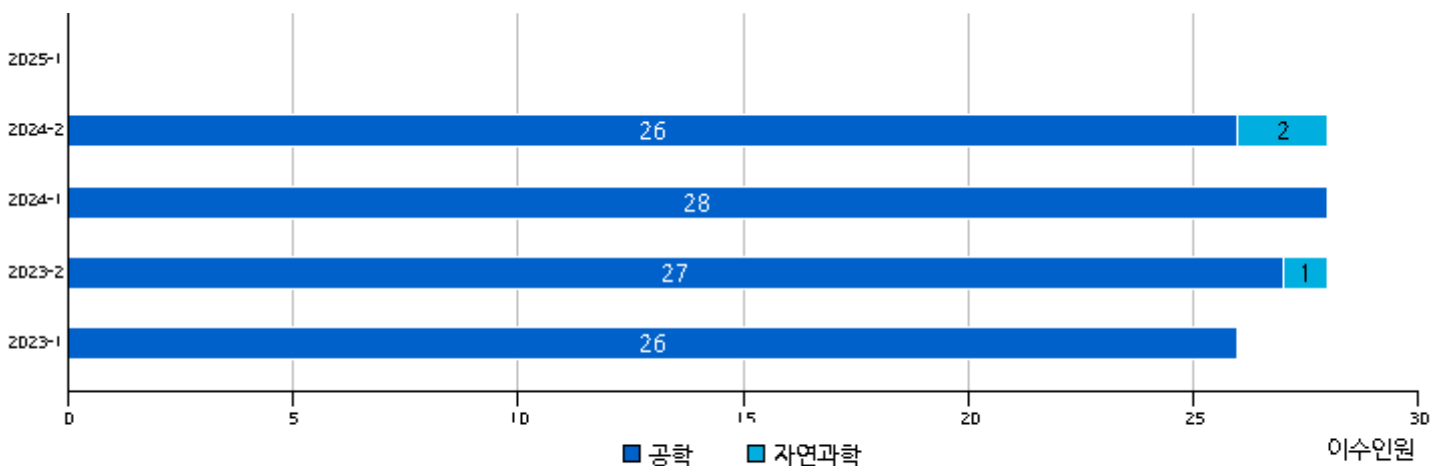
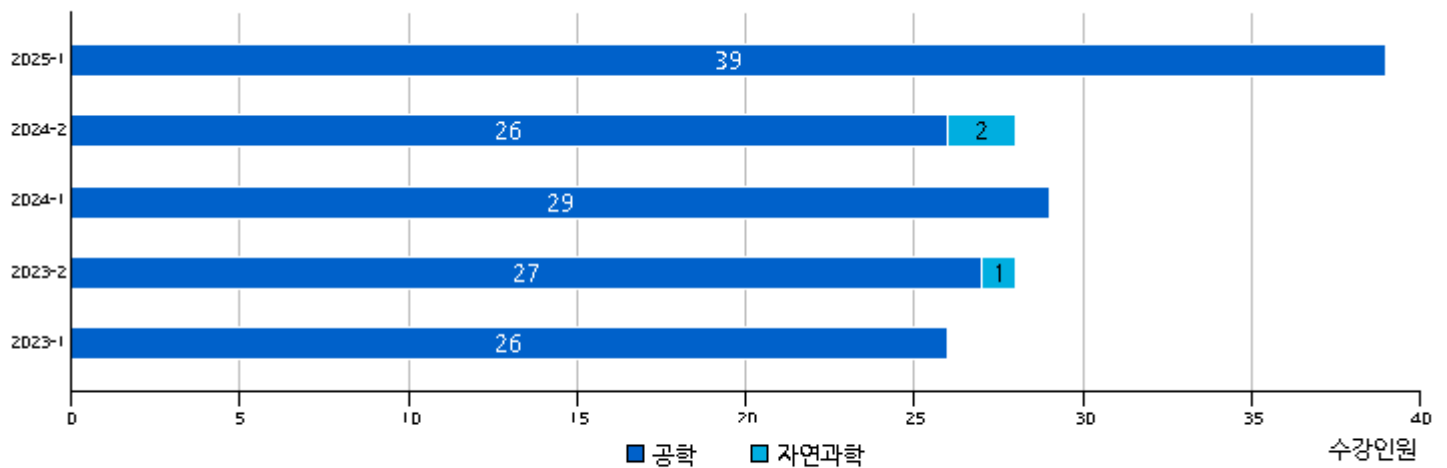
