

KUAS Eng - List of Specialized Courses

Course Category				Course Name		Credits		Designated academic year					
						Mandatory	Elective	1st-year	2nd-year	3rd-year	4th-year		
Engineering Courses	Faculty-wide Courses	Faculty-wide General Courses		Introduction to Mechatronics Engineering			2	○	○	○	○		
				Intellectual Property			2				○		
		Engineering Physics Courses		B	Engineering Physics 1		6		○				
					Engineering Physics 2		6		○	○	○	○	
					Engineering Physics 3			2		○	○	○	
		Engineering Math Courses		B	Advanced Calculus 1			3		○	○	○	
					Advanced Calculus 2			3		○	○	○	
				Ap	Fourier Analysis and Partial Differential Equations			3			○	○	
					Complex Analysis			2			○	○	
		Information Processing Courses		B	Algorithmic Thinking and Programming with Python			3		○	○	○	
					Ap	Introduction to C Programming			3		○	○	○
				System Programming with C			3		○	○	○		
				Digital Signal Processing			3			○	○		
		Pillar-specific Courses	Design and Production		B	Machine Design			4		○	○	○
						Ap	Introduction to Production Engineering			2			○
			Robotics		Ap		Introduction to Mechanisms and Mobile Robots			2			○
						Ad	Introduction to Robotic Manipulators			2			○
			Instrumentation		Ap		Introduction to Scientific Measurement			2			○
						Ad	Introduction to Sensors			2			○
	Control		Ap	Classical Control Engineering				2		○	○	○	
				Modern Control Engineering			2			○	○		
				Digital Control Engineering			2			○	○		
	Mechanics		B	Fundamental Mechanics			4	○	○	○	○		
	Materials			Mechanics of Materials			4		○	○	○		
	Ionics		B	Introduction to Physical Chemistry			4		○	○	○		
				Ap	Introduction to Electrochemistry			2			○	○	
					Introduction to Battery Engineering			2			○	○	
	Electromagnetics		Ap	Electromagnetic Theory			4		○	○	○		
	Actuators			Fundamentals of Electric Motors			2		○	○	○		
			Ad	Control Principles of Electric Motors			2			○	○		
				Actuator Systems			2			○	○		
	Energy		Ap	Electric Power Transmission and Distribution			2			○	○		
				Electric Power Generation and Transformation			2				○		
	Devices		Ap	Power Electronics Engineering			2			○	○		
				Semiconductor Engineering			2			○	○		
	Circuits		Ap	Electric Circuits			2		○	○	○		
				Electric Circuits Exercises			1		○	○	○		
				Analog Electronic Circuits			2		○	○	○		
				Logic Circuits			2			○	○		
	Communication		Ap	Introduction to Communication Engineering			2			○	○		
				Introduction to Information and Communications Networks			2				○		
	Experiments and Laboratory Exercises				Exercise for Machine Shop Practice		3			○	○	○	
					Mechatronics Laboratory (Robot: basic)		3			○	○	○	
					Mechatronics Laboratory (Energy)			3			○	○	
					Mechatronics Laboratory (Robot: advanced)			3			○	○	
	Comprehensive Practical Exercises				Keystone Project*		6			○*	○*		
					Capstone Project*			6			○*	○*	
					Laboratory Project 1			4			○	○	
					Laboratory Project 2			4				○	

B = Basic Ap = Applied Ad = Advanced  
\*These courses are year-long and must be taken continuously throughout both the Spring and Fall semesters.  
Keystone Project runs from the 2nd year, 4th semester to the 3rd year, 5th semester.  
Capstone Project runs from the 3rd year, 6th semester to the 4th year, 7th semester.