

**2019 – 2020**

**Undergraduate Catalog Addendum**



**Last Updated on August 29, 2019**

## THE BACHELOR OF SCIENCE DEGREE PROGRAM IN BUSINESS ECONOMICS

### PROGRAM OVERVIEW

The Bachelor of Science degree program in Business Economics provides students with rigorous training in economic theory, applied economics, and quantitative techniques to develop the potential of students as economic professionals, enabling them to play a more effective role in the American economic system that are useful for challenging career opportunities in the private and public sectors of the economy.

### PROGRAM GOALS AND LEARNING OUTCOMES

**Goal 1:** Provide students with a thorough understanding of consumer and producer behavior through microeconomic theory and the market economy in a global setting.

**Goal 2:** Provide students with a thorough understanding of macroeconomic theory in a national and international setting.

**Goal 3:** Increase students' proficiency in the use of quantitative tools for solving economic problems.

The learning outcomes will be accomplished through: (1) *instruction* to students, (2) the promotion of *research* to contribute to the body of knowledge in accounting; and, (3) the opportunity for faculty and students to provide *service* to the University, the community and the profession.

### PROGRAM REQUIREMENTS

All students must complete a minimum of 122 credit hours. A minimum grade of "C" in all courses attempted in business courses and all prerequisites must be completed with a grade of "C" or better before enrolling in courses. When students are changing from a major in Accounting to a major in Business Economics, a grade lower than a "C" is acceptable for ACCT 307. Students will be permitted to qualify for graduation provided their GPA is 2.00 or better at graduation. All students who have completed Economics 250/260 will not receive credit for Economics 255 as a substitute for the two courses. Furthermore, as part of the business core, all Business Economics majors must complete at least one internship program before graduation.

**BUSINESS ECONOMICS MINOR:** In addition to Economics 250/260 or Economics 255, students will complete 15 credit hours in Economics for a minor in business economics.

### THE BUSINESS ECONOMICS CURRICULUM

The curriculum in Business Economics attempts to broaden the students background and understanding of the economy within which the American and global businesses operate. It provides an understanding of basic economic and business relationships, which should prove most valuable to those students entering the business world. A student who successfully completes this program is equipped with advanced tools for the study of economic change, and particularly the application of quantitative analysis to economic issues.

**CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN  
BUSINESS ECONOMICS**

(122 Credits)

**FRESHMAN**

First Semester	Credits	Second Semester	Credits
UNIV 101	2	E 151	3
E 150	3	EPC 111	0
BSC 150	3	PSC 150	3
BSC 151	1	PSC 151	1
M 154	3	M 155	3
PE 150/MS 101/HED 151	2	ART 250/MU 250/D 254	3
PSY 250 or SOC 250	3	BA 101	3
	17		16

**SOPHOMORE**

First Semester	Credits	Second Semester	Credits
E 250 or E 251	3	H 250 or H 251	3
ACCT 207	4	ACCT 208	3
BA 201	3	ECON 260	3
ECON 250	3	HHU 250	3
SB 201	1	BA 214	3
BA 213	3		
	17		15

**JUNIOR**

First Semester	Credits	Second Semester	Credits
ECON 302	3	ECON 301	3
ECON 309	3	BA 311	3
SB 301	1	MGT 301	3
ECON 305	3	MKT 300	3
Gen. Ed. Elective	3	SB 400	1
MGT 310	3	Approved ECON Elective	3
	16		16

**SENIOR**

First Semester	Credits	Second Semester	Credits
MGT 320	3	MGT 430	3
SB 401	1	Approved ECON Elective	3
ECON 415	3	ECON 407	3
Approved ECON Elective	3	Gen. Ed. Elective	3
Gen. Ed. Elective	3	Senior Exit Survey	0
		Senior Exit Exam	0
	13		12

**Notes:**

1. A Grade of "C" or better must be earned in all Business Courses and E 150, E 151, M 154, M 155.
2. Students who fail the English Proficiency Exam must enroll in and pass Practical English, E 152.
3. Agribusiness electives must be selected from the following approved electives:  
ECON 307, ECON 316, ECON 351, ECON 363, ECON 401, ECON 402, ECON 410, ECON 411, ECON 450.
4. Gen. Ed. electives are courses that are non-business. Students are encouraged to take a foreign language to satisfy this requirement.

