

# ACCELERATED 3+2 DUAL DEGREE PROGRAM IN PHYSICS (B.S.) AND APPLIED PHYSICS AND ENGINEERING (M.S.)

This Dual Degree curriculum can be completed in five years to obtain a B.S. in Physics in 3.5 years and a M.S. in Applied Physics and Engineering in 1.5 years. This dual degree program meets all requirements for the undergraduate and graduate degree program. A three-credit advanced undergraduate elective course (cross-listed) will be applied toward the graduate degree. All other requirements in both undergraduate and graduate level will be fulfilled under this dual degree program.

Students need to be placed in Calculus I (not pre-calculus) and Physics classes (Principles of Physics) on their first year and follow the curriculum course structure closely in order to finish both programs in five years. During their seventh semester, students take one graduate elective course (3 credit hour), which is double counted for one of their undergraduate elective courses. After finishing 120 credits and maintain an overall GPA of 3.0 or above in their seventh semester, students can start taking graduate courses in their eighth semester and finish the graduate courses in their fifth year.

Students need to be placed in MATH 1401 Calculus I (not pre-calculus) and PHYS 1705 Principles of Physics I on their first year and follow the curriculum course structure closely in order to finish both programs in five years. During their seventh semester, students take one graduate elective course (3 credit hour), which is double counted for one of their undergraduate elective courses. After finishing 120 credits and maintain an overall GPA of 3.0 or above in their seventh semester, students can start taking graduate courses in their eighth semester and finish the graduate courses in their fifth year.

## Model Program for SHU 5 year Dual Degree B.S.+M.S. (Physics + Applied Physics and Engineering)

Course	Title	Hours
<b>First Year</b>		
<b>First Semester</b>		
PHYS 1705	Principles of Physics I	3
PHYS 1815	Physics Lab and Data Analy I	2
MATH 1501	Calculus I - Math - Phys Sci	4
ENGL 1201	Core English I	3
CORE 1001	University Life	1
CORE 1101	Journey of Transformation	3
<b>Hours</b>		<b>16</b>
<b>Second Semester</b>		
PHYS 1706	Principles of Physics II	3
PHYS 1816	Physics Lab and Data Analy II	1
MATH 1511	Calculus II - Math - Phys Sci	4
ENGL 1202	Core English II	3
BS Core Course		3
Diversity Course		3
<b>Hours</b>		<b>17</b>

<b>Second Year</b>		
<b>First Semester</b>		
PHYS 2883	Electronics I	3
PHYS 2185	Intro to Modern Physics	4
MATH 2511	Calculus III - Math - Phys Sci	4
CHEM 1107 or CHEM 1123 <i>and</i> CHEM 1125	Principles of Chemistry I or General Chemistry I <i>and</i> General Chemistry Lab I	5
<b>Hours</b>		<b>16</b>
<b>Second Semester</b>		
PHYS 2186	Waves and Oscillations	3
PHYS 2112	Phys Appl of Math Techniques	4
CSAS 1113	Computing for Science Majors	4
CORE 2101	Christianity and Cult in Dial.	3
CHEM 1108 or CHEM 1124 <i>and</i> CHEM 1126	Principles of Chemistry II or General Chemistry II <i>and</i> General Chemistry II Lab	4
<b>Hours</b>		<b>18</b>
<b>Third Year</b>		
<b>First Semester</b>		
PHYS 3121	Mechanics I	3
PHYS 3185	Electricity and Magnetism I	3
PHYS 3119	Math Methods of Physics I	4
PHYS 3812	Advanced Laboratory I	2
BS Core Course		3
BS Core Course		3
<b>Hours</b>		<b>18</b>
<b>Second Semester</b>		
PHYS 3122	Mechanics II	3
PHYS 4211	Quantum Mechanics I	3
PHYS 3217	Modern Optics	3
PHYS 3815	Advanced Laboratory II	2
Core Course		3
CORE 3XXX: Engaging the World		3
<b>Hours</b>		<b>17</b>
<b>Fourth Year</b>		
<b>First Semester</b>		
PHYS 4812 or PHYS 4290	Advanced Laboratory III or Research in Physics I	2
PHYS 4014/6014	*	2
BS Core Course		3
BS Core Course		3
BS Core Course		3
BS Core Course		3
<b>Hours</b>		<b>16</b>
<b>Second Semester</b>		
PHYS 6186/3186	Electricity and Magnetism II	3
Graduate Electives		3
Graduate Electives		3
<b>Hours</b>		<b>9</b>
<b>Fifth Year</b>		
<b>First Semester</b>		
PHYS 6412/4212	Quantum Mechanics II	3
PHYS 6121	Advanced Mechanics	3
PHYS 4219/6219	Statistical Physics **	3
<b>Hours</b>		<b>9</b>
<b>Second Semester</b>		
PHYS 6100	Literature Sem - Thesis	1
PHYS 6101/6102/6103/6104/4290	Research in Physics	2
PHYS 6101/6102/6103/6104/4290	Research in Physics	2

2 Accelerated 3+2 Dual Degree Program in Physics (B.S.) and Applied Physics and Engineering (M.S.)

PHYS 6101/6102/6103/6104/429	Research in Physics	2
PHYS 6101/6102/6103/6104/4290	Research in Physics	2
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>145</b>

\* Counts toward M.S. Degree.

\*\*Or General Elective if already taken PHYS 4219 Statistical  
Physics/PHYS 6219 Statistical Physics or PHYS 6412 Quantum  
Mechanics II/PHYS 4212 Quantum Mechanics II