

# MAXELL, LTD. BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Electrical Engineering has changed the way people around the world lead their daily lives. This discipline is concerned with the design of circuits and devices to collect, elaborate, store, transfer and display information in electrical form. Electrical Engineering covers a diverse range of areas e.g., control systems, medical devices, personal computers and networks, high-speed telecommunications devices, multi-media entertainment, and aerospace systems. Therefore, an electrical engineer can design a broad range of devices in a wide spectrum of applications.

Electrical Engineering is a field with diverse challenges and many opportunities. Advances in the technological sector have increased the opportunities for Electrical Engineers as new electronic devices, materials and products are developed and brought to market. Increasing globalization has created new markets and new opportunities around the world, and thus an Electrical Engineer is now globally marketable. Therefore, career prospects for new graduates in Electrical Engineering are excellent. A report published by the National Science Foundation indicates that the national average annual salary for Electrical/Computer Engineering graduates is one of the highest at the BS degree level. A degree in Electrical Engineering is therefore an excellent stepping stone to an intellectually and financially rewarding career in design, development, or research. Electrical Engineering also opens doors to other areas of industry such as management, sales and marketing, as well as to other professions, e.g., medicine, law, and business.

## Degree Requirements

Students should refer to their DegreeWorks degree audit in their Web for Students account for more information regarding their degree requirements.

Code	Title	Hours
<b>Major Requirements</b>		
	General Education Requirements ( <a href="http://catalog.tamut.edu/academic-information/university-core-curriculum/">http://catalog.tamut.edu/academic-information/university-core-curriculum/</a> )	42
PHYS 2325	University Physics I <sup>1</sup>	3
PHYS 2125	University Physics I Lab	1
PHYS 2326	University Physics II <sup>1</sup>	3
PHYS 2126	University Physics II Lab	1
CHEM 1307 or CHEM 1311	General Chemistry for Engineering Students <sup>1</sup>	3
CHEM 1117 or CHEM 1111	General Chemistry for Engineering Students Lab General Chemistry I (Lab)	1
MATH 2413	Calculus I <sup>1</sup>	4
MATH 2414	Calculus II	4
MATH 2415	Calculus III	4
MATH 2318	Linear Algebra	3
MATH 2320	Differential Equations	3
ENGR 1201	Introduction to Engineering	2
ENGR 2305	Electric Circuits I	3
ENGR 2105	Electric Circuits Laboratory	1
ENGR 2304	Programming for Engineers	3
<b>Electrical Engineering Core Courses</b>		
EE 319	Electric Circuits II (EL)	3
EE 321	Digital Logic	3
EE 322	Digital Logic Laboratory	1
EE 325	Signals and Systems	3
EE 326	Signals and Systems Lab	1
EE 335	Electronics I	3
EE 336	Electronics Laboratory	1
EE 429	Introduction to Communication Systems	3
EE 345	Introduction to Electromagnetic Theory	3
ENGR 307	Probability and Statistics for Engineers.	3
EE 490	EE Senior Design I	3
EE 491	EE Senior Design II	3

## Advanced Electrical Engineering Courses

EE 305	Fundamentals of Power Systems	3
EE 306	Electric Power and Machinery Lab	1
EE 432	Control Systems	3
EE 445	Embedded Systems	3
EE 446	Embedded Systems Lab	1
EE 474	Power Systems Analysis and Control	3
ENGR 312	Engineering and Business Ethics	3
9sch Upper Division (300 or 400 level) from EE or ENGR courses, or CS 420		9
<b>Minimum Hours for Degree</b>		<b>125</b>

<sup>1</sup> Satisfies Core Curriculum

NOTE: A minimum of 45 upper division hours (300 and 400 level courses) are required for this degree. Resident credit totaling 25% of the hours is required for the degree. A minimum GPA of 2.0 is required in 3 areas for graduation: Overall GPA, Institutional GPA, and Major GPA.

