**PHY Physics**

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**PHY.110 Applied Physics**

This course surveys various ideas in physics with an emphasis on problem solving and applications from many technical areas. Concepts studied include measurement, laws of motion, the resolution of forces, work and energy, simple machines, and properties of matter. Students must provide a hand-held scientific calculator.

Offered: Spring
Prerequisites: Take MAT.101
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AAS, AGS, and Certificates where applicable (1.1).
General Education – AGS Only

**PHY.130 The Physical Universe**

This course is a study of the universe and the attempts of persons to understand it. Topics covered include techniques of investigation; instrumentation; organization and history of the solar system; birth, life, and death of a star; origin, history, and future of the universe; prospects for extraterrestrial life forms.

Offered: Fall or Spring
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AA, AS, AFA, AAS, AGS, and Certificates where applicable (1.1).  
IAI Course No. P1 906
General Education – Science

**PHY.151 General Physics 1**

This course is the first semester of a two-semester sequence in pre-calculus based physics. It is appropriate for students in pre-dental, pre-medical, nursing, education, and other programs which require a beginning course in physics. The course includes the study of mechanics, vibratory motion and waves, fundamentals of heat and thermodynamics.

Offered: Fall
Prerequisites: MAT.140 or concurrent enrollment
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AA, AS, AFA, AAS, AGS, and Certificates where applicable (1.1).  
IAI Course No. P1 900L
General Education – Science

**PHY.152 General Physics 2**

This course is a continuation of PHY 151. Topics covered include electricity and magnetism, electromagnetic waves, optics, and an introduction to modern physics.

Offered: Spring
Prerequisites: Take PHY.151
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AA, AS, AAS, AGS, and Certificates where applicable (1.1).  
IAI Course No. P1 900L
General Education – Not Applicable Elective Only

**PHY.161 Engineering Physics 1**

This course is the first of a two-semester sequence in calculus-based physics. Topics covered include classic mechanics, vibratory motion and mechanical waves, and fundamentals of heat and thermodynamics. This course is appropriate for those students who want to transfer into engineering or other university programs that demand one year of calculus-based physics.

Offered: Fall
Prerequisites: MAT.240 or concurrent enrollment
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AA, AS, AAS, AGS, and Certificates where applicable (1.1).
General Education – Not Applicable Elective Only

**PHY.162 Engineering Physics 2**

This course is a continuation of PHY 161. Topics covered include electricity and magnetism, electromagnetic waves, optics, and an introduction to modern physics. Students will use calculus principles and techniques in developing concepts, analyzing situations, and in further development of problem-solving techniques.

Offered: Spring
Prerequisites: PHY.161, MAT.241 or the equivalent as evaluated by the physics department
Applicable toward graduation at Sandburg where program structure permits:
Degree or Certificate: AA, AS, AAS, AGS, and Certificates where applicable (1.1).
General Education – Not Applicable Elective Only