

PHYSICS (PHYSICS)

Physics (PHYSICS) 115

Physics of Energy and Climate

A study of the influence of physics on society through the lens of energy, thermodynamics, energy sources and energy carriers, and the impact of energy on the environment via global climate change. Writing assignments, as appropriate to the discipline, are part of the course.

Eligibility for ENGLISH 101 and MATH 99 or Higher or Consent of Department Chairperson.

3 Lecture hours. 3 Credit Hours.

Offered At: HW, KK, MX, OH, WR

IAI: P1 901 **GE:** Physical Sciences

Physics (PHYSICS) 131

Mechanics And Power

A limited number of principles are covered with emphasis placed on applications. Writing assignments, as appropriate to the discipline, are part of the course.

Eligibility for ENGLISH 101 based on prior coursework or appropriate score on Placement Test; or Consent of Department Chair

2 Laboratory hours. 2 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, KK, MX, TR

GE: Physical Sciences

Physics (PHYSICS) 132

Electricity Heat And Light

Continuation of Physics 131. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 131, or Consent of Department Chairperson.

2 Laboratory hours. 2 Lecture hours. 3 Credit Hours.

Offered At: DA

Physics (PHYSICS) 215

Statics

Rigid bodies, fluid statics, friction, moments of inertia, centroids, and virtual work. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 235 and MATH 208, or Consent of Department Chairperson.

3 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

IAI: EGR 942

Physics (PHYSICS) 216

Dynamics

Problems in kinematics, dynamics of a particle and a system of particles, dynamics of a rigid body, work, energy, small oscillations, and general plane motion. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 215 and MATH 208 or consent of the Department Chairperson.

3 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

IAI: EGR 943

Physics (PHYSICS) 217

Mechanics Of Materials

Study of elastic and inelastic relationships of external forces acting on deformable bodies. Includes stresses and deformations produced by tension and compression, torsion and bending, combined stresses, buckling, repeated loads, impact, and influence of properties of materials.

Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 215, or Consent of Department Chairperson.

3 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, TR, WR

IAI: EGR 945

Physics (PHYSICS) 220

Physics Calculations & Practice

Detailed practice in problems and application of theory for better understanding of physics; application of ideas of physics such as conservation laws, wave motion, invariance and trigonometry, analytic geometry, vector analysis, probability and statistics. Writing assignments, as appropriate to the discipline, are part of the course.

Concurrent enrollment in (PHYSICS 221 or PHYSICS 231), or Consent of Department Chairperson.

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

Offered At: HW, KK

GE: Physical Sciences

Physics (PHYSICS) 221

Mechanics, Waves, and Heat

Foundations and concepts in Physics, including elementary problems in mechanics wave motion and heat. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in MATH 141 or higher or concurrent enrollment in MATH 141 or MATH 143, and Eligibility for ENGLISH 101 or Consent of Department Chairperson.

6 Laboratory hours. 2 Lecture hours. 5 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

IAI: P1 900L **GE:** Physical Sciences

Physics (PHYSICS) 222

Electricity, Light and Modern Physics

Continuation of Physics 221. Exploration of Electromagnetism, Light and Modern Physics using an algebra based approach. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 221, and MATH 141 and Eligibility for ENGLISH 101 or Consent of Department Chairperson.

6 Laboratory hours. 2 Lecture hours. 5 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

Physics (PHYSICS) 224

Physics Calculations & Practice

For students majoring in engineering or physical sciences. Detailed practice in problems and application of theory involving calculus to provide better understanding of physics. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 235, or Consent of Department Chairperson.

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

Offered At: HW, KK

Physics (PHYSICS) 231**General Physics I: Mechanics & Wave Motion**

Statics and dynamics of a particle and a rigid body; oscillatory and wave motion with application to sound. Primarily for liberal arts students and those in pre-medical curricula. Writing assignments, as appropriate to the discipline, are part of the course.

Concurrent enrollment in PHYSICS 220 and Grade of C or better or concurrent enrollment in MATH 141 or Consent of Department Chairperson.

