

MECHANICAL ENGINEERING

BACHELOR OF SCIENCE - COURSE REQUIREMENTS

CORE Requirements	Credits	Foundational Science and Mathematics Requirements	Credits	Mechanical Engineering Requirements	Credits
CORE 090 First Yr Exp.	1	PHYS 113 Physics for Sc & Eng I	3	PHYS 241 Statics	3
CORE 100 Lib Arts Sem.	3	PHYS 113L Phy for Sc & Eng I Lab	1	PHYS 242 Mechanics of Solids	3
CORE 110 Effect Writ.	3	PHYS 114 Physics for Sc & Eng II	3	PHYS 350 Thermo/Stat. Mech.	3
CORE 115/116 Oral Com.	3	PHYS 114L Phy for Sc & Eng II Lab	1	CS 1xx Comp Prog for Engineers	2
CORE 131/133 Civilization	3	CHEM 113 Gen. Chem. I	3	CS 1xx Comp Prog for Eng Lab	1
CORE 14x Forgn. Lng/Cult	3	CHEM 113L Gen. Chem. I Lab	1	ENGR 100 Introduction to Engineering	1
CORE 15x Social Science ^{1,2}	3	CHEM 114 Gen. Chem. II	3	ENGR 150 Engineering Seminar	2
CORE 16x Literature	3	CHEM 114L Gen. Chem. II Lab	1	ENGR 250 System Design & Analysis	3
CORE 17x The Arts	3	MATH 129 Calculus I	4	ENGR 250L System Design & An Lab	1
CORE 18x Amer. Studies ¹	3	MATH 130 Calculus II	4	ENGR 320 Fluid Mechanics	3
CORE 19x Glbl Studies ^{1,2}	3	MATH 231 Calculus III	4	ENGR 320L Fluid Mechanics Lab	.5
CORE 25x Syst. Theology ²	3	MATH 237 Applied Linear Algebra	3	ENGR 330 Project Mgmt & Eng Econ	3
CORE 26x Mor. Theology ²	3	MATH 238 Differential Equations	3	ENGR 350 Engineering Materials	3
CORE 280 Philosophy I	3			ENGR 350L Engineering Materials Lab	.5
CORE 28x Philosophy II ²	3			ENGR 360 Probability & Eng Statistics	3
				ME 200 Intro to Mechanical Engineering	3
				ME 200L Mechanical Engineering Lab	.5
				ME 300 Mechanical Design	3
				ME 300L Mechanical Design Lab	1
				ME 320 Manufacturing Systems	3
				ME 320L Manufacturing Systems Lab	.5
				ME 340 Vibrations and Dynamic Systems	3
				ME 360 Heat Transfer	3
				ME 360L Heat Transfer Lab	1
				ME 380 Mechatronics	3
				ME 380L Mechatronics Lab	1
				ME 420 Machine Design	3
				ME 420L Machine Design Lab	1
				ME 480 Senior ME Seminar	2
				Engineering Elective	3
	43		34		63

Total Credits = 140

¹Students are required to take CORE 150, CORE 180 **OR** CORE 190 to fulfill the Interdisciplinary CORE requirement.

- If a student takes CORE 150, then choose from 181 – 188 to fulfill the 18x requirement AND from 191 – 198 to fulfill the 19x requirement.
- If a student takes CORE 180, then choose from 151 – 158 to fulfill the 15x requirement AND from 191 – 198 to fulfill the 19x requirement.
- If a student takes CORE 190, then choose from 151 – 158 to fulfill the 15x requirement AND from 181 – 188 to fulfill the 18x requirement.

