環境與安全衛生工程系　碩士班　111 學年度入學課程結構規劃表(112.10.4)

課程類別				一年級						二年級					
				第一學期			第二學期			第一學期			第二學期		
				課程名稱	學分數	時數	課程名稱	學分數	時數	課程名稱	學分數	時數	課程名稱	學分數	時數
專業課程	必修	共同領域	應修學分數 6 學分				論文	6	0	論文	6	0	論文	6	0
	選修	選擇必修 共同領域	每學期均需修習 且成績合格	專題討論(一)	1	2	專題討論(二)	1	2	專題討論(三)	1	2	專題討論(四)	1	2
		共同領域	至少應修學分數/課程數：30 學分/10 門課	環境分析理論與實務微學分(一)	0.5	0.5				環境分析理論與實務微學分(一)	0.5	0.5	廢棄生質物管理與資源回收微學分課程（一）	0.5	0.5
				環境分析理論與實務微學分（二）	0.5	0.5				環境分析理論與實務微學分（二）	0.5	0.5	廢棄生質物管理與資源回收微學分課程（二）	0.5	0.5
				高等工程數學	3	3	應用分子生物學特論	3	3	實驗設計	3	3	高等流體力學	3	3
				環境工程化學特論	3	3	儀器分析特論	3	3	室內空氣品質管理	3	3	工業廢氣處理	3	3
		環境領域		有害廢棄物處理特論	3	3	永續發展與清淨製程特論	3	3	地下水污染防治	3	3	土壤污染防治	3	3
				工業廢水處理特論	3	3	廢水生物處理及設計	3	3	環境影響評估特論	3	3	污泥處理與處置	3	3
				空氣污染擴散及監測	3	3	環境規劃與管理	3	3	循環型產業與資源回收特論	3	3	高科技產業廢水處理實務	3	3
				焚化工程特論	3	3	環工處理程序原理(二)	3	3	環境化學動力學	3	3	資源再生單元操作特論	3	3
				環工處理程序原理(一)	3	3	環境管理系統	3	3	膜分離程序	3	3	生物地球化學	3	3
				工程寫作與發表	3	3	水處理工程設計	3	3				空間分析	3	3
							空氣污染控制設備設計	3	3				環境系統分析	3	3
							污染物傳輸現象特論	3	3						
							氣候變遷與能源供給特論	**3**	**3**						
		安全領域		安全系統設計	3	3	量化風險評估	3	3	電氣現象與安全特論	3	3	安全工程特論	3	3
				半導體製程安全與衛生	3	3	安全設計特論	3	3	製程安全管理	3	3	危害消減技術	3	3
				火災爆炸學	3	3				消防工程特論	3	3	消防煙控與避難系統設計	3	3
				危險性機械設備風險評估	3	3				危險品事故緊急應變	3	3			
				可靠度分析	3	3									
		衛生領域		工業衛生學特論	3	3	工業與環境毒物學特論	3	3	環境與職業流行病學	3	3	生物偵測特論	3	3
				生物統計學特論	3	3	氣膠學	3	3	作業環境控制工程	3	3			
										暴露評估特論	3	3			

備註：

一、畢業總學分數為 36 學分。

二、必修 6 學分，選修 30 學分。

三、學生修讀所屬學院之「學院共同課程」應認列為本系專業課程學分；修讀所屬學院之「學院跨領域課程」或其他學院開課之課程，則認列為外系課程學分。

四、系所訂定條件（學程、檢定、證照、承認外系學分及其他）：

1.「專題討論(一)～(四)」不屬專業選修課程。2.除「論文」及「專題討論」外，所有科目以隔年開課為原則。3.一學期僅能修一門「專題討論」。4.研究生在學期間每學期均須修讀「專題討論」且至少三學期成績及格。5.在學期間應至少選修 1 門以英文授課之科目。6.在學期間修讀他系研究所全英文課程，不可抵本系碩士班英文授課課程，但可列入畢業學分。7.畢業前，最少需完成二次以上公開之口頭專題報告。8.研究生於就讀期間須至少一篇公開口頭發表研討會論文或學術期刊論文接受刊登，經指導教授審定通過。9.申請學位論文考試(口試)前二個月，需繳交已獲二位審查委員簽署核可之書面論文計畫書。10.入學後可抵免碩士學分最多以 6 學分為限(不含論文)。11.承認外系課程 3 學分；外籍生經指導教授許可，得選修工學院內碩(博)士班所開設之全英文授課課程，至多承認 15 學分。12.未盡事宜經系務會議審議通過後另行公告。

