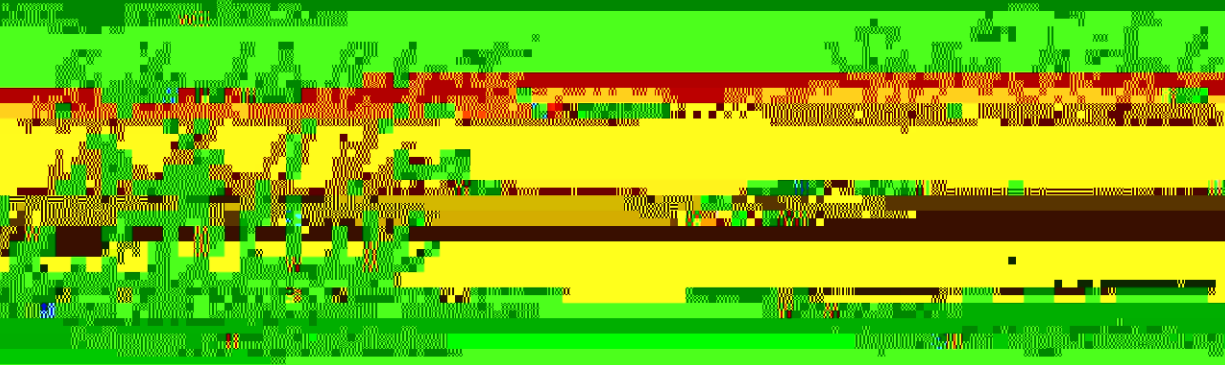


1. The first part of the work is a study of the
 2. history of the region, from the early
 3. days of settlement to the present. The
 4. author discusses the various factors
 5. that have influenced the development
 6. of the area, including the role of
 7. the government and the private
 8. sector. The study is based on a
 9. thorough review of the available
 10. literature and field research.

11. The second part of the work is a
 12. study of the current situation in the
 13. region. The author examines the
 14. various problems that are facing
 15. the area, such as the lack of
 16. infrastructure, the high level of
 17. unemployment, and the environmental
 18. degradation. The author also
 19. discusses the various efforts that
 20. are being made to address these
 21. problems.



22. The third part of the work is a
 23. study of the future of the region.
 24. The author discusses the various
 25. options that are available for
 26. the development of the area, and
 27. the potential benefits and
 28. challenges of each. The author
 29. also discusses the role of the
 30. government and the private sector
 31. in the development process.

APPENDIX

32. The appendix contains a list of
 33. the various sources that were
 34. used in the study, as well as a
 35. list of the various organizations
 36. that were consulted. The appendix
 37. also contains a list of the various
 38. maps that were used in the study.

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LIBERAL STUDIES COURSE APPROVAL

We are submitting PY 151 and PY 161 together as a package because PY 151 is a lecture course and PY 161 is a laboratory associated with the lecture.

PART I. BASIC INFORMATION

- A. We are proposing the following categories for PY 151 and PY 161:

course. If PY 151 is taken with PY 161 then it constitutes a Natural Science laboratory course.

- B. We are requesting regular approval for this course.
- C. During the transition from General Education to Liberal Studies PY 151 and PY 161 should NOT be listed as approved substitutes for the

current General Education requirements because they do not constitute any of the approved two-semester laboratory Science sequences for any

sections are based upon homework grades and examinations. Grade

COURSE SYLLABUS

I. CATALOG DESCRIPTION

PY 151 Medical Physics Lecture

3 credits

3 lecture hours

Development of concepts and principles of physics with a strong emphasis on

II. COURSE OBJECTIVES

- (1) To develop an understanding of physical principles and concepts used in the major areas of Physics.
- (2) To show applications and use of the principles of physics applied to the human body.
- (3) To be able to use mathematical relations involving physical quantities.
- (4) To be able to express in writing an understanding of the physical quantities.
- (5) To provide an understanding of some of the "great moments" in the history of physics and the individuals, including women and minorities

3. Work & Energy
 - a. Work & power
 - b. Energy
 - (i) conservation of
 - c. Machines - mechanical energy
 - d. Applications to the human body

B. Fluids (9 lectures)

1. Liquids
 - a. Pressure
 - b. Pascal's principle
 - c. Archimedes' principle

e. Applications of properties of liquids to the human body

2. Gases
 - a. Gas laws
 - b. Atmospheric pressure
 - c. Applications of

-
- a. The circulatory system
 4. Medical Applications and Devices
 - a. I.V. systems, nebulizers
 - b. Drainage systems, flowmeters
 5. Biological process & fluids
 - a. Diffusion, osmosis and dialysis
 - b. Cohesion adhesion surface tension etc.

C. The Atom and its Energy (6 lectures)

1. Structure of the atom
2. The nucleus and radioactivity
 - a. Types of
 - b. Half Life

3. The body as a thermodynamical system
 - a. Metabolism and body temperature
 - (i) methods of heat transfer

E. Electricity and Magnetism (6 lectures)

1. Static electricity
 - a. Fields and forces
2. Current electricity
 - a. Electromagnetism
3. Circuits
 - a. Series and parallel
4. Alternating current
 - a. Fuses and transformers
5. Electrical safety
6. Electrical and electronic instruments
7. Bioelectricity

F. Waves (4 lectures)

1. General characteristics and properties
 - a. Reflection, refraction, etc.
2. Physics of hearing and speaking

3. Physics of vision
 - a. The eye and its defects
 - (i) corrective lenses

4. Applications of
 - a. Optical instruments

5. Electromagnetic spectrum
 - a. Atom and quantum theory
 - b. Applications of electromagnetic waves in medicine

Textbooks: Urone, P.P. Physics with Health Science Applications,
Harper & Row.
Jensen, Physics for the Health Professions, 3rd Ed, Wiley
1982.

COURSE SYLLABUS

I. CATALOG DESCRIPTION

Physics 161 - Medical Physics Laboratory

1 credit

3 lab hours

Corequisite: PY 151

Experiments dealing with applications of physical principles to the field of medicine. Practical experience with use of electronic equipment, chart recorders, etc., of type found in modern day medicine will be introduced.

II. COURSE OBJECTIVES

The experiments are designed to give the student hands-on experience with many of the concepts developed in the concurrent lecture. The labs have been especially developed to illustrate physical principles that are of

1. Each week the student picks up the next week's lab.
2. The student executes the lab and answers problems and questions posed in the post-lab.
3. The labs are collected at the end of the lab period, graded during the week, and returned to the student the next lab period.

III. COURSE OUTLINE

Experiments - one each week

1. Measurement: The Use of Numbers and Units in Science
2. Measuring Instruments and Systems

3. Systems in Equilibrium: Forces, Torques, and the Center of Gravity

IV. EVALUATION METHODS

There are 13 laboratories to be conducted by the students. Prior to performing each laboratory a quiz is given and rated as 30% of the lab grade. The performance and laboratory analysis is rated as 70%.

V. REQUIRED TEXTBOOKS, SUPPLEMENTAL BOOKS AND READINGS

VI. SPECIAL RESOURCE REQUIREMENTS

ruler
protractor