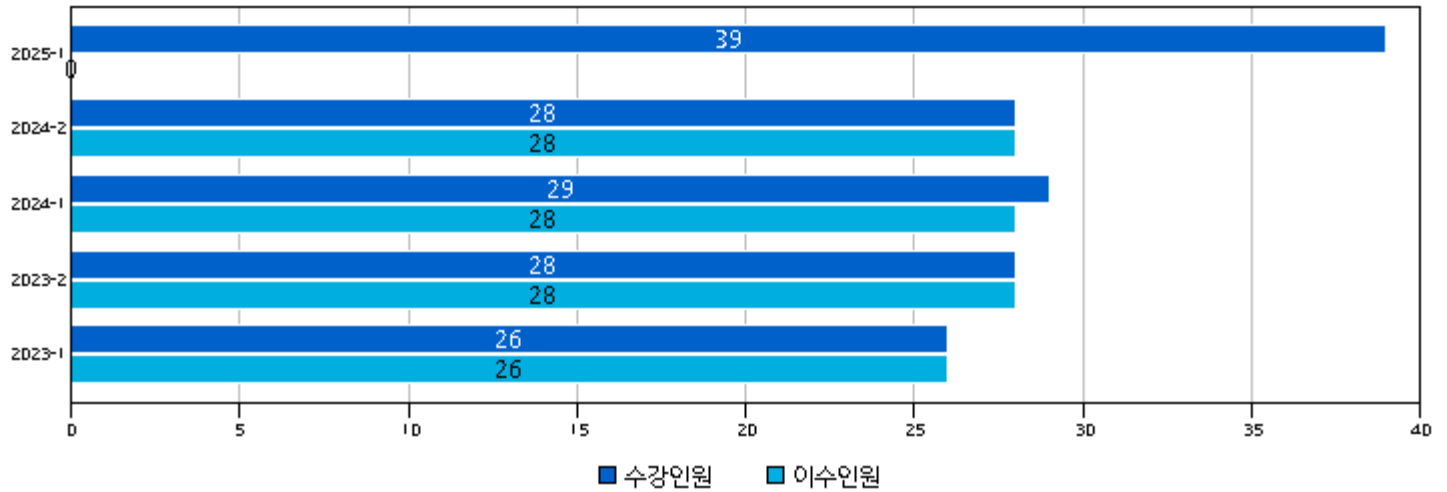