²ME students are encouraged to take the following CORE courses:

- CORE 153 Macro Economics to fulfill the Social Science requirement
- CORE 193 Globalization to fulfill the Global Studies requirement.
- MSB 287 Business Ethics, CORE 284 Environmental Ethics, or CORE 288 Bioethics to fulfill the Philosophy II requirement.
- CORE 256 Science, Technology & Culture to fulfill the Systematic Theology Requirement
- CORE 265 Christian Ethics and the Environment to fulfill the Moral Theology Requirement

Mechanical Engineering students are eligible to sit for industry certification exams based on the completion of the following courses:

- ENGR 330: Proj Mgmt & Eng Econ: Certified Associate in Project Management (CAPM)[®] - Project Management Institute
- ME 480 Senior ME Seminar: Fundamentals of Engineering – Mechanical (NCEES)

MECHANICAL ENGINEERING

SUGGESTED SEQUENCE – 4 YEAR PROGRAM

- Use the information below as a guide when selecting courses.
- Refer to the reverse side when selecting major courses, major electives, core courses, and free electives when applicable.
- Consult your Academic Advisor prior to course registration.
- Refer to the King's College Catalog and/or website for course titles and descriptions.
- Choose one course from each CORE category as listed on the reverse side.
 - CORE courses may be taken in any order approved by the academic advisor with the following conditions:
 - CORE 100 and CORE 110 should be taken in the first year.
 - CORE 115 (or 116) should be taken within the first two years.
 - CORE 098, CORE 099, and/or CORE 110L, if required, will fulfill general elective credits.
 - For students selecting a Foreign Language (CORE 14x), every effort should be made to register for that language in the first available semester at King's.

1st Year - Fall		cr.	1st Year - Spring		cr.
_____	CHEM 113 Gen. Chem. I	3	_____	CHEM 114 Gen. Chem. II	3
_____	CHEM 113L Gen. Chem. I Lab	1	_____	CHEM 114L Gen. Chem. II Lab	1
_____	PHYS 113 Physics for Scientists & Engineers I	3	_____	PHYS 114 Physics for Scientists & Engineers II	3
_____	PHYS 113L Physics for Scientists & Eng I Lab	1	_____	PHYS 114L Physics for Scientists & Eng II Lab	1
_____	MATH 129 Calculus I	4	_____	MATH 130 Calculus II	4
_____	ENGR 100 Introduction to Engineering	1	_____	ENGR 150 Engineering Seminar	2
_____	CORE	3	_____	CORE	3
_____	CORE 090 First Year Exp.	1			
		17			17
2nd Year - Fall			2nd Year - Spring		
_____	ME 200 Intro to Mechanical Engineering	3	_____	ENGR 250 System Design & Analysis	3
_____	ME 200L Mechanical Engineering Lab	.5	_____	ENGR 250L System Design & Analysis Lab	1
_____	MATH 231 Calculus III	4	_____	ENGR 330 Project Mgmt & Eng Econ	3
_____	MATH 237 Applied Linear Algebra	3	_____	PHYS 241 Statics	3
_____	CS 1xx Computer Programming for Engineers	2	_____	MATH 238 Differential Equations	3
_____	CS 1xxL Computer Prog for Engineers Lab	1	_____	CORE	3
_____	CORE	3	_____	CORE	3
		16.5			19*
3rd Year - Fall			3rd Year - Spring		
_____	ENGR 320 Fluid Mechanics	3	_____	ME 360 Heat Transfer	3
_____	ENGR 320L Fluid Mechanics Lab	0.5	_____	ME 360L Heat Transfer Lab	1
_____	ENGR 350 Engineering Materials	3	_____	ME 320 Manufacturing Systems	3
_____	ENGR 350L Engineering Materials Lab	0.5	_____	ME 320L Manufacturing Systems Lab	.5
_____	ME 300 Mechanical Design	3	_____	ENGR 360 Probability & Engineering Statistics	3
_____	ME 300L Mechanical Design Lab	1	_____	PHYS 242 Mechanics of Solids	3
_____	PHYS 350 Thermodynamics	3	_____	CORE	3
_____	CORE	3			
		17			16.5
4th Year - Summer					
Summer Co-Op					
4th Year - Fall			4th Year - Spring		
_____	ME 340 Vibrations and Dynamic Systems	3	_____	ME 480 Senior ME Seminar	2
_____	Engineering Elective	3	_____	ME 420 Machine Design	3
_____	ME 380 Mechatronics	3	_____	ME 420L Machine Design Lab	1
_____	ME 380L Mechatronics Lab	1	_____	CORE	3
_____	CORE	3	_____	CORE	3
_____	CORE	3	_____	CORE	3
_____	CORE	3	_____	CORE	3
		19*			18*

