

Faculty Senate Curriculum Committee

2

APPROVAL FORM

Rev: 5/82

Proposal Title: Credit Hour and Catalog Description Changes for 1902.315 Analytical Mechanics and 1902.555 Mechanics

Sponsor(s): Curriculum Committee, Physical Sciences Department, L. Delaney (Chm.) Dept.: Physical Sciences

Check one: 2 ^{COURSES UNDERGRAD} Course Specialization Concentration Achievement Certificate

Credit/Catalog Change: Minor Change Major Program
(please name: deletion or credit/title/catalog change)

Certification Program Undergraduate Graduate 4 Credit Hours

Step 1 (Department)	Step 2 (Receipt)	Step 3 (Division CC)
<input checked="" type="checkbox"/> Approved <u>11/9/84</u> date <input type="checkbox"/> Not Approved <u>L. J. Delaney</u> Dept. CC Chairperson <input checked="" type="checkbox"/> Reviewed <u>11-12-84</u> date <u>[Signature]</u> Chairperson, Dept.	SCC# <u>84-85-27</u> Proposal Received <u>11/21/84</u> date <u>[Signature]</u> Chairperson, SCC	Reviewed <u>Jan 8, 1985</u> date <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved Comments: <u>[Signature]</u> Chairperson, Div. Curr. Comm.

Step 4 (Academic Dean) Comments:

Reviewed 1/17/85
date

[Signature]
Signature, Dean of Division

Step 5 (SCC)

Open Hearing Date: 3/4/85 Approved by Senate Curriculum Committee 3/4/85 (date)

Returned to sponsor(s) for the following reasons:

OK

Step 6 (Faculty Senate)

Presented to Faculty Senate (date): 3/21/85 Approved Not Approved

Notification to Vice-President Academic Affairs (date): 3/21/85

[Signature]
Signature: SCC Chairperson

Step 7 (Vice-President for Academic Affairs)

Course^s received 5/3/05 (date)

Course approved Yes No

If no, reasons are as follows:

CREDIT HR. CHANGE
FROM 3 TO 4 &
PREREQUISITE & COURSE
DESCRIPTION CHANGE

	<u>UNDERGRAD</u>	<u>GRAD.</u>
Student credit hours	<u>4</u>	<u>4</u>
Faculty load hours	<u>4</u>	<u>4</u>
Equalized credit hours	<u>4</u>	<u>4</u>

Official copy and approval sheet filed 5/3/05 (date)

Signature [Signature]
(Vice-President for Academic Affairs)

Registrar

Approved course description received _____ (date)

Hegis Taxonomy and Course Number assigned _____

Signature _____ (Registrar) _____ (Date)

Notification forwarded: Senate Curriculum Committee Chairperson, Department Chairperson(s), Academic Dean(s), Registrar, Sponsor(s)



State of New Jersey

GLASSBORO STATE COLLEGE
GLASSBORO, NEW JERSEY 08028
Department of Physical Sciences

April 3, 1985

To: Dr. Brenda Bolay, Chairperson
Senate Curriculum Committee

From: Lawrence Delaney, Chairperson *L.D.*
Curriculum Committee, Department of Physical Sciences

Subj: Analytical Mechanics and Mechanics

Please find attached:

1. Revised curriculum proposal. The revisions include the addition of prerequisites to the course descriptions and the addition of the preliminary phrase: "This is a course in the - - -" to the description of 1902.555 Mechanics.
2. Two syllabi. Each syllabus now shows course objectives and evaluation procedures as well as topics. Also, the graduate course syllabus now shows that the graduate course differs from the undergraduate course in additional topics, greater detail of coverage, and in requirement of a graduate project.
3. Catalog descriptions (on two separate sheets).

I think this remedies the deficiencies that you mentioned in our phone conversation. If there are any concerns, please call me at 6336. Thanks for your help and good work.

