



MAJOR CHOSEN: ENGINEERING SCIENCE

I. A BRIEF DESCRIPTION OF THE MAJOR

The Engineering Science major consists of a general background in physics and engineering. It provides a foundation for further graduate study in areas such as nuclear or mechanical engineering, and is ideal for students undecided about their career goals or interested in an engineering area not offered by BJU. Note that BJU offers degrees in Physics, Biophysics, and Electrical Engineering for students interested in those particular career paths.

II. COURSE HIGHLIGHTS

Here are some of the core courses in this major:

General Physics This core course covers all the standard topics of physics from kinematics and dynamics to thermodynamics, electricity and magnetism, waves and optics, and an introduction to modern physics. In the laboratory, you will learn how to collect precision data and perform real-time data interpretation with computers.

Basic Circuit Analysis In this foundational electrical engineering class you will study DC, AC, and transient circuit analysis using a full range of calculus based techniques including Laplace transforms. In addition to lectures, you will have a weekly laboratory session. You will also learn to use PSpice and Electronic Workbench, two standard circuit-analysis computer programs.

Statics and Strength of Materials This course forms the foundation of mechanical engineering and introduces you to the design of structures and the analysis of the materials from which they are made.

Theoretical and Applied Mechanics After a standard course in engineering dynamics, this course covers more advanced mechanics from a physics point of view and gives you a depth of understanding beyond the normal engineering level.

Optics Textbook and laboratory combine to provide both theoretical understanding and practical experience with optical systems.



III. A TYPICAL YEARLY COURSE SEQUENCE

This is a suggested program of study for you. Other refinements to your program can be made when you consult your faculty advisor at the time of your enrollment.

You will notice that some courses are listed as electives. These electives give you the opportunity to tailor your program by selecting courses you would like to take for your own personal enjoyment.

Freshman

Orientation	1	Orientation	1
General Chemistry I	4	General Chemistry II	4
Physics Survey	1	Calculus I	3
Transcendental Functions*	3	New Testament Messages	1
History of Civilization	3	Fundamentals of Speech	3
Old Testament Messages	1	English Composition	<u>3</u>
English Composition	<u>3</u>	Total	15
Total	16		

Sophomore

Basic Circuit Analysis I	3	Basic Circuit Analysis II	3
General Physics I	4	General Physics II	5
Calculus II	3	Elementary Linear Algebra	3
Sophomore Bible Elective	1	Calculus III	3
English Literature	3	Sophomore Bible Elective	1
Social Studies Elective	<u>3</u>	Total	16
Total	17		

Junior

Engineering Graphics I	1	Engineering Dynamics	3
Statics & Strength of Materials	3	Optics	3
Calculus IV	3	Differential Equations	3
Introduction to Computer Programming	3	History of Civilization	3
History & Philosophy of Science	3	Christian Family Forum	1
Bible Doctrines	<u>3</u>	Bible Doctrines	<u>3</u>
Total	16	Total	16

Senior

Electricity & Magnetism I	3	Engineering Graphics II	3
Theoretical & Applied Mechanics I	3	Electricity & Magnetism II	3
Oral Communication for the Professions	3	Theoretical & Applied Mechanics II	3
General Psychology	3	Psychology Elective	3
Upper-Level Bible Elective	2	Upper-Level Bible Elective	2
Thermodynamics / Statistical Mechanics	<u>3</u>	Electives	<u>2</u>
Total	17	Total	16

* Students with a math ACT score below 26 will be required to take a math placement test and may be required to take remedial math classes.



IV. FACILITIES, EQUIPMENT, AND OPPORTUNITIES

A completely equipped physics laboratory is available for analysis of experimental data. Each lab station provides an up-to-date notebook PC connected to a USB data acquisition system for collecting and analyzing data in "real" time, while it is actually being observed. Wireless networking eliminates the clutter of network cables from the physics work areas.