Total Credits Required for Graduation = 140

* Students are encouraged to take a summer course to relieve the credit load during this semester

MECHANICAL ENGINEERING

SUGGESTED SEQUENCE – 5 YEAR PROGRAM WITH CO-OP

- Use the information below as a guide when selecting courses.
- Refer to the reverse side when selecting major courses, major electives, core courses, and free electives when applicable.
- Consult your Academic Advisor prior to course registration.
- Refer to the King's College Catalog and/or website for course titles and descriptions.
- Choose one course from each CORE category as listed on the reverse side.
 - CORE courses may be taken in any order approved by the academic advisor with the following conditions:
 - CORE 100 and CORE 110 should be taken in the first year.
 - CORE 115 (or 116) should be taken within the first two years.
 - CORE 098, CORE 099, and/or CORE 110L, if required, will fulfill general elective credits.
 - For students selecting a Foreign Language (CORE 14x), every effort should be made to register for that language in the first available semester at King's.

1st Year - Fall		cr.	1st Year - Spring		cr.
_____	CHEM 113 Gen. Chem. I	3	_____	CHEM 114 Gen. Chem. II	3
_____	CHEM 113L Gen. Chem. I Lab	1	_____	CHEM 114L Gen. Chem. II Lab	1
_____	PHYS 113 Physics for Scientists & Engineers I	3	_____	PHYS 114 Physics for Scientists & Engineers II	3
_____	PHYS 113L Physics for Scientists & Eng I Lab	1	_____	PHYS 114L Physics for Scientists & Eng II Lab	1
_____	MATH 129 Calculus I	4	_____	MATH 130 Calculus II	4
_____	ENGR 100 Introduction to Engineering	1	_____	ENGR 150 Engineering Seminar	2
_____	CORE	3	_____	CORE	3
_____	CORE 090 First Year Exp.	1			
		17			17
2nd Year - Fall			2nd Year - Spring		
_____	ME 200 Intro to Mechanical Engineering	3	_____	ENGR 250 System Design & Analysis	3
_____	ME 200L Mechanical Engineering Lab	.5	_____	ENGR 250L System Design & Analysis Lab	1
_____	MATH 231 Calculus III	4	_____	ENGR 330 Project Mgmt & Eng Econ	3
_____	MATH 237 Applied Linear Algebra	3	_____	PHYS 241 Statics	3
_____	CS 1xx Computer Programming for Engineers	2	_____	MATH 238 Differential Equations	3
_____	CS 1xxL Computer Prog for Engineers Lab	1	_____	CORE	3
_____	CORE	3			
		16.5			16
3rd Year - Fall			3rd Year - Spring		
_____	ENGR 320 Fluid Mechanics	3	_____	ME 360 Heat Transfer	3
_____	ENGR 320L Fluid Mechanics Lab	0.5	_____	ME 360L Heat Transfer Lab	1
_____	ENGR 350 Engineering Materials	3	_____	ME 320 Manufacturing Systems	3
_____	ENGR 350L Engineering Materials Lab	0.5	_____	ME 320L Manufacturing Systems Lab	.5
_____	ME 300 Mechanical Design	3	_____	PHYS 242 Mechanics of Solids	3
_____	ME 300L Mechanical Design Lab	1	_____	CORE	3
_____	PHYS 350 Thermodynamics	3			
_____	CORE	3			
		17			13.5
4th Year Fall			4th Year Spring		
_____	ME 340 Vibrations and Dynamic Systems	3	_____	ENGR 360 Probability & Engineering Statistics	3
_____	ME 380 Mechatronics	3	_____	Engineering Elective	3
_____	ME 380L Mechatronics Lab	1	_____	CORE	3
_____	CORE	3	_____	CORE	3
_____	CORE	3	_____	CORE	3
		13			15
5th Year - Fall			5th Year - Spring		
_____	Engineering Co-Op		_____	ME 480 Senior ME Seminar	2
			_____	ME 420 Machine Design	3
			_____	ME 420L Machine Design Lab	1
			_____	CORE	3
			_____	CORE	3
			_____	CORE	3
					15