# DESCRIPTION OF COURSES

## BUSINESS ECONOMICS

**ECON 250. Principles of Macroeconomics. 3(3,0).** This course deals with aggregate or “total” economic activity and hence focuses on the things that factor the economy as a whole. The two main topics of macroeconomics are inflation and unemployment, although there are important macroeconomic aspects to economic growth and international trade. (F,S).

**ECON 260. Principles of Microeconomics. 3(3,0).** This course focuses on the behavior of individual decision makers in the economy. It centers on how these decision makers choose among alternatives and what are the results of these choices. Included among the decision makers are consumers, workers, business firms and governments. (F, S)

**ECON 255. Survey of Economics. 3(3,0).** A one-semester survey of the principles of economics and application of these principles of economics to economic issues of resources allocation, inflation, unemployment, production, economic growth, money creation and financial institutions. (F, S).

**ECON 301. Microeconomic Analysis. 3(3,0).** A thorough investigation of resource allocation in a private enterprise system, price and output determination under alternative market structures, consumer behavior, and factor income. Prerequisite: ECON 260. (S).

**ECON 302. Macroeconomic Analysis. 3(3,0).** A thorough investigation of the macroeconomic forces that influence business. Topics include the determination of GNP /GDP and employment levels, consumption and investment behavior, inflation, unemployment, appropriate monetary and fiscal policies, budget deficit, and trade deficit. *Prerequisite:* ECON 250. (F)

**ECON 305 Business and Economic Forecasting. 3(3,0).** This course includes a review of the techniques and models used in forecasting various business variables such as: sales, resource supply, and macroeconomic variables such as GDP, inflation, employment, etc. The emphasis will be to enable the student to become familiar with and have a working knowledge of quantitative methods for providing answers to various types of business and economic problems. The application of these forecasts in an uncertain business environment and as a tool of planning will be examined. *Prerequisite:* ECON 250 and 260, BA 214, (S)

**ECON 307 Labor Economics. 3(3,0).** This course introduces the student to the economic analysis of the labor market. It includes a review of the determinants of Labor Supply and Labor Demand. It also includes a review of the basic theory of Human Capital. *Prerequisite:* ECON 250 and 260, (S)

**ECON 309 Financial Institutions and Market. 3(3,0).** The course provides an understanding of the U.S. financial system. Topics include corporate flow of funds, financial intermediation, commercial and central banks, monetary theory, financial factors and economic activity, level and structure of interest rates, and debt and derivative markets such as bonds, commercial paper, and mortgage backed securities. *Prerequisite:* ECON 250 or ECON 255

**ECON 363. Personal Money Management, 3(3,0).** The course introduces the students to the fundamental problems of personal economic decision-making. Topics include personal finance issues such as personal financial planning, rules of money management and savings, credit management, taxes, insurance, investment in fixed-income securities, stock, and mutual fund. *Prerequisite:* ECON 250 or ECON 255 or approval of instructor.

**ECON 401 Current Economic Problems. 3(3,0).** This course involves an application of economic principles to analyze present-day economic problems. The flexibility of this course permits the inclusion of any contemporary economic issue. Prerequisite: ECON 250-260 or ECON 255, (F,S)

**ECON 407: International Economics. 3(3,0).** The course introduces the students to the analysis of international trade and payments. Topics include trade theory, the environment of international financial system, foreign exchange markets, exchange rate risk management, capital budgeting for multinationals, the financing of foreign operations, and international banking. *Prerequisite:* ECON 250 or ECON 255.

**ECON 410. Introduction to Econometrics. 3(3,0).** Application of statistical and mathematical concepts to the solution of economic problems; main topics include the least squares estimator, statistical inference, specification error, heteroscedasticity, auto-correlated residuals, problems of multicollinearity. *Prerequisite:* MATH 162, BA 214, ECON 260 or permission of the instructor. (F, S)

**ECON 411. Mathematical Economics. 3(3,0).** This course emphasizes the application of mathematical analysis to introductory micro-and macro-economic theory. Graphical representations, algebraic functions of several variables, and differentials calculus provide the framework for analysis. *Prerequisite:* ECON 250-260; MATH 154. (S).