Modern computer laboratories are available for your use. There are many academic computer labs conveniently located all over campus, including a power-user lab for Computer Science, Engineering, and Electronics students. This lab is equipped with dual-monitor 1 GHz Pentium multimedia machines running Windows XP, in addition to Macintosh and LINUX machines. All students receive an email address and have high-speed filtered Internet access.

Optics lab provides opportunities for students to understand the properties of optical systems from lenses and diffraction gratings to lasers and klystrons.

An X-ray diffraction system and electron microscope provide advanced laboratory experience.

You will initiate and complete a special project in some engineering area during your senior year.

Chapel is a central feature of Bob Jones University. This 35-minute service is held every morning, Monday through Thursday. These services are a source of great inspiration to students. Four days a week the Chapel message is brought by the President or by selected speakers. Each Friday the Chapel period is devoted to the meetings of various literary societies.

All students have opportunity to participate in the University's athletic program. Through a well-integrated program of intramural athletic competition, a very high percentage of student participation is possible. You will have the opportunity to compete in a wide variety of both team and individual sports including soccer, speedball, basketball, softball, track, volleyball, tennis, swimming, badminton, judo, table tennis, racquetball, archery, wrestling, and indoor soccer.

Davis Field House, with over 87,000 square feet and seating for 3,000 people, contains 4 full-sized courts; auxiliary courts; indoor and outdoor tracks; swimming pool; café; and a fitness center with fully-equipped exercise room, aerobic room, sauna, and whirlpool.

The Mack Library, with 90,000 square feet of floor space and seating for over 1,300 students, gives you access to 294,000 volumes, 1,100 current periodical subscriptions, and more than 17,000 music, speech, and language recordings. Mack Library offers access to over 65 electronic databases on the library web site. An interlibrary loan program is available through OCLC, a national database, for books not held in our library. Other prominent features include the Jerusalem Chamber, a replica of the room in Westminster Abbey in London in which work was done on the 1611 King James Bible, and the University Archives Room which displays materials about the Founder and history of the University.

If you are planning to live on campus, you will be glad to know that all of our residence halls are air-conditioned, have wall-to-wall carpeting, and have a phone in each room. You will be able to make long-distance calls directly from your room and have them automatically placed on your school bill. Computer network connectivity is available in all residence halls, as well.



All of our classrooms are air-conditioned, and there are awnings over the sidewalks to keep you dry when it is raining. The Dining Common serves 8,500 delicious meals a day, and the Snack Shop and Bookstore in the Student Center carry just about anything you'll need.

You will find the finest Christian young people in the country are your fellow students, and without trying too hard, you may end up making a life-long friend!

V. ABOUT THE FACULTY

The physics and engineering faculty have a wide range of experience both in academia and industry. Most have Ph.D. degrees in their areas of specialty and several conduct ongoing research projects.

VI. CAREER OPPORTUNITIES AND PLACEMENT

Our engineering science graduates have been accepted in graduate mechanical, electrical, and nuclear engineering at schools around the country. Some have found jobs in areas as diverse as robotics, military simulation, materials failure analysis, and automotive electronics.

VII. BJU: AN AFFORDABLE EDUCATION

Enclosed is an expense sheet detailing the cost of attending Bob Jones University. When you compare our charges to those of other private colleges, we think you will be pleasantly surprised. We believe we offer a student more value for his dollar than anyone else in America. And to help you see how affordable "the Opportunity Place" can be for you, we have enclosed a financial aid brochure that you can use to evaluate your own situation. Your Admissions Counselor or the Director of Student Financial Aid would be happy to discuss this with you if you have any questions.

HOW TO TAKE THE NEXT STEP . . .

If you can see yourself in the career described in the profile, then a great opportunity awaits you at Bob Jones University. It is the opportunity for the premier Christian college experience in all the world. It is the opportunity for learning, for fun, and for developing new friendships. It is the opportunity to prepare for a lifetime of service for the Lord . . .

The Opportunity Place . . . God's Special Place for You.

For further information about all of the science and engineering options available at BJU, call your admissions counselor to arrange a phone call with one of the department's professors. Professors also welcome email questions. More information about the Physics and Engineering Department is also available on the department web page at www.bju.edu.