Total Credits Required for Graduation = 140

* Students are encouraged to take a summer course to relieve the credit load during this semester

MECHANICAL ENGINEERING

SUGGESTED SEQUENCE – 4 YEAR PROGRAM – FOR 3+2 PHYSICS STUDENTS TRANSITIONING IN 3RD YEAR

- Use the information below as a guide when selecting courses.
- Refer to the reverse side when selecting major courses, major electives, core courses, and free electives when applicable.
- Consult your Academic Advisor prior to course registration.
- Refer to the King's College Catalog and/or website for course titles and descriptions.
- Choose one course from each CORE category as listed on the reverse side.
 - CORE courses may be taken in any order approved by the academic advisor with the following conditions:
 - CORE 100 and CORE 110 should be taken in the first year.
 - CORE 115 (or 116) should be taken within the first two years.
 - CORE 098, CORE 099, and/or CORE 110L, if required, will fulfill general elective credits.
 - For students selecting a Foreign Language (CORE 14x), every effort should be made to register for that language in the first available semester at King's.

1 st Year - Fall		cr.	1 st Year - Spring		cr.
_____	CHEM 113 Gen. Chem. I	3	_____	CHEM 114 Gen. Chem. II	3
_____	CHEM 113L Gen. Chem. I Lab	1	_____	CHEM 114L Gen. Chem. II Lab	1
_____	PHYS 113 Physics for Scientists & Engineers I	3	_____	PHYS 114 Physics for Scientists & Engineers II	3
_____	PHYS 113L Physics for Scientists & Eng I Lab	1	_____	PHYS 114L Physics for Scientists & Eng II Lab	1
_____	MATH 129 Calculus I	4	_____	MATH 130 Calculus II	4
_____	ENGR 100 Introduction to Engineering	1	_____	ENGR 150 Engineering Seminar	2
_____	CORE	3	_____	CORE	3
_____	CORE 090 First Year Exp.	1			
		17			17
2 nd Year - Fall			2 nd Year - Spring		
_____	PHYS 231 Modern Physics	3	_____	ENGR 250 System Design & Analysis	3
_____	PHYS 231L Modern Physics Lab	1	_____	ENGR 250L System Design & Analysis Lab	1
_____	MATH 231 Calculus III	4	_____	PHYS 330 Classical Mechanics	3
_____	MATH 237 Applied Linear Algebra	3	_____	PHYS 241 Statics	3
_____	CS 1xx Computer Programming for Engineers	2	_____	MATH 238 Differential Equations	3
_____	CS 1xxL Computer Prog for Engineers Lab	1	_____	CORE	3
_____	CORE	3			
		17			16
3 rd Year - Summer					
_____	ENGR 330 Project Mgmt & Eng Econ	3	_____	ENGR 350 Engineering Materials	3
_____	CORE	3	_____	ENGR 350L Engineering Materials Lab	0.5
					9.5
3 rd Year - Fall			3 rd Year - Spring		
_____	ME 200 Intro to Mechanical Engineering	3	_____	ME 360 Heat Transfer	3
_____	ME 200L Mechanical Engineering Lab	.5	_____	ME 360L Heat Transfer Lab	1
_____	ENGR 320 Fluid Mechanics	3	_____	ME 320 Manufacturing Systems	3
_____	ENGR 320L Fluid Mechanics Lab	0.5	_____	ME 320L Manufacturing Systems Lab	.5
_____	ME 300 Mechanical Design	3	_____	ENGR 360 Probability & Engineering Statistics	3
_____	ME 300L Mechanical Design Lab	1	_____	PHYS 242 Mechanics of Solids	3
_____	PHYS 350 Thermodynamics	3	_____	CORE	3
_____	CORE	3			
		17			16.5
4 th Year - Summer					
Summer Co-Op					
4 th Year - Fall			4 th Year - Spring		
_____	ME 340 Vibrations and Dynamic Systems	3	_____	ME 480 Senior ME Seminar	2
_____	Engineering Elective 1	3	_____	ME 420 Machine Design	3
_____	ME 380 Mechatronics	3	_____	ME 420L Machine Design Lab	1
_____	ME 380L Mechatronics Lab	1	_____	CORE	3
_____	CORE	3	_____	CORE	3
_____	CORE	3	_____	CORE	3
_____	CORE	3	_____	CORE	3
		19*			18*

