

**NEOSHO COUNTY COMMUNITY COLLEGE  
MASTER COURSE SYLLABUS**

**COURSE IDENTIFICATION**

Course Code/Number: ENRG 102

Course Title: Energy Physics

Division:  Applied Science (AS)  Liberal Arts (LA)  Workforce Development (WD)  
 Health Care (HC)  Lifetime Learning (LL)  Nursing  Developmental

Credit Hour(s): Three (3)

Effective Date: Fall 2013

Assessment Goal Per Outcome: 70%

**COURSE DESCRIPTION**

This course is a one-semester conceptual Physics intended for both science and non science majors. The course enables the learner to appreciate and explore the nature of Physics and explanations of the physical phenomena that surrounds us. Course work includes studying mechanics, properties of matter, thermodynamics, waves, electricity, magnetism and optics. A conceptual approach rather than a mathematical point of view is emphasized.

**MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES**

None

**TEXTS**

The official list of textbooks and materials for this course is found on *myNeosho*.

<http://www.neosho.edu/ProspectiveStudents/Registration/CourseSyllabi.aspx>

**GENERAL EDUCATION OUTCOMES**

1. Practice Responsible Citizenship through:

- identifying rights and responsibilities of citizenship,
  - identifying how human values and perceptions affect and are affected by social diversity,
  - identifying and interpreting artistic expression.
2. Live a healthy lifestyle (physical, intellectual, social) through:
    - listing factors associated with a healthy lifestyle and lifetime fitness,
    - identifying the importance of lifetime learning,
    - demonstrating self-discipline, respect for others, and the ability to work collaboratively as a team.
  3. Communicate effectively through:
    - developing effective written communication skills,
    - developing effective oral communication and listening skills.
  4. Think analytically through:
    - utilizing quantitative information in problem solving,
    - utilizing the principles of systematic inquiry,
    - utilizing various information resources including technology for research and data collection.

### **COURSE OUTCOMES/COMPETENCIES (as Required)**

Upon the successful completion of the course, the student should be able to:

1. Demonstrate an understanding to use scientific reasoning and principles to describe Physics concepts.
  - Know the definitions, units of measurements and use them appropriately to describe natural phenomena.
2. Understand the concepts of Newtonian mechanics
  - Apply Newton's Laws of Motion to solve problems
  - Demonstrate an understanding of motion in one and two dimension.
  - Apply the Law of Conservation of Energy to solve problems
3. Describe thermodynamic and thermal properties of matter
  - Understand fluid flow
  - Understand kinetic theory of matter
  - Understand the modes of heat transfer
  - Describe phase changes.
4. Understand the relationships between electricity and magnetism in describing electromagnetic waves.
  - Demonstrate comprehension of similarities and differences that exist in electric and magnetic systems.
5. Demonstrate an understanding of optics
  - Understand the nature and properties of light

### **MINIMUM COURSE CONTENT**

The following topics must be included in this course. Additional topics may also be included.

1. Physics, the Fundamental Science
2. Describing Motion

3. Falling Objects and Projectile Motion
4. Circular Motion, the Planets, and Gravity
5. Energy and Oscillations
6. Momentum and Impulse
7. Rotational Motion of Solid Objects
8. The Behavior of Fluids
9. Temperature and Heat
10. Heat Engines and the Second Law of Thermodynamics
11. Electrostatic Phenomena
12. Electric Circuits
13. Magnets and Electromagnetism
14. Making Waves
15. Light Waves and Color
16. Light and Image Formation

## **STUDENT REQUIREMENTS AND METHOD OF EVALUATION**

### **INSTRUCTIONAL METHODS**

A variety of teaching methods will be used that includes lectures, discussions, and demonstrations. A variety of audio-visual presentations will be used as appropriate to help stress important concepts. Additional handouts will be provided. Each student should obtain the textbook presented in this syllabus's TEXT section.

### **GRADING SCALE**

|            |     |
|------------|-----|
| 90 – 100 % | → A |
| 80 – 89 %  | → B |
| 70 – 79 %  | → C |
| 60 – 69 %  | → D |
| Below 60%  | → F |

### **ASSESSMENT OF STUDENT GAIN**

Students will be assessed through written testing and assignments. Comparison will determine the extent of student gain.

### **Attendance Policy**

1. NCCC values interactive learning which promotes student engagement in the learning process. To be actively engaged, the student must be present in the learning environment.
2. Unless students are participating in a school activity or are excused by the instructor, they are

expected to attend class. If a student's absences exceed one-eighth of the total course duration, (which equates to one hundred (100) minutes per credit hour in a face-to-face class) the instructor has the right, but is not required, to withdraw a student from the course. Once the student has been dropped for excessive absences, the registrar's office will send a letter to the student, stating that he or she has been dropped. A student may petition the chief academic officer for reinstatement by submitting a letter stating valid reasons for the absences within one week of the registrar's notification. If the student is reinstated into the class, the instructor and the registrar will be notified. Please refer to the Student Handbook/Academic Policies for more information

3. Absences that occur due to students participating in official college activities are excused except in those cases where outside bodies, such as the State Board of Nursing, have requirements for minimum class minutes for each student. Students who are excused will be given reasonable opportunity to make up any missed work or receive substitute assignments from the instructor and should not be penalized for the absence. Proper procedure should be followed in notifying faculty in advance of the student's planned participation in the event. Ultimately it is the student's responsibility to notify the instructor in advance of the planned absence.

## **ACADEMIC INTEGRITY**

NCCC expects every student to demonstrate ethical behavior with regard to academic pursuits. Academic integrity in coursework is a specific requirement. Definitions, examples, and possible consequences for violations of Academic Integrity, as well as the appeals process, can be found in the College Catalog, Student Handbook, and/or Code of Student Conduct and Discipline.

## **ELECTRONIC DEVICE POLICY**

Student cell phones and other personal electronic devices not being used for class activities must not be accessed during class times unless the instructor chooses to waive this policy.

## **NOTE**

Information and statements in this document are subject to change at the discretion of NCCC. Students will be notified of changes and where to find the most current approved documents.

## **ACCOMMODATIONS**

If you are a student with a disability who may need accommodation(s), in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, please notify the Dean of Student Services in the Student Services Office, Sanders Hall, 620-432-0304, on the Chanute Campus, or the Dean for the Ottawa and Online Campuses, 785-248-2798, on the Ottawa Campus as soon as possible. You will need to bring your documentation for review in order to determine reasonable accommodations, and then we can assist you in arranging any necessary accommodations.

## **NON-DISCRIMINATION POLICY**

The following link provides information related to the non-discrimination policy of NCCC, including persons with disabilities. Students are urged to review this policy.

<http://www.neosho.edu/Departments/NonDiscrimination.aspx>

## **SEXUAL MISCONDUCT POLICY (TITLE IX)**

At NCCC, it is the responsibility of an instructor to help create a safe learning environment in the classroom, including both physical and virtual classrooms. All instructors are considered mandatory reporters at NCCC, therefore any information regarding sexual misconduct that is shared by a student in one-on-one meetings with the instructor must be reported to appropriate personnel at the College. Instructors will keep the information private to the greatest extent possible, but it is not confidential. Generally, climate surveys, classroom writing assignments or discussions, human subjects research, or events such as Take Back the Night events do not provide notice that must be reported to the Coordinator by employees, unless the reporting party clearly indicates that they wish a report to be made.

The following link provides information related to the sexual misconduct policy of NCCC, including resources, reporting options, and student rights. Students are urged to review this policy.

<http://www.neosho.edu/TitleIX.aspx>

## **COURSE NOTES**