Aerospace

	Four-Year Program		Five-Year Program	
	2 (BS)[1]		*2 (BS)[2]*	
MATHEMATICS GENERAL EDUCATION Recommended Courses Calculus 1 & 2	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Calculus 1	100%	Calculus 1	100%
	Calculus 2	50%	Calculus 2	100%
ARTS AND HUMANITIES GENERAL EDUCATION	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Any Course	100%	Any Course	50%
			Humanities in the Western Tradition	50%
			Humanities in the World Since 1300	50%
SOCIAL SCIENCES GENERAL EDUCATION	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Any Course	50%	Any Course	50%
	Microeconomics	50%	Introduction to Economic Analysis	50%
NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION Recommended Courses College Physics 1 & 2	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	College Physics 1	50%	College Physics 1	100%
	College Physics 2	50%	College Physics 2	100%
	Fundamentals of Chemistry	50%	General Chemistry 1	100%
CORE: PRE-MAJOR REQUIREMENTS	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	College Physics 1	50%	n/a	
	College Physics 2	50%		
	General Chemistry for Engineers	50%		
	Math Engineering A & B	50%		
	Fundamentals of Engineering 1	50%		
	Fundamentals of Engineering 2	50%		
	Introduction to Aerospace Engineering 1	50%		
FOREIGN LANGUAGE	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Required	50%	n/a	
MAJOR COURSES TAG Courses *Introduction to Engineering	**Four-Year Program**		**Five-Year Program**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	*Introduction to Engineering	50%	*Introduction to Engineering	50%

[1] Kent State and OSU

[2] UAkron and UC

*Engineering Statics *Engineering Dynamics *Elementary Differential Equations	Introduction to Aerospace Engineering	50%	*Engineering Statics	50%
	Statics *(not TAG approved)*	100%	*Engineering Dynamics	100%
	*Engineering Dynamics	50%	*Elementary Differential Equations	50%
	Circuits	100%	Propulsions	100%
	Linear Algebra & Differential Equations	50%	Thermodynamics	100%
	Propulsion	50%	Engineering Measurements	100%
	Dynamics *(not TAG approved)*	50%	Mechanics of Solids	100%
	Introduction to Engineering Using MATLAB	50%	Aerodynamics	100%
	Programming-MATLAB	50%	Design	100%
			Statics & BSOM	50%
			Calculus 3	100%

Bioengineering

Four-Year Institution

3 (BS)[3]

MATHEMATICS GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses Calculus 1 & 2	Calculus 1	67%
	Calculus 2	67%
	Engineering Calculus 1	33%
	Engineering Calculus 2	33%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	100%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	100%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses College Physics 1 & 2 Biology 1 w/lab	College Physics 1	67%
	College Physics 2	33%
	Biology 1	33%
	Biology 2	33%
	*General Chemistry 1	100%
	*General Chemistry 2	67%

MAJOR COURSES	Four-Year Institution	
	Course Name	*Frequency*
TAG Courses *Introduction to Engineering *General Chemistry 1 *General Chemistry 2	*Introduction to Engineering	33%
	*General Chemistry 2	33%
	Thermodynamics	100%
	Engineering Economics	67%
	Statics	67%
	Biotransport	67%
	Biomaterials	67%
	Biomechanics	67%
	Thermodynamics	67%
	Physiology	67%
	Cell Biology	33%
	Dynamics	33%

[3] Miami, OSU, and UT

Biomedical Engineering

	Four-Year Institution
	5 (BS)[4]

MATHEMATICS GENERAL EDUCATION Recommended Courses Calculus 1 & 2	Four-Year Institution	
	Course Name	*Frequency*
	Calculus I & II	80%
	Any Course	20%
	Calculus III	20%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	80%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	100%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION Recommended Courses College Physics I & II (Calculus-based) Biology I w/ lab	Four-Year Institution	
	Course Name	*Frequency*
	*General Chemistry I w/ lab	80%
	*General Chemistry I w/ lab	40%
	College Physics I & II	60%
	Engineering Physics I & II	20%
	Biology I w/ lab	40%

CORE: PRE-MAJOR REQUIREMENTS	Four-Year Institution	
	Course Name	*Frequency*
	*General Chemistry I w/ lab	20%
	*General Chemistry II w/ lab	20%
	College Physics I & II	20%

MAJOR COURSES TAG Courses *Introduction to Engineering *General Chemistry I and II (full-year sequence) w/ lab	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	60%
	*General Chemistry II w/ lab	20%
	*General Chemistry II without lab	20%
	Biology I w/ lab	20%
	Anatomy & Physiology	60%
	Biomedical Engineering	80%
	Biomaterials	80%

[4] Miami, OSU, UAkron, UC, and WSU

Chemical Engineering

Four-Year Institution

7 (BS)[5]

MATHEMATICS GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses Calculus 1 & 2	Calculus 1	100%
	Calculus 2	71%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	86%
	Engineering Ethics	14%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	71%
	Engineering Economy	14%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses General Chemistry 1 & 2 w/lab	General Chemistry 1	100%
	General Chemistry 2	71%
	College Physics 1	86%
	College Physics 2	28%