**ECON 415. Managerial Economics. 3(3,0).** A study of the application of economic theory to the decision making process in business enterprise. This entails the discussion of demand forecasting, cost analysis, capital budgeting, structure of the firm, and some operation research techniques. *Prerequisite:* ECON 260 or 255. (F).

**ECON 450. Seminar in Economics. 3(3,0).** This course will involve classroom presentations on topics in economics. *Prerequisite:* Senior standing. (S).

# THE BACHELOR OF SCIENCE DEGREE PROGRAM IN CIVIL ENGINEERING

## Program Overview

The Civil Engineering (CE) program prepares graduates to apply knowledge of mathematics for analysis, design, and management of the civil and infrastructural systems and assume careers as professional engineers, to conduct basic and applied research, to improve the state of knowledge of civil engineering.

The Program Educational Objectives (PEOs) and Student Outcomes (SOs) of the Civil Engineering program are as follows:

## Program Educational Objectives of the CE Program

- To produce CE graduates who can become Managers, Supervisors, and entrepreneurs, etc.
- To produce CE graduates who can continue on to graduate school.
- To produce CE graduates who can successfully work in any of the many fields and branches of the Civil Engineering profession such as; construction management, structures, material testing, surveying, etc.
- To produce CE graduates who can become leaders and cognizant of the professional, societal a global issues facing the Civil Engineering profession.

## Student Outcomes of the CE Program

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Admissions Requirements for Engineering Programs

- High School Students seeking admission into any engineering program SC State University must have SAT score above 900 or ACT of 20 or higher
- Transfer students must have overall GPA of 2.5 on a 4 point scale with Mathematics/Science average of 2.75 or higher

**CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING  
AT SOUTH CAROLINA STATE UNIVERSITY  
134 CREDIT HOURS**

**FRESHMAN**

<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
E 150 English Composition I <b>(NP)</b>	3	E 151 English Composition II <b>(PR: E 150)</b>	3
EAET 150 Mechanical Drawing and Basic CAD <b>(NP)</b>	3	C 150 General Chemistry <b>(NP)</b>	3
EAET 170 Introduction to Engineering <b>(NP)</b>	3	C 151 General Chemistry Lab. <b>(CR: C 150)</b>	1
M 158 Calculus I <b>(NP)</b>	4	CE 205 Computer-Aided Drafting <b>(PR: EAET 150)</b>	3
PE 150 or HED151 <b>(NP)</b>	2	M 168 Calculus II <b>(PR: M 158)</b>	4
UNIV 101 Intro. to University Community <b>(NP)</b>	<u>2</u>	CS 150 Computer Science <b>(NP)</b>	<u>3</u>
	<b>17</b>		<b>17</b>

**SOPHOMORE**

<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
E 250 or E 251 World Literature <b>(PR: E 151)</b>	3	ART 250 or MU 250 or D 254 <b>(NP)</b>	3
ENGR 212 Statics <b>(PR: M 158)</b>	3	ENGR 213 Strength of Materials <b>(PR: ENGR 212)</b>	3
EAET 255 Engineering Economic Analysis <b>(PR: M 158)</b>	3	EAET 250 Technical Communications <b>(PR: E 151)</b>	3
M 278 Calculus III <b>(PR: M 168)</b>	4	M 403 Differential Equations <b>(PR: M 278)</b>	3
P 251 General Physics I Lab. <b>(CR: P 254)</b>	1	P 253 General Physics II Lab. <b>(CR: P 255)</b>	1
P 254 General Physics I <b>(PR: M 158)</b>	<u>3</u>	P 255 General Physics II <b>(PR: P 254)</b>	<u>3</u>
	<b>17</b>		<b>16</b>