# 교과목 포트폴리오 (CTE3013 표면및계면화학)

## 1. 교과목 수강인원



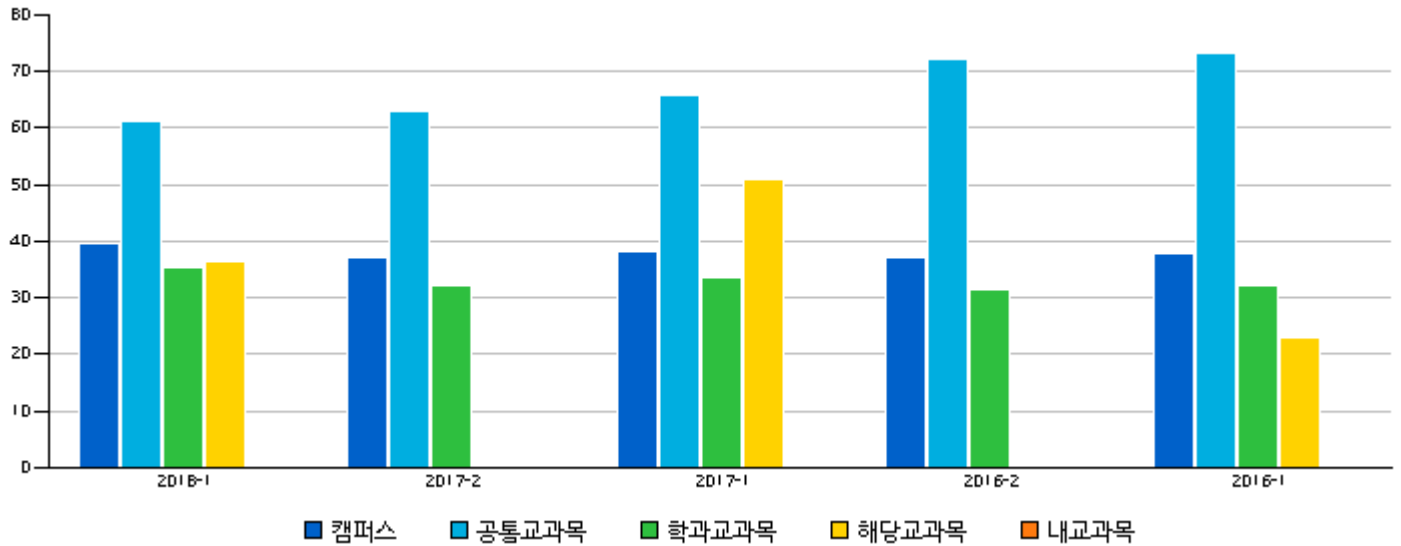
# 교과목 포트폴리오 (CTE3013 표면및계면화학)

수업년도	수업학기	계열구분	수강인원	이수인원
2023	1	공학	26	26
2023	2	자연과학	1	1
2023	2	공학	27	27
2024	1	공학	29	28
2024	2	자연과학	2	2
2024	2	공학	26	26
2025	1	공학	39	0