## Maxell, Ltd. Bachelor of Science in Electrical Engineering - Four Year Plan

### First Year

Code	Title	Hours
		Semester Credit Hours
<b>Fall</b>		
CHEM 1311 or CHEM 1307	General Chemistry I Satisfies Core Curriculum General Chemistry for Engineering Students	3
CHEM 1111 or CHEM 1117	General Chemistry I (Lab) Satisfies Core Curriculum General Chemistry for Engineering Students Lab	1
ENGL 1301	Composition I requires minimum grade of 'C', Satisfies Core Curriculum	3
ENGR 1201	Introduction to Engineering	2
MATH 2413	Calculus I Satisfies Core Curriculum	4
Language, Philosophy and Culture Core Curriculum Requirement ( <a href="http://catalog.tamut.edu/academic-information/university-core-curriculum/">http://catalog.tamut.edu/academic-information/university-core-curriculum/</a> )		3
<b>Fall Total Semester Credit Hours</b>		<b>17-18</b>
UNIV 1100	University Foundations	1
<b>Spring</b>		
ENGL 1302 or ENGL 2311	Composition II Satisfies Core Curriculum Technical Writing & Communication	3
ECON 2301	Principles of Macroeconomics Satisfies Core Curriculum	3
HIST 1301	United States History I	3
MATH 2414	Calculus II	4
PHYS 2325 & PHYS 2125	University Physics I and University Physics I Lab	4
<b>Spring Total Semester Credit Hours</b>		<b>17</b>
<b>Total First Year Semester Credit Hours</b>		<b>34-35</b>

### Second Year

Code	Title	Hours
		Semester Credit Hours
<b>Fall</b>		
MATH 2415	Calculus III	4
PHYS 2326 & PHYS 2126	University Physics II and University Physics II Lab	4

PSCI 2305	U.S. Government and Politics	3
ENGR 2304	Programming for Engineers	3
SPCH 1315 or COMM 1307 or COMM 1311	Public Speaking Introduction to Mass Communication Introduction to Communication Studies	3
<b>Fall Total Semester Credit Hours</b>		<b>17</b>
<b>Spring</b>		<b>Semester Credit Hours</b>
ENGR 2305	Electric Circuits I	3
ENGR 2105	Electric Circuits Laboratory	1
MATH 2320	Differential Equations	3
MATH 2318	Linear Algebra	3
PSCI 2306	State and Local Government	3
HIST 1302	United States History II	3
<b>Spring Total Semester Credit Hours</b>		<b>16</b>
<b>Total Second Year Semester Credit Hours</b>		<b>33</b>

## Third Year

Code	Title	Hours
		Semester Credit Hours
<b>Fall</b>		
EE 305	Fundamentals of Power Systems	3
EE 306	Electric Power and Machinery Lab	1
ENGR 307	Probability and Statistics for Engineers.	3
EE 319	Electric Circuits II (EL)	3
EE 321	Digital Logic	3
EE 322	Digital Logic Laboratory	1
<b>Fall Total Semester Credit Hours</b>		<b>14</b>
<b>Spring</b>		<b>Semester Credit Hours</b>
EE 325	Signals and Systems	3
EE 326	Signals and Systems Lab	1
EE 335	Electronics I	3
EE 336	Electronics Laboratory	1
EE 345	Introduction to Electromagnetic Theory	3
Creative Arts Core Curriculum Requirement ( <a href="http://catalog.tamut.edu/academic-information/university-core-curriculum/">http://catalog.tamut.edu/academic-information/university-core-curriculum/</a> )		
<b>Spring Total Semester Credit Hours</b>		<b>14</b>
<b>Total Third Year Semester Credit Hours</b>		<b>28</b>

## Fourth Year

Code	Title	Hours
		Semester Credit Hours
<b>Fall</b>		
EE 429	Introduction to Communication Systems	3
EE 445	Embedded Systems	3
EE 446	Embedded Systems Lab	1
EE 490	EE Senior Design I	3
Upper Division Prescribed Electrical Engineering Electives	Any Upper Division (300-400 level) EE or ENGR course, or CS 420	3

Upper Division Prescribed Electrical Engineering Electives	Any Upper Division (300-400 level) EE or ENGR course, or CS 420	3
<b>Fall Total Semester Credit Hours</b>		<b>16</b>
<b>Spring</b>		<b>Semester Credit Hours</b>
ENGR 312	Engineering and Business Ethics	3
EE 474	Power Systems Analysis and Control	3
EE 491	EE Senior Design II	3
EE 432	Control Systems	3
Upper Division Prescribed Electrical Engineering Elective	Any Upper Division (300-400 level) EE or ENGR course, or CS 420	3
<b>Spring Total Semester Credit Hours</b>		<b>15</b>
<b>Total Fourth Year Semester Credit Hours</b>		<b>31</b>
<b>Minimum Hours for Degree</b>		<b>125-126</b>

NOTE: A minimum of 45 upper division hours (300 and 400 level courses) are required for this degree. Resident credit totaling 25% of the hours is required for the degree. A minimum GPA of 2.0 is required in 3 areas for graduation: Overall GPA, Institutional GPA, and Major GPA.