

# ROBOTICS ENGINEERING (BS)

Course	Title	Credit Hours
<b>First Year</b>		
<b>Fall</b>		
ENGL 1101	English Composition I (minimum grade of C)	3
MATH 1131	Calculus with Analytic Geometry I (minimum grade of C; 3 credits Area A and 1 credit Area F)	4
CHEM 1211	Principles of Chemistry I (minimum grade of C)	3
CHEM 1211L	Principles of Chemistry I Lab (minimum grade of C)	1
ENGR 2255	Engineering Graphics and Computer Aided Design (minimum grade of C)	3
Institutional Priorities	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1
ENGR 1701	Introduction to Robotics (minimum grade of C)	1
<b>Credit Hours</b>		<b>16</b>
<b>Spring</b>		
ENGL 1102	English Composition II (minimum grade of C)	3
MATH 1132	Calculus with Analytic Geometry II (minimum grade of C)	4
PHYS 2211	Principles of Physics I (minimum grade of C)	3
PHYS 2311	Principles of Physics I Lab (minimum grade of C)	1
Program Electives	Elective (minimum grade of C)	3
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2
<b>Credit Hours</b>		<b>16</b>
<b>Second Year</b>		
<b>Fall</b>		
MATH 2115	Introduction to Linear Algebra (minimum grade of C)	3
PHYS 2212	Principles of Physics II (minimum grade of C)	3
PHYS 2312	Principles of Physics II Lab (minimum grade of C)	1
ENGR 2115	Statics (minimum grade of C)	3
ENGR 2221	Computing for Engineers 1 (minimum grade of C)	3
Social Sciences	Behavioral Science <sup>1</sup>	3
<b>Credit Hours</b>		<b>16</b>
<b>Spring</b>		
MATH 3107	Differential Equations (minimum grade of C)	3
ENGR 2206	Digital Logic (minimum grade of C)	4

ENGR 2125	Dynamics of Rigid Bodies (minimum grade of C)	3
Program Electives	Elective (minimum grade of C)	3
Institutional Options	COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002	3
<b>Credit Hours</b>		<b>16</b>
<b>Third Year</b>		
<b>Fall</b>		
MATH 2135	Calculus with Analytic Geometry 3 (minimum grade of C)	4
ENGR 3236	Introduction to Signal Processing (minimum grade of C)	3
ENGR 3235	Circuit Analysis (minimum grade of C)	3
Arts, Humanities, and Ethics	Humanities Elective	3
ENGR 3245	Robotics Engineering Design Lab (minimum grade of C)	2
<b>Credit Hours</b>		<b>15</b>
<b>Spring</b>		
MATH 3175	Introduction to Probability (minimum grade of C)	3
ENGR 3275	Feedback Control Systems (minimum grade of C)	3
ENGR 3255	Sensors and Actuators (minimum grade of C)	3
Arts, Humanities, and Ethics	Fine Arts Elective	3
Health and Wellness	PEDS Physical Education course 1***	1
Program Electives	Elective (minimum grade of C)	3
<b>Credit Hours</b>		<b>16</b>
<b>Fourth Year</b>		
<b>Fall</b>		
ENGR 4391	Robotics Senior Design 1 (minimum grade of C)	2
ENGR 5161U	Elements of Machine Intelligence (minimum grade of C)	3
ENGR 5176U	Kinematics and Dynamics (minimum grade of C)	3
ENGR 5236U	Microelectronic Circuits (minimum grade of C)	3
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
<b>Credit Hours</b>		<b>14</b>
<b>Spring</b>		
ENGR 4392	Robotics Senior Design 2 (minimum grade of C)	2
ENGR 5238U	Introduction to Embedded Systems (minimum grade of C)	3
POLS 1101	American Government	3
ENGR 5151U	Computer Vision 1 (minimum grade of C)	3

Social Sciences	World Cultures Elective	3
<b>Credit Hours</b>		<b>14</b>
<b>Total Credit Hours</b>		<b>123</b>

<sup>1</sup> Students are recommended to take ECON 2105 Macroeconomics or ECON 2106 Microeconomics as their Social Sciences: Behavioral Science course.

## Additional Notes

- Courses in Areas B, C, E, and Wellness are interchangeable and can be taken at any time, with a recommendation of only taking one per semester to spread them out.
- This course map assures placement in MATH 1131 Calculus I first fall semester. If the student is not able to take it first semester, then many courses are pushed back one year (Physics, Statics, and anything that has those as prerequisites). Students are highly encouraged to take a math placement test as soon as possible before their first semester.
- Students are recommended to take ECON 2105 or ECON 2106 as their Area E Behavioral Science course.
- This program map illustrates appropriate coursework for completing a degree within four years, provided the course grades allow for earned credit. Please consult with your advisor to determine when courses can be switched out with others and taken in a different semester or sequence than illustrated since not all courses are taught every semester. This map is for illustrative purposes only and does not constitute a legal contract on the part of CSU since degree requirements or course offerings could change. As always, check with your advisor.