# 교과목 포트폴리오 (CTE3013 표면및계면화학)

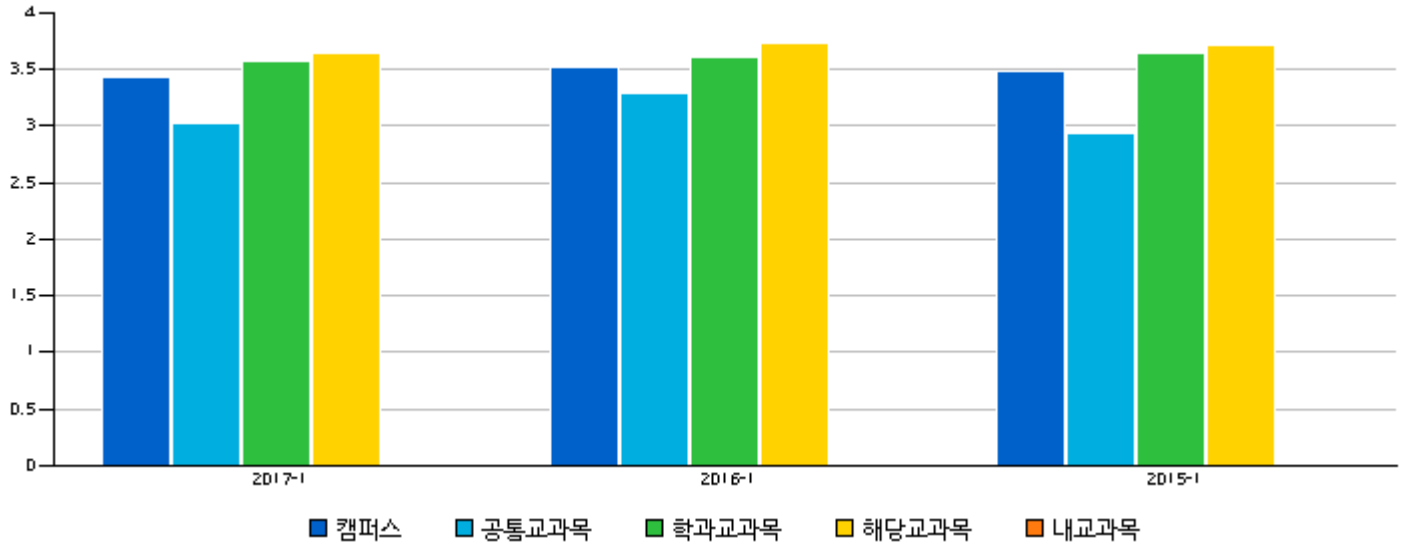
## 2. 평균 수강인원



수업년도	수업학기	캠퍼스	공통교과목	학과교과목	해당교과목	내교과목
2018	1	39.54	61.09	35.36	36.5	
2017	2	37.26	63.09	32.32		
2017	1	38.26	65.82	33.5	51	
2016	2	37.24	72.07	31.53		
2016	1	37.88	73.25	32.17	23	

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

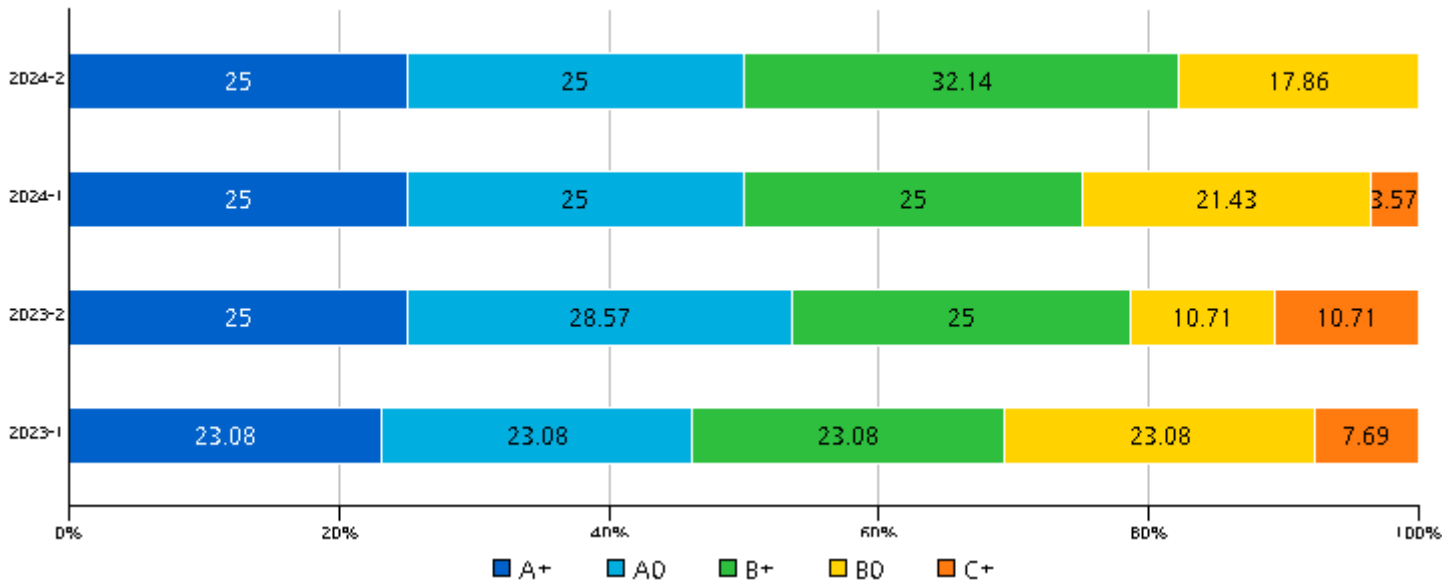
## 3. 성적부여현황(평점)



수업년도	수업학기	캠퍼스	공통교과목	학과교과목	해당교과목	내교과목
2017	1	3.44	3.02	3.58	3.65	
2016	1	3.52	3.29	3.61	3.74	
2015	1	3.49	2.94	3.64	3.71	

교과목 포트폴리오 (CTE3013 표면및계면화학)