Larry



State of New Jersey

GLASSBORO STATE COLLEGE
GLASSBORO, NEW JERSEY 08028
Department of Physical Sciences

November 13, 1984
(Revised April 3, 1985)

To: Senate Curriculum Committee
From: Curriculum Committee, Department of Physical Sciences
SubJ: Credit Hour and Catalog Description Changes

1. Details

A. Changes Proposed

(1) For the undergraduate physics course: 1902.315 Analytical Mechanics

- a. Change credit hours from three to four.
- b. Change the catalog description to the following:

(Prerequisites: 1701.131 and 1902.200 or 1902.202)

This course in statics and dynamics is intended for Pre-engineering, Mathematics, Physical Science, and Technology majors who have had Physics I and at least one semester of calculus. It is a study of the equilibrium and motion of particles and rigid bodies subject to concentrated and distributed forces. Problem work is of great importance.

(2) For the graduate course in physics: 1902.555 Mechanics

- a. Change credit hours from three to four
- b. Change the catalog description to the following:

(Prerequisites: 1701.131 and 1902.200 or 1902.202)

This is a course in the statics and dynamics of particles and rigid bodies subject to concentrated and distributed forces. The requirements include a graduate project. Admission to the course will be at the discretion of the graduate advisor. Problem work is of great importance.

B. Sponsor

The Curriculum Committee of the Department of Physical Sciences sponsors this proposal. The chairman of this Committee, Lawrence Delaney, is to be considered the initiator and administrator.



2. Rationale

A. The Need for the Proposed Changes

As it now exists at Glassboro, the course Analytical Mechanics includes statics and an introduction to dynamics. To qualify for transfer credit to the corresponding course at New Jersey Institute of Technology, it should be a four credit course and it should treat dynamics on a par with statics (please see attached correspondence from N.J.I.T.).

B. Curricular Effect of Proposed Changes

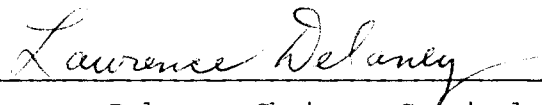
The effect of the proposed changes will be to strengthen the following programs at Glassboro:

- (1) Pre-engineering Program
- (2) Physical Sciences Program (Physics Specialization), and
- (3) Graduate Program in Science Education

No negative effect on programs, Department, or curricular design is envisioned.

3. Results of Consultation

Since the proposed changes do not affect other departments, consultation was limited to the faculty of this Department, to the Acting Dean of the Liberal Arts and Sciences Division, and to the Office of Academic Affairs at New Jersey Institute of Technology. Please see attached letter from N.J.I.T.



Lawrence Delaney, Chairman Curriculum
Committee, Physical Sciences Dept.

LD/vsb

Attachment

V. For Mechanical Engineering Students

1. We would like to see a stronger course than presently offered for 1902,315 Analytical Mechanics.
2. The 1902,399 course should be modified to meet the needs of M.E. students who are required to take EE 205.
3. M.E. students should take 0839,111 Basic Drafting & Design rather than 0839,415 Machine Drawing and Design for the equivalent of EG 101 at NJIT.

With respect to grade point average for transfer students, we do not require a "B" grade point average for transfer admission. While we evaluate each applicant on its merits, a "B" average would be too strict a standard to recommend to Glassboro students.

We are presently developing articulation transfer agreements with other Institutions such that qualified students could be guaranteed admission to NJIT. We would be happy to meet with Glassboro State College to formulate such an understanding.

Sincerely,

Dr. Harold Deutschman
Associate Vice President for
Academic Affairs & Extension
Programs

HD:mad

SYLLABUS FOR ANALYTICAL MECHANICS

1902.315 - Rev. 4/85

Text: Vector Mechanics for Engineers, Statics; Dynamics
by Beer and Johnston, 4th Edition, McGraw-Hill

Course Objectives

Mechanics is basic to the study of engineering and physics, and is offered to students in the Pre-engineering Program and to students in the Physical Science Program (Physics Specialization). The objective is to develop a basic and intermediate level of understanding of mechanics and problem solving techniques in this field in order to deepen the understanding of mechanics acquired in the general physics course and to provide a firm foundation for future courses in engineering and physics. Upon completion of this course the successful student will be able to apply the principles of statics and dynamics to the solution of many problems related to mechanical systems.

