

10-29-1984

Change in Physics Major

The College at Brockport, College Senate

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Resolution #12, 1984-85

TO: President John E. Van de Wetering

FROM: The Faculty Senate Meeting on 10/29/84
(Date)

RE: X I. Formal Resolution (Act of Determination)
 II. Recommendation (Urging the fitness of)
 III. Other (Notice, Request, Report, etc.)

SUBJECT: Change in Physics Major

(see attached)



Signed [Signature] Date Sent 10/31/84
(For the Senate)

..... Kenneth P. O'Brien, President, Faculty Senate

TO: The Faculty Senate

FROM: President John E. Van de Wetering

RE: I. Decision and Action Taken on Formal Resolution
a. Accepted. Effective Date Jan 85
b. Deferred for discussion with the Faculty Senate on _____
c. Unacceptable for the reasons contained in the attached explanation
II., III. a. Received and acknowledged
b. Comment:

DISTRIBUTION: Vice Presidents: see attached list

Others:

Distribution Date: 11/28/84

Signed: [Signature]
(President of the College)

Date Received by the Senate: _____

ROCKPORT

University of New York
College at Brockport
Brockport, New York 14420
Department of Physics

October 17, 1984

Dr. Jack Crandall, Chairman
Undergraduate Curriculum Committee
CAMPUS

Dear Jack:

Thanks for getting the proposed changes before your committee so promptly. Enclosed are twenty copies of the revised proposal.

The Physics Core Courses, the Required Mathematics courses and the recommended courses are not new. We have highlighted them in this proposal because we want the Faculty Senate to be informed about the physics program as a whole.

The Major in Physics - Traditional Track is a change from the previous track. The major differences between this track and the previous one are the additional requirements of Mechanics II and Quantum Mechanics.

The Major in Physics and Engineering - 3+2 Program is not new.

The Major in Physics - Certification in Secondary Teaching Program is not new. We want it included in the Physics section of the new catalog.

The Major in Physics - Astronomy Track and the Major in Physics - Electronics Track are both brand new.

There are three new courses in this proposal: PHS 330 (Digital Electronics Laboratory), PHS 331 (Digital Electronics), and PHS 412 (Physical Electronics). PHS 330 and 331 are in place and will be offered in the spring semester 1985. PHS 412 will be ready for offering next academic year.

The Physics Department has the resources to carry out the proposed programs and tracks. We have both the personnel and laboratory facilities to cover all areas.

Sincerely,

Richard V. Mancuso

Richard V. Mancuso
Chairman

RVM/pln
enclosures

Department of Physics
(716) 395-2182

CHAIRPERSON: Richard V. Mancuso

FACULTY: Professors: Noonan, Pribil; Associate Professors:
Grunwald, Gucker, Leffler, Mancuso, Scarborough;
Assistant Professor: Wajid

PREPARATION

Students who plan to major in physics should have taken algebra, trigonometry and geometry in high school. Calculus or precalculus are desirable but not necessary.

CURRICULUM

The curriculum is flexible and allows students to prepare for graduate study in physics, engineering, or a related science; for a career in industry; or for a career in teaching.

ADVISEMENT

Academic advisement is a very important part of a student's college life. Students must consult with their advisors before registering each semester.

PROGRAMS AND TRACKS

The department offers the following programs and tracks within the physics major: Traditional Track, 3+2 Physics and Engineering Program, Certification in Secondary Teaching Program, Astronomy Track and Electronics Track. In each of these, the student must take 22 hours of physics core courses, 12 hours of mathematics courses and additional physics hours required by the particular program or track.

Physics Core Courses

These courses must be taken by students in all programs and tracks:

PHS 201, 202	College Physics I and II	8
PHS 208	Modern Physics Laboratory	1
PHS 209	Modern Physics	3
PHS 301	Mathematical Methods of Physics	3
PHS 304	Mechanics I	3
PHS 305	Electricity & Magnetism I	3
PHS 401	Senior Seminar	1
	TOTAL CORE HOURS	22

Required Mathematics Courses

These courses are required for all programs and tracks:

MTH 201, 202, 203	Calculus I, II, and III	9
MTH 455	Differential Equations	3
TOTAL MATHEMATICS HOURS		12

Recommended Courses

The following courses are recommended for all programs and tracks (see * note below):

CHM 205*, 206*	College Chemistry I, II	8
CSC 203*, 205	Fundamentals of Computer Science I, II	6
MTH 451*	Advanced Calculus	3

*Courses required by SUNY Buffalo for the 3+2 Engineering Program.

