學生均得修讀本學程。

三、 本學程課程由工學院各系所合作開授，所有課程均以英語授課。

四、 修習本學程所規劃課程將提供累積學分證明，修滿 18 學分，由學校發給學程修畢證明。

學分學程課程規劃表

一、學程名稱：工學院國際學分學程

二、課程名稱及開課系所：

編號	課程名稱	學分	開課學期
第一類:機械工程			
1.	微奈米工程導論	3	Fall
2.	燃燒學概論	3	Fall
3.	流體力學實驗方法	3	Fall
4.	微流體系統與應用	3	Fall
5.	能源科技	3	Fall
6.	熱對流	3	Spring
7.	燃氣輪機冷卻技術	3	Spring
8.	智慧型材料與奈微米元件	3	Spring
9.	熱傳導與熱輻射	3	Spring
10.	熱傳學	3	Spring
11.	黏性流體力學	3	Spring
12.	有限元素法之進階應用	3	Spring
13.	應用力學（二）	3	Spring
14.	仿生軟機器人學	3	Fall
15.	計算流體力學	3	Fall
16.	工程數學（一）	3	Fall
17.	微流控與表面科學	3	Spring
18.	工程數學（二）	3	Spring
19.	氣體分子動力學	3	Fall
20.	有限元素法	3	Fall
21.	中等流體力學	3	Spring
22.	流體力學	3	Fall
23.	計算攝影學	3	Fall
24.	波動力學	3	Spring

25.	機器學習原理及工業應用	3	Fall
26.	智慧製造概論	3	Fall
27.	中等材料力學	3	Fall
28.	物件導向幾何建模	3	Fall
29.	合金製作原理與應用	3	Fall
30.	系統工程導論	3	Fall
第二類:土木工程			
31.	時頻分析與土砂監測之應用	3	Fall
32.	彈性力學	3	Fall
33.	高等材料力學	3	Fall
34.	工程數學(一)	3	Fall
35.	材料力學	3	Fall
36.	大地材料組成模式	3	Spring
37.	地物探測與資料分析	3	Spring
38.	有限元素法	3	Spring
39.	高等鋼結構	3	Spring
40.	訊號處理與頻譜分析	3	Fall
41.	工程進度規劃與控制	3	Fall
42.	纖維強化聚合物複合材力學	3	Fall
43.	水文學	3	Fall
44.	渠道水力學	3	Spring
45.	土壤力學	3	Spring
46.	結構學（一）	3	Spring
47.	水文模式概論	3	Fall
48.	預力混凝土設計	3	Fall
49.	應用力學	3	Spring
50.	地工數值方法	3	Fall
51.	流體力學	3	Spring
52.	水利工程	3	Spring
53.	物理實驗（一）	3	Spring
54.	工程圖學(一)	3	Fall
55.	工程材料學	3	Fall
56.	岩石力學	3	Fall
57.	高等水文學	3	Fall
58.	海洋再生能源	3	Fall
59.	物理實驗（二）	3	Spring
60.	工程圖學（二）	3	Spring

61.	工程材料實驗	3	Spring
62.	測量學（一）	3	Spring
63.	測量實習（一）	3	Spring
64.	計算機概論	3	Fall
65.	基礎工程	3	Fall
66.	人工智能於專案管理之應用	3	Fall
67.	力學基本解和相關分析法	3	Fall
68.	工程數學(二)	3	Spring
69.	土壤力學實驗	3	Spring
70.	工程地質學	3	Spring
71.	工程經濟學	3	Spring
72.	固體中的波傳播	3	Spring
73.	BIM 技術與應用	3	Spring
74.	個別研究	3	Spring
75.	鋼筋混凝土學	3	Fall
76.	流體力學實驗	3	Fall
77.	土壤動力學	3	Fall
第三類:材料工程			
78.	低介電材料及製程技術	3	Fall
79.	固態熱力學	3	Fall
80.	半導體製程	3	Fall
81.	奈米材料簡介	3	Fall
82.	高分子化學	3	Fall
83.	高分子定性與分析	3	Fall
84.	材料科學與工程導論(一)(英文班)	3	Fall
85.	近代物理	3	Fall
86.	有機光電顯示材料及元件	3	Spring
87.	複合物半導體元件與製程	3	Spring
88.	材料科學與工程導論(二)	3	Spring
89.	應用電化學	3	Fall
90.	能源材料	3	Spring
91.	相變化	3	Spring
92.	材料機械性質	3	Spring
93.	真空科學與技術	3	Fall
94.	表面分析技術	3	Fall
95.	熱電材料	3	Spring
96.	表面科學	3	Spring