Total Credits Required for Graduation = 147

* Students are encouraged to take a summer course to relieve the credit load during this semester

PHYSICS - MECHANICAL ENGINEERING

SUGGESTED SEQUENCE – 5 YEAR PROGRAM – FOR 3+2 PHYSICS STUDENTS TRANSITIONING IN 4TH YEAR

- Use the information below as a guide when selecting courses.
- Refer to the reverse side when selecting major courses, major electives, core courses, and free electives when applicable.
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1 st Year - Fall		cr.	1 st Year - Spring		cr.
CHEM 113 Gen. Chem. I		3	CHEM 114 Gen. Chem. II		3
CHEM 113L Gen. Chem. I Lab		1	CHEM 114L Gen. Chem. II Lab		1
PHYS 113 Physics for Scientists & Engineers I		3	PHYS 114 Physics for Scientists & Engineers II		3
PHYS 113L Physics for Scientists & Eng I Lab		1	PHYS 114L Physics for Scientists & Eng II Lab		1
MATH 129 Calculus I		4	MATH 130 Calculus II		4
ENGR 100 Introduction to Engineering		1	ENGR 150 Engineering Seminar		2
CORE		3	CORE		3
CORE 090 First Year Exp.		1			
		17			17
2 nd Year - Fall			2 nd Year - Spring		
PHYS 231 Modern Physics		3	ENGR 250 System Design & Analysis		3
PHYS 231L Modern Physics Lab		1	ENGR 250L System Design & Analysis Lab		1
MATH 231 Calculus III		4	PHYS 330 Classical Mechanics		3
MATH 237 Applied Linear Algebra		3	PHYS 241 Statics		3
CS 1xx Computer Programming for Engineers		2	MATH 238 Differential Equations		3
CS 1xxL Computer Prog for Engineers Lab		1	CORE		3
CORE		3			
		17			16
3 rd Year - Fall			3 rd Year - Spring		
PHYS 371 Electricity & Magnetism I		3	PHYS 440 Quantum Mech.		3
PHYS 350 Thermo/Stat. Mech.		3	PHYS 242 Mechanics of Solids		3
MATH 361 Probability & Statistics ¹		3	PHYS 490 Senior Seminar		2
or CORE		-	CORE		3
CORE		3	CORE		3
CORE		3	CORE		3
CORE		3			
		18*			17
4 th Year - Fall			4 th Year - Spring		
ME 200 Intro to Mechanical Engineering		3	ENGR 330 Project Mgmt & Eng Econ		3
ME 200L Mechanical Engineering Lab		.5	ME 360 Heat Transfer		3
ENGR 320 Fluid Mechanics		3	ME 360L Heat Transfer Lab		1
ENGR 320L Fluid Mechanics Lab		0.5	ME 320 Manufacturing Systems		3
ENGR 350 Engineering Materials		3	ME 320L Manufacturing Systems Lab		.5
ENGR 350L Engineering Materials Lab		0.5	ENGR 360 Probability & Eng Statistics ¹		3
ME 300 Mechanical Design		3	or CORE		-
ME 300L Mechanical Design Lab		1			
		14.5			13.5
5 th Year - Fall			5 th Year - Spring		
ME 340 Vibrations and Dynamic Systems		3	ME 480 Senior ME Seminar		2
Engineering Elective 1		3	ME 420 Machine Design		3
ME 380 Mechatronics		3	ME 420L Machine Design Lab		1
ME 380L Mechatronics Lab		1	CORE		3
CORE		3	CORE		3
		13			12

Total Credits Required for Graduation = 155