FOREIGN LANGUAGE	Four-Year Institution	
	Course Name	*Frequency*
	Required	14%

MAJOR COURSES TAG Courses *Introduction to Engineering *Elementary Differential Equations	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	57%
	*Elementary Differential Equations	57%
	Differential Equations for Engineering *(not TAG approved)*	14%
	Chemical Engineering Thermodynamics	100%
	Organic Chemistry for Chemistry Majors 1	85%
	Fluid Mechanics	71%
	Chemical Process Design	71%
	Organic Chemistry for Chemistry Majors 2	57%
	Chemical Kinetics and Reactor Design	57%
	Chemical Engineering Mass Transfer and Separations	57%

[5] Miami, OSU, OU, UAkron, UC, and UT

	Engineering Survey/ Introduction to Chemical Engineering	57%
	Mass and Energy Balance	42%
	University Physics	28%
	Applied Linear Algebra	28%
	Heat Transfer	28%
	Process Dynamics and Control	28%
	C Programming	28%
	Chemical and Bio-Engineering Computation and Statistics	28%
	Transport Phenomena	28%

Civil Engineering

Four-Year Institution

7 (BS)[6]

MATHEMATICS GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses: Calculus 1 & 2	Calculus 1	100%
	Calculus 2	86%
	*Elementary Differential Equations	14%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	100%
	Engineering Ethics	29%
	Professional Ethics	14%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	100%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	College Physics 1	100%
	General Chemistry 1	100%
Recommended Courses: College Physics 1 & 2	College Physics 2	71%
	General Chemistry 2	14%

MAJOR COURSES	Four-Year Institution	
	Course Name	*Frequency*
TAG Courses: *Introduction to Engineering; *Engineering Statics; *Engineering Dynamics; *Elementary Differential Equations	*Introduction to Engineering	71%
	*Engineering Statics	86%
	*Engineering Dynamics	86%
	*Elementary Differential Equations	43%
	Statics *(not TAG approved)*	14%
	Fundamentals of Engineering *(not TAG approved)*	14%
	Differential Equations for Engineers	29%
	Civil Engineering Fundamentals	14%
	Strength/Mechanics of Materials	86%
	Hydraulics/Hydraulic Engineering	72%
	Engineering Statistics	57%
	Steel Design	57%
	Surveying	57%
	Geotechnical Engineering	57%
	Engineering Economics	43%

[6] Cleveland, OSU, OU, UAkron, UC, UT, and YSU

Computer Engineering

Four-Year Institution

6 (BS)[7]

MATHEMATICS GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses Calculus 1 & 2	Calculus 1	100%
	Calculus 2	83%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	67%
	Engineering Ethics	17%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	83%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
Recommended Courses College Physics 1 & 2	College Physics 1	100%
	College Physics 2	83%
	General Chemistry 1	67%

FOREIGN LANGUAGE	Four-Year Institution	
	Course Name	*Frequency*
	Required	17%

MAJOR COURSES TAG Courses *Introduction to Engineering *Calculus 3	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	33%
	*Calculus 3	17%
	Operating Systems	83%
	Computer Organization	67%
	Electronics 1	67%
	Computer Science 1	50%
	Computer Science 2	50%
	Embedded Systems	50%
	Signals and Systems	50%
	Data Structures and Algorithms	50%
	Engineering Statistics	50%
	Computer Systems	33%
	Engineering Economics	33%
	Circuits 1	67%
	Circuits 2	33%
	Computer Networks	33%
	Digital Logic	33%
	Digital Signal Processing	33%
	Digital System Design	33%
	Discrete Mathematics	33%
	Linear Algebra	33%

[7] Cleveland, Miami, OSU, OU, UAkron, and WSU

Electrical Engineering

Four-Year Institution

8 (BS)[8]

MATHEMATICS GENERAL EDUCATION Recommended Courses Calculus 1 & 2	Four-Year Institution	
	Course Name	*Frequency*
	Calculus 1	100%
	Calculus 2	75%
	Probability and Statistics	25%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	88%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	75%
	Microeconomics	25%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION Recommended Courses College Physics 1 & 2	Four-Year Institution	
	Course Name	*Frequency*
	College Physics 1	100%
	General Chemistry 1	88%
	College Physics 2	38%

CORE: PRE-MAJOR REQUIREMENTS	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	13%
	Analytical Foundations of Electrical Engineering	13%
	Applied Probability and Statistics for Electrical Engineers	13%

FOREIGN LANGUAGE	Four-Year Institution	
	Course Name	*Frequency*
	Required	13%

MAJOR COURSES TAG Courses *Introduction to Engineering *Calculus 3	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	38%
	*Calculus 3	63%
	Engineering Statistics	38%
	Engineering Economics	38%
	Engineering Statics	13%
	Electronics 1	63%
	Signals and Systems	63%
	Electric Circuits 1	63%
	Digital Logic Design	50%
	Communication Systems	50%
	Electronics 2	50%