2022 Curricula for the Master's Program in Department of Safety, Health and Environmental Engineering

Course Category				1st Academic Year						2nd Academic Year					
				Semester 1			Semester 2			Semester 1			Semester 2		
				Course Name	Credits	Hours	Course Name	Credits	Hours	Course Name	Credits	Hours	Course Name	Credits	Hours
Departmental Professional Courses	Required	Common areas	Credits Needed 6				Thesis	6	0	Thesis	6	0	Thesis	6	0
	Elective	Common selectives.	All, courses must be taken and passed successfully.	Seminar(I)	1	2	Seminar (II)	1	2	Seminar(III)	1	2	SeminarIV	1	2
		Common areas	Number of Courses Needed 10/ Credits Needed 30	Theory and Practice of Environmental Analysis(I)	0.5	0.5				Theory and Practice of Environmental Analysis(I)	0.5	0.5	Waste Biomass Management and Resource Recycling I	0.5	0.5
				Theory and Practice of Environmental Analysis(II)	0.5	0.5				Theory and Practice of Environmental Analysis(II)	0.5	0.5	Waste Biomass Management and Resource Recycling II	0.5	0.5
				Advanced Engineering Mathematics	3	3	Technical Writing and Presentation	3	3	Experimental Design	3	3	Advanced Fluid Mechanics	3	3
				Selected Topics for Environmental Chemistry	3	3	Special Topics in Instrumental Analysis	3	3	Indoor Air Quality Management	3	3	Industrial Air Pollution Control	3	3
		Environmental Engineering field		Special Topics in Hazardous Wastes Treatment	3	3	Special Topics in sustainable Development and Cleaner Production	3	3	Ground Water Pollution Treatment	3	3	Soil Pollution and Remediation	3	3
				Special Topics in Industrial Wastewater Treatment	3	3	Biological Treatment of Wastewater System	3	3	Special Topics in Environmental Impact Assessment	3	3	Sludge treatment and disposal	3	3
				Dispersion and Monitoring of Air Pollution	3	3	Environmental Planning & Management	3	3	Special Topics of Eco-Industrial Park and Resources Recovery	3	3	Practical wastewater treatment in field of high technology	3	3
				Special Topics in Incineration Engineering	3	3	Principles of Environmental Treatment Processes(II)	3	3	Environmental Chemodynamics	3	3	Special topics in unit operations of resource recovery	3	3
				Principles of Environmental Treatment Processes(I)	3	3	Environmental Management System	3	3	Membrane separation process	3	3	Biogeochemical Processes	3	3
				Technical Writing and Presentation	3	3	water treatment engineering design	3	3				Spatial Analysis	3	3
							Air Pollution Control Device Design	3	3				Environmental System Analysis	3	3
							Selected Topics for Transport phenomena of pollutants	3	3						
							Special Topics in Climate Change and Energy Supply	3	3						
		Safety field		Design for Inherent safety	3	3	Quantitative Risk Analysis	3	3	Electrical Phenomena and Safety	3	3	Special Topics in Safety Engineering	3	3
				Process Safety and Health in the Semiconductor Industry	3	3	Special Topics in Safety Design	3	3	Process Safety Management	3	3	Hazard Mitigation Technology	3	3
				Fire and Explosion	3	3				Advanced Fire Safety Engineering	3	3	The Design of Smoke Management System and Evacuation System in Fire	3	3
				Risk Management of Process Equipment and Machinery	3	3				Emergency Response for Hazardous Materials Incidents	3	3			
				Reliability Analysis	3	3									

		Health field		Special Topics in Industrial Health	3	3	Industrial and Environmental Toxicology	3	3	Occupational Desease and Epidemiology	3	3	Special Topics in Biological Monitoring	3	3
				Special topics in Biostatistics	3	3	Aerosol Science and Technology	3	3	Working Environment Control Engineering	3	3			
										Special Topics in Exposure Assessment	3	3			

備註：

一、Minimum credit required to graduate: 36.

二、Required coursess: 6 credits; elective courses: 30 credits.

三、Credits earned by students from the common courses offered by their respective colleges shall be accepted as their affiliated department's professional courses. However, credits earned from interdisciplinary courses offered either by their college or by other colleges will be accepted as credits earned from departments outside their own.

四、Departmental requirements (Ex: programs, certifications, licenses, recognition of external department credits, prerequisite requirements, Credits needed for each teaching division, and other requirements)：

1. "Seminar (I)~(IV)" courses are not considered as professional elective courses. 2. Except for "Thesis" and "Seminar," all courses are generally offered every other year. 3. Only one "Seminar" course may be taken per semester. 4. During the study period, students must enroll in " Seminar " each semester, and they must pass at least three semesters. 5. During the study period, students must take at least one course taught in English. 6. English-taugnt courses taken from other departments cannot be counted for this department's requirement but can be counted toward graduation credits. 7.Students must make at least two public oral presentations on their research topics. 8. During the study period, students must make at least one oral presentation at a public conference or have one publication accepted by an academic journal, subject to approval by their advisor. 9. Students must submit a written thesis proposal approved by two reviewers, two prior to months apply for oral defense. 10. After enrollment, up to 6 credits may be waived (excluding the thesis) for master's program courses. 11. Up to 3 credits from courses outside the department may be recognized. International students, with the approval of their advisor, may take English-taught courses offered by the master's or Ph.D. programs within the College of Engineering, with a maximum of 15 credits. 12. Matters not covered will be announced separately following the approval of the department.