Topics

- I. Introduction: Fundamental concepts, units, conversion of units, numerical accuracy.
- II. Statics of Particles
 - a. Forces in a plane
 - b. Forces in space
- III. Rigid Bodies - Forces, vectors, moments of forces, couples, reduction of system of forces.
- IV. Equilibrium of Rigid Bodies
 - a. Equilibrium in two dimensions
 - b. Equilibrium in three dimensions
- V. Distributed Forces: Centroids and Centers of Gravity
 - a. Areas and lines
 - b. Volumes
- VI. Friction: Laws of dry friction, coefficients of friction, angles of friction, wedges.
- VII. Distributed Forces: Moments of Inertia
 - a. Moments of inertia of areas
 - b. Moments of inertia of masses
- VIII. Kinematics of Particles
 - a. Rectilinear motion
 - b. Curvilinear motion
- IX. Kinetics of Particles
 - a. Newton's second law
 - b. Energy and Momentum Methods
- X. Systems of Particles
- XI. Kinematics of Rigid Bodies
- XII. Plane Motion of Rigid Bodies
 - a. Forces and accelerations
 - b. Energy and Momentum Methods.

Evaluation Procedures

Students are evaluated on the basis of exams following every two or three chapters, participation in class, and solutions to assigned problem sets.

SYLLABUS FOR MECHANICS
1902.555 - Rev. 4/85

Text: Vector Mechanics for Engineers, Statics; Dynamics by Beer and Johnston, 4th Edition, McGraw-Hill

Course Objectives

This is a graduate course in which all of the topics of the undergraduate course (called Analytical Mechanics) are covered. In addition, graduate students are required to pursue each topic in somewhat greater detail as well as cover two additional chapters in the common text used for these courses. Furthermore, the graduate student is expected to turn in a report on some advanced topic of interest to him or her which relates to the material being studied. Upon completion of this course the successful student will be able to apply the principles of statics and dynamics to the solution of basic, intermediate, and some advanced problems related to mechanical systems.

Topics

- I. Introduction: Fundamental Concepts, Units, Conversion of Units, Numerical Accuracy.
- II. Statics of Particles
 - a. Forces in a Plane
 - b. Forces in Space
- III. Rigid Bodies - Forces, Vectors, Moments of Forces, Couples, Reduction of System of Forces.
- IV. Equilibrium of Rigid Bodies
 - a. Equilibrium in two dimensions
 - b. Equilibrium in three dimensions
- V. Distributed Forces: Centroids and Centers of Gravity
 - a. Areas and lines
 - b. Volumes
- VI. Friction: Laws of Dry Friction, Coefficients of Friction, Angles of Friction, Wedges.
- VII. Distributed Forces: moments of Inertia
 - a. Moments of inertia of areas
 - b. Moments of inertia of masses
- VIII. Kinematics of Particles
 - a. Rectilinear motion
 - b. Curvilinear motion
- IX. Kinetics of Particles
 - a. Newton's second law
 - b. Energy and momentum methods
- X. Systems of Particles
- XI. Kinematics of rigid bodies
- XII. Plane Motion of Rigid Bodies
 - a. Forces and accelerations
 - b. Energy and momentum methods
- XIII. Kinetics of Rigid Bodies in three dimensions
- XIV. Mechanical Vibrations
- XV. Graduate Project

Evaluation Procedures

Students are evaluated on the basis of exams given every two or three chapters, participation in class, solution to assigned problems, and the report of the graduate project.

New Catalog Description of the Undergraduate Course:

1902.315 Analytical Mechanics

1902.315

Analytical Mechanics

(Prerequisites: 1701.131 and 1902.200 or 1002.202)

This course in statics and dynamics is intended for Pre-engineering, Mathematics, Physical Science, and Technology majors who have had Physics I and at least one semester of calculus. It is a study of the equilibrium and motion of particles and rigid bodies subject to concentrated and distributed forces. Problem work is of great importance.

New Catalog Description of the Graduate Course: 1902.555 Mechanics

1902.555

Mechanics

(Prerequisites: 1701.131 and 1902.200 or 1902.202)

This is a course in the statics and dynamics of particles and rigid bodies subject to concentrated and distributed forces. The requirements include a graduate project. Admission to the course will be at the discretion of the graduate advisor. Problem work is of great importance.