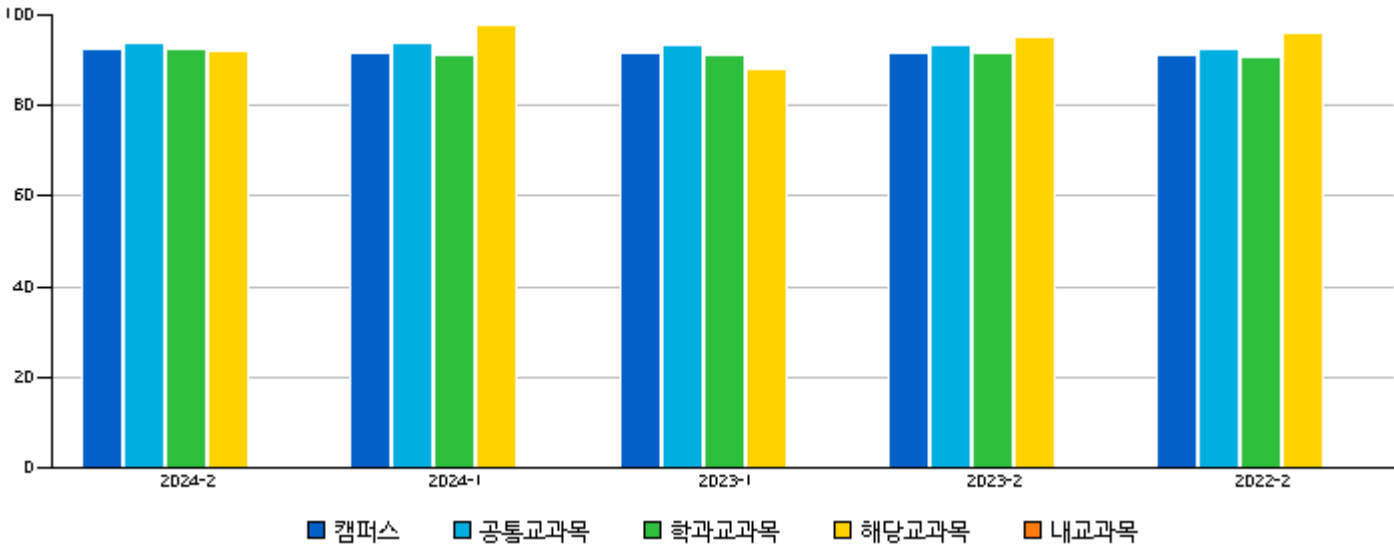
4. 성적부여현황(등급)



수업년도	수업학기	등급	인원	비율
2023	1	A+	6	23.08
2023	1	A0	6	23.08
2023	1	B+	6	23.08
2023	1	B0	6	23.08
2023	1	C+	2	7.69
2023	2	A+	7	25
2023	2	A0	8	28.57
2023	2	B+	7	25
2023	2	B0	3	10.71
2023	2	C+	3	10.71
2024	1	A+	7	25
2024	1	A0	7	25
2024	1	B+	7	25
2024	1	B0	6	21.43
2024	1	C+	1	3.57
2024	2	A+	7	25
2024	2	A0	7	25
2024	2	B+	9	32.14
2024	2	B0	5	17.86

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

## 5. 강의평가점수



수업년도	수업학기	캠퍼스	공통교과목	학과교과목	해당교과목	내교과목
2024	2	92.56	93.8	92.33	92	
2024	1	91.5	93.79	91.1	98	
2023	1	91.47	93.45	91.13	88	
2023	2	91.8	93.15	91.56	95	
2022	2	90.98	92.48	90.7	96	

교과목 포트폴리오 (CTE3013 표면및계면화학)

6. 강의평가 문항별 현황

번호	평가문항	본인 평 균 (가중 치적용)	소속학과,대학평균과의 차이 (+초과,-:미달)				점수별 인원분포					
							매우 그렇 치않 다	그렇 치않 다	보통 이다	그렇 다	매우 그렇 다	
		5점 미만	학과		대학		1점	2점	3점	4점	5점	
			차이	평균	차이	평균						
	교강사:											

No data have been found.