4 Laboratory hours. 2 Lecture hours. 4 Credit Hours.

Offered At: DA, KK

IAI: P1 900 GE: Physical Sciences

Physics (PHYSICS) 232**General Physics II: Electricity & Magnetism**

Electrostatics, magneto statics, laws of DC and AC circuits, electromagnetic radiations and elementary electronics. Primarily for liberal arts students and those in pre-medical curricula. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in (PHYSICS 231, or PHYSICS 235), or Consent of Department Chairperson.

4 Laboratory hours. 2 Lecture hours. 4 Credit Hours.

Offered At: DA, KK

Physics (PHYSICS) 233**General Physics III: Heat light & Modern Physics**

Introductory thermodynamics, geometrical and physical optics, atomic and nuclear radiations and associated elementary quantum aspects. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in (PHYSICS 231, or PHYSICS 232), or Consent of Department Chairperson.

4 Laboratory hours. 2 Lecture hours. 4 Credit Hours.

Offered At: DA

Physics (PHYSICS) 235**Engineering Physics I: Mechanics & Wave Motion**

Exploration of the laws of mechanics and wave motion using calculus to analyze practical and theoretical problems. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in MATH 207, or concurrent enrollment in MATH 207 and Eligibility for ENGLISH 101 or Consent of Department Chairperson.

6 Laboratory hours. 2 Lecture hours. 5 Credit Hours.

Offered At: DA, HW, KK, OH, TR, WR

IAI: P2 900L, PHY 911 GE: Physical Sciences

Physics (PHYSICS) 236**Engineering Physics II: Electricity & Magnetism**

Exploration of electricity and magnetism as they relate to fields, forces and energy using calculus to analyze theoretical and practical problems in lecture and laboratory. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 235, and MATH 207 and Eligibility for ENGLISH 101 or Consent of Department Chairperson.

6 Laboratory hours. 2 Lecture hours. 5 Credit Hours.

Offered At: DA, HW, KK, OH, TR, WR

IAI: PHY 912

Physics (PHYSICS) 237**Engineering Physics III: Heat light and Modern Physics**

Exploration of the laws of heat, light, and modern physics and analysis of practical and theoretical problems through the use of calculus. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 235, and MATH 207 and Eligibility for ENGLISH 101 or Consent of Department Chairperson.

6 Laboratory hours. 2 Lecture hours. 5 Credit Hours.

Offered At: DA, HW, KK, OH, TR, WR

IAI: PHY 913, PHY 915A

Physics (PHYSICS) 238**Introduction to Thermal Physics and Waves**

Exploration of thermal physics and waves using calculus. Topics include the concept of temperature, first and second laws of thermodynamics, entropy, ideal gases, thermal properties and the kinetic theory of gases. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 235 (Engineering Physics I) and credit or concurrent registration in MATH 209 (Calculus and Analytical Geometry), or consent of Department Chairperson.

1 Laboratory hours. 2.5 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

Physics (PHYSICS) 239**Introduction to Quantum Physics and Optics**

Calculus-based introduction to optics, quantum physics and applications to nuclei, atoms molecules and solids. Practice laboratory skills by carrying out modern physics labs. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in PHYSICS 236 (Engineering Physics II) and credit or concurrent registration in MATH 209 (Calculus and Analytical Geometry III) or Consent of Department Chairperson.

0.5 Laboratory hours. 2.5 Lecture hours. 3 Credit Hours.

Offered At: DA, HW, KK, MX, OH, TR, WR

Physics (PHYSICS) 295**Independent Research in Physics**

This course emphasizes independent, student-driven research under the close supervision of a faculty member. Eligibility for course repetition for additional credit hours is determined by the instructor. Writing assignments, as appropriate to the discipline, are part of the course. Allowed Repeatable Course: Eligibility for course repetition for additional credit hours is determined by the instructor. No more than an accumulated 12 credit hours will be counted towards graduation. *Eligibility for ENGLISH 101 and MATH 140 or higher or Consent of Department Chairperson.*

1 Lecture Hours. 1-6 Laboratory Hours. 1.5-4 Credit Hours.

Offered At: DA, HW, KK, OH, TR, WR

Repeatable: Yes, up to 4 times