97.	材料物理性質	3	Fall
98.	高分子物理	3	Spring
99.	固態物理	3	Fall
100.	磁性材料	3	Spring
101.	複合材料	3	Spring
102.	二維材料界面特性概論	3	Spring
第四類:環境工程			
103.	環境生物技術	3	Fall
104.	高等氣膠測量	3	Fall
105.	環境污染物傳輸現象	3	Fall
106.	表面分析	3	Fall
107.	環境奈米科技與水處理	3	Spring
108.	環境科學與工程特論	3	Spring
109.	污泥的處理與處置	3	Spring
110.	粒狀污染物控制設備的理論與實務	3	Spring
111.	表面化學	3	Spring
112.	環境毒物學	3	Fall
113.	空氣污染與控制技術	3	Fall
114.	氣狀污染物控制原理及實務	3	Spring
115.	環境分析	3	Spring
116.	環境化學	3	Fall
117.	個別研究	3	Fall
118.	工業催化	3	Spring
119.	受污染土地和地下水之管理	3	Fall
120.	應用微生物	3	Spring
121.	環境規劃管理	3	Spring
122.	工業減廢與工程原理	3	Spring

三、召集人姓名：林志平　　單位:工學院

四、連絡人姓名：張雅鈞　　單位:工學院

Implementation Measures of CoE International Program

1. The program is specified particularly in order to provide students of the school with knowledge and ability in internationally competitive engineering field.
2. Students in College of Engineering can apply to this program.
3. Students acquire a minimum of 18 credits and will be awarded a certificate.
4. The courses are opened by departments/institutes in College of Engineering cooperatively. All courses are taught in English.

Planning Table for Credit Program Courses

1. Program Name: CoE International Program
2. Course Names and Tuition Departments/Institutes: (Academic Year 2023)

No.	Course Name	Credits	Semester
Class One: Mechanical Engineering			
1.	Introduction to Micro/Nanotechnology	3	Fall
2.	Combustion Fundamentals	3	Fall
3.	Experimental Methods in Fluid Mechanics	3	Fall
4.	Microfluidic System and Applications	3	Fall
5.	Energy Technology	3	Fall
6.	Heat Convection	3	Spring
7.	Gas Turbine Cooling Technology	3	Spring
8.	Smart Materials and Intelligent Nano/Micro Devices	3	Spring
9.	Heat Conduction and Radiation	3	Spring
10.	Heat Transfer	3	Spring
11.	Viscous Fluid Flow	3	Spring
12.	Finite Element Methods for Multiphysics Applications	3	Spring
13.	Applied Mechanics (II)	3	Spring
14.	Bioinspired soft robotics	3	Fall
15.	Computational Fluid Dynamics	3	Fall
16.	Engineering Mathematics (I)	3	Fall
17.	Microfluidics and Surface Science	3	Spring
18.	Engineering Mathematics (II)	3	Spring
19.	Introduction to Gas Kinetic Theory	3	Fall
20.	Finite Element Metho	3	Fall
21.	Intermediate Fluid Mechanics	3	Spring
22.	Fluid Mechanics	3	Fall
23.	Computational Photography	3	Fall
24.	Wave Propagation in Elastic Solids	3	Spring
25.	Machine Learning and Industrial Application	3	Fall

26.	Smart Manufacturing Overview	3	Fall
27.	Intermediate Mechanics of Materials	3	Fall
28.	Object Oriented Geometric Modeling	3	Fall
29.	Formation Principle and Applications of Alloys	3	Fall
30.	Fundamentals of Systems Engineering	3	Fall
Class Two: Civil Engineering			
31.	Time Frequency Analysis and its Application to Sediment Monitoring	3	Fall
32.	Elasticity	3	Fall
33.	Advanced Mechanics of Materials	3	Fall
34.	Engineering Mathematics(I)	3	Fall
35.	Mechanics of Materials	3	Fall
36.	Constitutive model of geo-materials	3	Spring
37.	Geophysical Exploration and Data Analysis	3	Spring
38.	Finite Element Methods	3	Spring
39.	Advanced Steel Structures	3	Spring
40.	Signal Process and Spectral Analysis	3	Fall
41.	Project Scheduling And Control	3	Fall
42.	Mechanics of Fiber-Reinforced Polymer Composite Materials	3	Fall
43.	Hydrology	3	Fall
44.	Open Channel Hydraulics	3	Spring
45.	Soil Mechanics	3	Spring
46.	Theory of Structures (I)	3	Spring
47.	Principle of Hydrologic Models	3	Fall
48.	Design of Prestressed Concrete Structures	3	Fall
49.	Applied Mechanics	3	Spring
50.	Numerical and Analytical Methods in Geotechnical Eng	3	Fall
51.	Fluid Mechanics	3	Spring
52.	Hydraulic Engineering	3	Spring
53.	Physics Lab. (I)	3	Spring
54.	Engineering Graphics (I)	3	Fall
55.	Engineering Materials	3	Fall
56.	Rock Mechanics	3	Fall
57.	Advanced Hydrology	3	Fall
58.	Marine Renewable Energy	3	Fall
59.	Physics Lab. (II)	3	Spring
60.	Engineering Graphics (II)	3	Spring