[8] Cleveland, Miami, OSU, OU, UAkron, UC, UT, and WSU

	Practice Evaluation	50%
	Electromagnetics 1	50%
	C Programming	50%
	Differential Equations	50%
	Linear Algebra	38%
	Multivariable Calculus for Engineers	25%
	Electromagnetics 2	25%
	Circuits 2	25%
	Control Systems	25%
	Programming for Engineers	25%
	Embedded System Design	25%
	Energy Conversion	25%
	Engineering Electromagnetics	25%
	Network Performance Analysis	25%
	Semiconductor Devices	25%

Industrial Engineering

	Two-Year Institution		Four-Year Institution	
	1 (AS)[9]		*4 (BS)[10]*	
MATHEMATICS GENERAL EDUCATION Recommended Courses Calculus 1 & 2	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Industrial Calculations	100%	Calculus 1	100%
			Calculus 2	50%
ARTS AND HUMANITIES GENERAL EDUCATION	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Critical Thinking	100%	Any Course	50%
SOCIAL SCIENCES GENERAL EDUCATION	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Principles of Macroeconomics	100%	General Psychology	75%
	Principles of Microeconomics	100%		
NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION Recommended Courses College Physics 1 & 2	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Fundamentals of Physics	100%	College Physics 1	75%
			College Physics 2	75%
			Introduction to Chemistry	50%
			General Chemistry 1	50%
CORE: PRE-MAJOR REQUIREMENTS	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	n/a		*Engineering Statistics	25%
			Fundamentals of Engineering	25%
			Calculus 1	25%
			Linear Algebra	25%
			Introduction to Physics 1	25%
FOREIGN LANGUAGE	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	n/a		Required	25%
MAJOR COURSES TAG Courses *Introduction to Engineering *Engineering Statistics *Engineering Economics	**Two-Year Institution**		**Four-Year Institution**	
	Course Name	*Frequency*	*Course Name*	*Frequency*
	Introduction to Industrial and Engineering Technology	100%	*Engineering Statistics	75%
	Employability Skills	100%	*Engineering Economics	100%
	Manufacturing Foundation	100%	*Introduction to Engineering	25%
	Electrical Systems	100%	Introduction to Computation for ISE	50%
	Hydraulics and Pneumatics 1	100%	Manufacturing Processes	50%
	Co-op Education	100%	Simulation and Stochastic Models	50%

	Hydraulic and Pneumatic Troubleshooting	100%	Design of Work	50%
	Electrical Troubleshooting	100%	Senior Capstone	50%
	Motor and Motor Controls	100%	Simulation of Industrial Engineering Systems	50%
	Programmable Logic Control	100%	Fundamentals of Human Factors Engineering	50%
	Mechanical Maintenance	100%	Statistical Quality Control	50%
	Industrial Calculations	100%	Fundamentals of BIE	25%
	Alternating Current/Direct Current Servos	100%		
	Industrial Machine Maintenance	100%		
	Automated Systems	100%		
	OSHA 10-Hour General Safety	100%		

[9] Clark State

[10] OSU, OU, WSU, and YSU

Mechanical Engineering

Four-Year Institution

9 (BS)[11]

MATHEMATICS GENERAL EDUCATION Recommended Courses Calculus 1 & 2	Four-Year Institution	
	Course Name	*Frequency*
	Calculus 1	100%
	Calculus 2	88%

ARTS AND HUMANITIES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	88%
	Professional/Engineering Ethics	22%

SOCIAL SCIENCES GENERAL EDUCATION	Four-Year Institution	
	Course Name	*Frequency*
	Any Course	66%
	Microeconomics	22%
	Introduction to Economics Analysis	11%

NATURAL AND PHYSICAL SCIENCE GENERAL EDUCATION Recommended Courses College Physics 1 & 2	Four-Year Institution	
	Course Name	*Frequency*
	College Physics 1	88%
	College Physics 2	88%
	General Chemistry 1	88%

CORE: PRE-MAJOR REQUIREMENTS	Four-Year Institution	
	Course Name	*Frequency*
	Fundamentals of Engineering 1	11%
	College Physics 1	11%
	College Physics 2	11%
	General Chemistry for Engineers	11%
	*Engineering Statics	11%
	Engineering Statistics	11%

MAJOR COURSES TAG Courses *Introduction to Engineering *Engineering Statics *Engineering Dynamics *Elementary Differential Equations	Four-Year Institution	
	Course Name	*Frequency*
	*Introduction to Engineering	55%
	*Engineering Statics	77%
	*Dynamics	77%
	*Elementary Differential Equations	67%
	Differential Equations for Engineering (non-TAG)	11%
	Linear Algebra & Differential Equations (non-TAG)	11%
	Static & Particle Dynamics	11%
	Heat Transfer 1	100%
	Strength/Mechanics of Materials	88%

[11] Cleveland, Miami, OSU, OU, UAkron, UC, UT, WSU, and YSU

	Fluid Mechanics	88%
	Engineering Statistics	55%
	Kinematics	55%
	Engineering Economics	44%
	Calculus 3	22%
	Static & Particle Dynamics	11%