MAJOR IN PHYSICS - TRADITIONAL TRACK

This track is intended for students who plan to go on to graduate school in physics, engineering, or a related science; work in industry; or work in business.

The following physics courses are required for the physics major in this track:

Physics Core Courses	22	
Either PHS 307 <u>or</u> 308	Physical Measurements Laboratory I <u>or</u> II	1
PHS 312 (<i>new requirement</i>)	Mechanics II	3
PHS 402	Senior Project	1
PHS 411 (<i>new requirement</i>)	Quantum Mechanics	3
Physics Electives from 300/400 level courses		6
TOTAL PHYSICS HOURS		36

MAJOR IN PHYSICS AND ENGINEERING - 3+2 PROGRAM

Brockport and the State University of New York at Buffalo jointly offer a five year, two degree program that combines the theoretical approach of a liberal arts physical science program with the practical and applied approach of an engineering program. A student enrolled in the 3+2 Program spends the first three years at Brockport and the last two at Buffalo. At the end of five years he/she earns a Bachelor's Degree in Physics, Chemistry, Computer Science or Mathematics from Brockport and a Bachelor's Degree in an Engineering specialty from SUNY Buffalo.

The following physics courses are required for the physics major in this program:

Physics Core Courses	22
PHS 307 and 308 Physical Measurements Lab I, II	2
PHS 402 Senior Project	1
Physics Electives from 300/400 level courses	<u>6</u>
TOTAL PHYSICS HOURS	31

The following Brockport courses are required by SUNY Buffalo:

CHM 205, 206 College Chemistry I, II	8
CSC 203 Fundamentals of Computer Science I	3
PHS 312 Mechanics II	3
MTH 451 Advanced Calculus	3
PHS 413 Thermodynamics and Statistical Mechanics	3

MAJOR IN PHYSICS - CERTIFICATION IN SECONDARY TEACHING PROGRAM

The Department of Physics, in conjunction with the Department of Curriculum and Instruction, offers a program that leads to provisional certification (grades 7-12) in Physics as well as eight other areas. The provisional certification is a license to teach in the specified area in New York State for five years. During that five year period the teacher must meet requirements for permanent certification.

The following physics courses are required for the physics major in this program:

Physics Core Courses	22
PHS 307 and 308 Physical Measurements Lab I, II	2
PHS 402 Senior Project	1
Physics Electives from 300/400 level courses	<u>6</u>
TOTAL PHYSICS HOURS	31

The following courses are additional requirements for certification:

Minor in one other science	
PSH 384 Developmental Psychology	3
HLS 370 Drug Abuse for Teachers	1
EDI 323 Methods of Teaching Secondary Science	3
EDI 314 Practicum in Secondary Education: Science	12
EDI 318 Seminar in Secondary Education: Science	3

MAJOR IN PHYSICS - ASTRONOMY TRACK *(new track)*

The department recognizes the importance of astronomy in the undergraduate curriculum as our knowledge of the universe increases.

The following physics and astronomy courses are required for this track:

Physics Core Courses	22
AST 201 General Astronomy I	4
AST 301 Man in Space	3
PHS 312 Mechanics II	3
AST 399 Independent Study in Astronomy	2
AST 499 Independent Study in Astronomy	<u>2</u>

TOTAL PHYSICS AND ASTRONOMY COURSES 36

Recommended courses:

PHS 411 Quantum Mechanics	3
PHS 413 Thermodynamics and Statistical Mechanics	3

MAJOR IN PHYSICS - ELECTRONICS TRACK *(new track)*

This track is intended to give students a strong background in both the theoretical and practical aspects of modern electronics.

The following physics courses are required for this track:

Physics Core Courses	22
PHS 311 Electronics	3
PHS 310 Electronics Laboratory	1
PHS 331 Digital Electronics	3 <i>(new course)</i>
PHS 330 Digital Electronics Laboratory	1 <i>(new course)</i>
PHS 314 Electricity and Magnetism II	3
PHS 412 Physical Electronics	<u>3</u> <i>(new course)</i>

TOTAL PHYSICS HOURS 36

10-15-84
revised 10-17-84