7. 개설학과 현황

학과	2025/1	2024/2	2024/1	2023/2	2023/1
화학공학과	0강좌(0학점)	1강좌(3학점)	0강좌(0학점)	1강좌(3학점)	0강좌(0학점)
유기나노공학과	1강좌(3학점)	0강좌(0학점)	1강좌(3학점)	0강좌(0학점)	1강좌(3학점)

8. 강좌유형별 현황

강좌유형	2023/1	2023/2	2024/1	2024/2	2025/1
일반	1강좌(26)	1강좌(28)	1강좌(29)	1강좌(28)	1강좌(39)

9. 교과목개요

교육과정	관장학과	국문개요	영문개요	수업목표
학부 2024 - 2027 교육과정	서울 공과대학 유기나노공학과	본 강좌에서는 물질표면 및 계면에서 일어나는 현상을 물리화학적인 관점에서 설명한다. 본 강좌를 통하여서 표면 및 계면의 화학적 구조, 열역학 및 운동학적 해석, 표면장력, 표면에서의 화학반응 등을 이해한다.	Many important and interesting reactions in the ‘chemical world’ around us take place at the interface between two materials, with examples to be found in areas such as heterogeneous catalysis, crystal growth, atmospheric and environmental science, and biology. The study of surfaces and interfaces is, however, far from straightforward, since the ‘action’ takes place in a layer usually no more than a few molecules thick, sandwiched between two bulk or ambient phases. This lecture focuses on physicochemical properties of surfaces, interfaces, and colloids. This lecture will help students to understand thermodynamics and kinetics of surface	

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

교육과정	관장학과	국문개요	영문개요	수업목표
			phenomena, surface tension, chemical structures at the surfaces or interfaces, capillary forces, reaction of gases on surfaces. At the completion of this course, students will be able to understand the significance of surface properties, including those of adsorbed and/or reactive surface species, for reactions at interfaces.	
학부 2024 - 2027 교육과정	서울 공과대학 화학공학과	고체, 액체, 기체 등 서로 섞이지 않은 두 상간에 형성된 계면에서 계면의 물성, 계면물성 측정, 계면물성의 개질법 등에 대하여 강의하며 이에 관련된 이론을 공부한다. 일반적으로 계면물성은 내부 물성과 크게 다르므로 이들의 차이점에 대하여도 체계적으로 공부하며 공업적 응용 방법에 대하여도 강의한다.	This course will explore the physico-chemical properties of interfaces which are formed at the boundary between two immiscible phases. Generally these surface properties are very different from those at bulk. The topics which will be covered in this course are as follows: 1) definition of surface properties such as surface tension, electrical aspects of surface chemistry, hydrophilicity/ hydrophobicity of surface, surface structure, surface area and other thermodynamical properties; 2) measuring and analysis techniques for each surface property; 3) modification of surface properties by using surface active agents and 4) effects of surface properties on the industrial process such as emulsion, foaming, detergency, wetting, adsorption and colloids. Surface properties are very important in nanomaterials since they have a high surface area to volume ratio. Thus, the preparations, characterizations and industrial applications of nanomaterials will also be covered.	
학부 2020 - 2023 교육과정	서울 공과대학 유기나노공학과	본 강좌에서는 물질표면 및 계면에서 일어나는 현상을 물리화학적인 관점에서 설명한다. 본 강좌를 통하여서 표면 및 계면의 화학적 구조, 열역학 및 운동학적 해석, 표면장력, 표면에서의 화학반응 등을 이해한다.	Many important and interesting reactions in the 'chemical world' around us take place at the interface between two materials, with examples to be found in areas such as heterogeneous catalysis, crystal growth, atmospheric and environmental science, and biology. The study of surfaces and interfaces is, however, far from straightforward, since the 'action' takes place in a layer usually no more than a few molecules thick, sandwiched between two bulk or ambient phases. This lecture focuses on physicochemical properties of surfaces, interfaces, and colloids. This lecture will help students to understand thermodynamics and kinetics of surface phenomena, surface tension, chemical structures at the surfaces or interfaces, capillary forces, reaction of gases on surfaces. At the completion of this course,	