61.	Engineering Materials Lab.	3	Spring
62.	Surveying (I)	3	Spring
63.	Surveying Practice (I)	3	Spring
64.	Introduction to Computer Science	3	Fall
65.	Foundation Engineering	3	Fall
66.	Applications of Artificial Intelligence in Project Management	3	Fall
67.	Fundamental Solutions and Related Methods	3	Fall
68.	Engineering Mathematics(II)	3	Spring
69.	Soil Mechanics Lab.	3	Spring
70.	Engineering Geology	3	Spring
71.	Engineering Economics	3	Spring
72.	Wave Propagation in Solids	3	Spring
73.	Technology and Application of BIM	3	Spring
74.	Independent Study	3	Spring
75.	Reinforced Concrete	3	Fall
76.	Fluid Mechanics Lab.	3	Fall
77.	Soil Dynamics	3	Fall
Class Three: Materials Science and Engineering			
78.	Low-K Materials and Processing Technologies	3	Fall
79.	Thermodymanics of Solid	3	Fall
80.	Semiconductor Processings	3	Fall
81.	Introduction to Nanostructured Materials	3	Fall
82.	Polymer Chemistry	3	Fall
83.	Characterization and Analysis of Polymer	3	Fall
84.	Introduction to Materials Science and Engineering (I)	3	Fall
85.	Modern Physics	3	Fall
86.	Organic Electro-Optical Display Materials and Devices	3	Spring
87.	Intro. to Compound Semiconductor Device & Process	3	Spring
88.	Introduction to Materials Science and Engineering (II)	3	Spring
89.	Applied Electrochemistry	3	Fall
90.	Materials for Energy Storage and Conversion Device	3	Spring
91.	Phase Transformations	3	Spring
92.	Mechanical Behaviours of Materials	3	Spring
93.	Vacuum Technology and Applications	3	Fall
94.	Surface Analysis Techniques	3	Fall
95.	Thermoelectric Materials	3	Spring
96.	Surface Science	3	Spring

97.	Physical Properties of Materials	3	Fall
98.	Polymer Physics	3	Spring
99.	Solid State Physics	3	Fall
100.	Magnetic Materials	3	Spring
101.	Composite Materials	3	Spring
102.	Introduction to physics and chemistry of material interfaces	3	Spring
Class Four: Environmental Engineering			
103.	Environmental Biotechnology	3	Fall
104.	Advanced Aerosol Measurement	3	Fall
105.	Environmental Contaminant Transport Phenomena	3	Fall
106.	Surface Analysis	3	Fall
107.	Environmental Nanotechnology for Water Treatment	3	Spring
108.	Special Topics on Environmental Science and Technology	3	Spring
109.	Sludge Treatment and Disposal	3	Spring
110.	Theory and Practice of Particulate Control Equipment	3	Spring
111.	Surface Chemistry	3	Spring
112.	Environmental Toxicology	3	Fall
113.	Air pollution and Control Technology	3	Fall
114.	Theory and Practice of Gaseous Pollution Control Devices	3	Spring
115.	Environmental Analysis	3	Spring
116.	Environmental Chemistry	3	Fall
117.	Independent Study	3	Fall
118.	Fundamental and Applications of Industrial Catalysi	3	Spring
119.	Management of Contaminated Land and Groundwater	3	Fall
120.	Applied and Environmental microbiology	3	Spring
121.	Environmental Planning And Management	3	Spring
122.	Industrial Waste Minimization and Engineering	3	Spring

3. Convener Name: Chih-Ping Lin Unit: College of Engineering
4. Contact Name: Ya-Chun Chang Unit: College of Engineering