THREE RIVERS COMMUNITY-TECHNICAL COLLEGE
COURSE OUTLINE

Course Number/Title: NUC K117 Atomic and Reactor Physics
Lecture 4 hrs Laboratory 0 hrs Credit 4 hrs Contact 4 hrs

Course Description: An introduction to modern physics concepts of the structure of the atom, the properties of atomic particles, the nature of light, relativity theory and elementary quantum mechanics. Additionally, an understanding of fission and fusion energy concepts, radioactive decay schenes, transmutations, and neutron moderation will be provided.

Method: Lecture

Text: Basic Nuclear Engineering, Foster

Prerequisites: NUC K100, MAT K186, PHY K114
Co-Requisites: MAT K254, PHY K115, NUC K110/111

COURSE TOPICS/CONTENT

	HOURS
1. Atomic Hypotheses	1
2. Gases	3
3. Electrostatics	4
4. Charge to Mass Ratio of Electrons and Ions	4
5. Determination of the Charge of the Electron	3
6. Nuclear Atoms	1
7. Relativity	4
8. Photoelectric Effect	3
9. Atomic Spectra and Bohr's Model	10
10. X-rays	3
11. Wave Mechanics	3
12. Nuclear Energy and Forces	5
13. Radioactive Decay Chains and Equilibrium	5
14. Nuclear Reactions and Cross-sections	11

TOTAL HOURS 60

Date: May 1, 1997

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Department Chairperson: Tim Wentzell

Continuation Sheet No 2 of 2

Course Number/Title: NUC K117 Atomic and Reactor Physics

Measurable Objectives

The student will gain a solid background in: 1) the physical make-up of an atom; 2) the interrelations of atomic particles; 3) nuclear energy; 4) fissioning; 5) radioactive decay and nuclear equilibrium; and 6) relativity.