# 교과목 포트폴리오 (CTE3013 표면및계면화학)

교육과정	관장학과	국문개요	영문개요	수업목표
			students will be able to understand the significance of surface properties, including those of adsorbed and/or reactive surface species, for reactions at interfaces.	
학부 2020 - 2023 교육과정	서울 공과대학 화학공학과	고체, 액체, 기체 등 서로 섞이지 않은 두 상간에 형성된 계면에서 계면의 물성, 계면물성 측정, 계면물성의 개질법 등에 대하여 강의하며 이에 관련된 이론을 공부한다. 일반적으로 계면물성은 내부 물성과 크게 다르므로 이들의 차이점에 대하여도 체계적으로 공부하며 공업적 응용 방법에 대하여도 강의한다.	This course will explore the physico-chemical properties of interfaces which are formed at the boundary between two immiscible phases. Generally these surface properties are very different from those at bulk. The topics which will be covered in this course are as follows: 1) definition of surface properties such as surface tension, electrical aspects of surface chemistry, hydrophilicity/ hydrophobicity of surface, surface structure, surface area and other thermodynamical properties; 2) measuring and analysis techniques for each surface property; 3) modification of surface properties by using surface active agents and 4) effects of surface properties on the industrial process such as emulsion, foaming, detergency, wetting, adsorption and colloids. Surface properties are very important in nanomaterials since they have a high surface area to volume ratio. Thus, the preparations, characterizations and industrial applications of nanomaterials will also be covered.	
학부 2016 - 2019 교육과정	서울 공과대학 유기나노공학과	본 강좌에서는 물질표면 및 계면에서 일어나는 현상을 물리화화학적 관점에서 설명한다. 본 강좌를 통하여서 표면 및 계면의 화학적 구조, 열역학 및 운동학적 해석, 표면장력, 표면에서의 화학반응 등을 이해한다.	Many important and interesting reactions in the 'chemical world' around us take place at the interface between two materials, with examples to be found in areas such as heterogeneous catalysis, crystal growth, atmospheric and environmental science, and biology. The study of surfaces and interfaces is, however, far from straightforward, since the 'action' takes place in a layer usually no more than a few molecules thick, sandwiched between two bulk or ambient phases. This lecture focuses on physicochemical properties of surfaces, interfaces, and colloids. This lecture will help students to understand thermodynamics and kinetics of surface phenomena, surface tension, chemical structures at the surfaces or interfaces, capillary forces, reaction of gases on surfaces. At the completion of this course, students will be able to understand the significance of surface properties, including those of adsorbed and/or reactive surface species, for reactions at	

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

교육과정	관장학과	국문개요	영문개요	수업목표
학부 2016 - 2019 교육과정	서울 공과대학 화학공학과	고체, 액체, 기체 등 서로 섞이지 않은 두 상간에 형성된 계면에서 계면의 물성, 계면물성 측정, 계면물성의 개질법 등에 대하여 강의하며 이에 관련된 이론을 공부한다. 일반적으로 계면물성은 내부 물성과 크게 다르므로 이들의 차이점에 대하여도 체계적으로 공부하며 공업적 응용 방법에 대하여도 강의한다.	interfaces.  This course will explore the physico-chemical properties of interfaces which are formed at the boundary between two immiscible phases. Generally these surface properties are very different from those at bulk. The topics which will be covered in this course are as follows: 1) definition of surface properties such as surface tension, electrical aspects of surface chemistry, hydrophilicity/ hydrophobicity of surface, surface structure, surface area and other thermodynamical properties; 2) measuring and analysis techniques for each surface property; 3) modification of surface properties by using surface active agents and 4) effects of surface properties on the industrial process such as emulsion, foaming, detergency, wetting, adsorption and colloids. Surface properties are very important in nanomaterials since they have a high surface area to volume ratio. Thus, the preparations, characterizations and industrial applications of nanomaterials will also be covered.	
학부 2013 - 2015 교육과정	서울 공과대학 화공생명공학부 화학공학전공	고체, 액체, 기체 등 서로 섞이지 않은 두 상간에 형성된 계면에서 계면의 물성, 계면물성 측정, 계면물성의 개질법 등에 대하여 강의하며 이에 관련된 이론을 공부한다. 일반적으로 계면물성은 내부 물성과 크게 다르므로 이들의 차이점에 대하여도 체계적으로 공부하며 공업적 응용 방법에 대하여도 강의한다.	This course will explore the physico-chemical properties of interfaces which are formed at the boundary between two immiscible phases. Generally these surface properties are very different from those at bulk. The topics which will be covered in this course are as follows: 1) definition of surface properties such as surface tension, electrical aspects of surface chemistry, hydrophilicity/ hydrophobicity of surface, surface structure, surface area and other thermodynamical properties; 2) measuring and analysis techniques for each surface property; 3) modification of surface properties by using surface active agents and 4) effects of surface properties on the industrial process such as emulsion, foaming, detergency, wetting, adsorption and colloids. Surface properties are very important in nanomaterials since they have a high surface area to volume ratio. Thus, the preparations, characterizations and industrial applications of nanomaterials will also be covered.	
학부 2013 - 2015 교육과정	서울 공과대학 유기나노공학과	본 강좌에서는 물질표면 및 계면에서 일어나는 현상을 물리화학적인 관점에서 설명한다. 본 강좌를 통하여서 표면 및 계면의 화학적 구조, 열	Many important and interesting reactions in the 'chemical world' around us take place at the interface between two	

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

교육과정	관장학과	국문개요	영문개요	수업목표
		역학 및 운동학적 해석, 표면장력, 표면에서의 화학반응 등을 이해한다.	materials, with examples to be found in areas such as heterogeneous catalysis, crystal growth, atmospheric and environmental science, and biology. The study of surfaces and interfaces is, however, far from straightforward, since the 'action' takes place in a layer usually no more than a few molecules thick, sandwiched between two bulk or ambient phases. This lecture focuses on physicochemical properties of surfaces, interfaces, and colloids. This lecture will help students to understand thermodynamics and kinetics of surface phenomena, surface tension, chemical structures at the surfaces or interfaces, capillary forces, reaction of gases on surfaces. At the completion of this course, students will be able to understand the significance of surface properties, including those of adsorbed and/or reactive surface species, for reactions at interfaces.	
학부 2013 - 2015 교육과정	서울 공과대학 화학공학과	고체, 액체, 기체 등 서로 섞이지 않은 두 상간에 형성된 계면에서 계면의 물성, 계면물성 측정, 계면물성의 개질법 등에 대하여 강의하며 이에 관련된 이론을 공부한다. 일반적으로 계면물성은 내부 물성과 크게 다르므로 이들의 차이점에 대하여도 체계적으로 공부하며 공업적 응용 방법에 대하여도 강의한다.	This course will explore the physico-chemical properties of interfaces which are formed at the boundary between two immiscible phases. Generally these surface properties are very different from those at bulk. The topics which will be covered in this course are as follows: 1) definition of surface properties such as surface tension, electrical aspects of surface chemistry, hydrophilicity/ hydrophobicity of surface, surface structure, surface area and other thermodynamical properties; 2) measuring and analysis techniques for each surface property; 3) modification of surface properties by using surface active agents and 4) effects of surface properties on the industrial process such as emulsion, foaming, detergency, wetting, adsorption and colloids. Surface properties are very important in nanomaterials since they have a high surface area to volume ratio. Thus, the preparations, characterizations and industrial applications of nanomaterials will also be covered.	
학부 2009 - 2012 교육과정	서울 공과대학 화공생명공학부 화학공학전공	본 강좌에서는 물질표면 및 계면에서 일어나는 현상을 물리화학적인 관점에서 설명한다. 본 강좌를 통하여서 표면 및 계면의 화학적 구조, 열역학 및 운동학적 해석, 표면장력, 표면에서의 화학반응 등을 이해한다.	This lecture focuses on physicochemical properties of surfaces, interfaces, and colloids. This lecture will help students to understand thermodynamics and kinetics of surface phenomena, surface tension, chemical structures at the surfaces or interfaces, capillary forces, reaction of	

# 교과목 포트폴리오 (CTE3013 표면및계면화학)

교육과정	관장학과	국문개요	영문개요	수업목표
			gases on surfaces.	

## 10. CQI 등록내역

No data have been found.
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