**JUNIOR**

<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
CE 311 Plane Survey <b>(PR: M 158)</b>	3	CE 315 Construction Engr. and Mgt. <b>(PR: JST)</b>	3
CE 319 Structural Analysis <b>(PR: ENGR 213 &amp; M 158)</b>	3	CE 318 GPS & Control Surveying <b>(PR: CE 311)</b>	3
EAET 310 Engineering Computing <b>(PR: CS 150)</b>	3	CE 320 Highway Engineering <b>(PR: CE 311)</b>	3
ENGR 421 Thermodynamics <b>(PR: M 168 &amp; P 253 &amp; P 255)</b>	3	EET 230 Circuit Analysis <b>(PR: M 158)</b>	3
H 250 or H 251 History of World Civilizations <b>(NP)</b>	3	ENGR 313 Dynamics <b>(PR: ENGR 212)</b>	3
SOC 250 Sociology <i>or</i> PSY 250 Psychology <b>(NP)</b>	<u>3</u>	ETS 250 <i>or</i> HHU 250 African Amer. History <b>(NP)</b>	<u>3</u>
	<b>18</b>		<b>18</b>

**SENIOR**

<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
CE 413 Structural Steel Design <b>(PR: CE 319)</b>	3	CE 414 Reinforced Concrete Design <b>(PR: CE 319)</b>	3
CE 415 Fluid Mechanics <b>(PR: ENGR 313)</b>	3	CE 419 Foundation Engineering <b>(PR: CE 418)</b>	3
CE 418 Soil Mechanics <b>(PR: ENGR 213)</b>	3	CE 428 Hydrology and Drainage <b>(PR: CE 415)</b>	3
CE 459 Senior Project Proposal <b>(PR: SST)</b>	1	CE 430 Transportation Planning <b>(PR: CE 320)</b>	3
ENGR 417 Mechanics of Materials Lab. <b>(PR: ENGR 213)</b>	3	CE 460 Senior Project <b>(PR: CE 459)</b>	<u>3</u>
<b>Restricted Elective (Select One):</b>	<u>3</u>		
EAET 410 Engineering Ethics <b>(PR: SST)</b> <i>or</i>			
EAET 411 The Role of Engineers and Technologists in Society <b>(PR: SST)</b>			
	<b>16</b>		<b>15</b>

**University/Departmental Policy requires that all students pass the English Proficiency Examination (EPC 111).**

**Abbreviations:** NP- No Prerequisites, PR- Prerequisite, CR- Corequisite, JST- Junior Standing, SST- Senior Standing.

**Acceptable Minimum Passing Grades:** "C" for CE, ENGR, and EAET courses, "C" for E 150 and E 151, "D" for Math courses, Computer Science, Physics, English Literature, Art/Drama/Music, Sociology and Psychology courses.

# DESCRIPTION OF COURSES

## CIVIL ENGINEERING

### **CE 205 – Computer-Aided Drafting/ 3(2, 3)**

This course will discuss the general concept of Computer-Aided Drafting (CAD) Technology. Various hardware and software will be introduced to the students. AutoCAD, Cadkey, Cadam, and personal design programs are to be used for creating the technical drawings in various engineering fields such as Structures, maps, machine parts, plumbing, and electronics. Hands-on exercises will be emphasized. (Prerequisites: EAET 150)

### **CE 311 - Plane Surveying/ 3(2, 3)**

This course covers development of skills necessary to recognize and solve problems in surveying; introduction and use of various precision instruments used for surveying, including tape, electronic distance measuring equipment (EDM), level, theodolites, and total stations for collecting field data; introduction of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) and their use in surveying; and use of graphic design software, such as AutoCAD, in surveying problems. Fieldwork includes taping, traverse, and topographic surveys. (Prerequisite: M 158)

### **CE 315 - Construction Engineering and Management/ 3(3, 0)**

This course considers construction contracts, technical specifications, cost estimating, project scheduling, cost control, materials management, quality control, and quality assurance. (Prerequisite: Junior Standing)

### **CE 318 - GPS & Control Survey/ 3(2, 3)**

This course introduces principles of satellite-based surveying and presents the Global Positioning System (GPS) as it is utilized in land surveying. Various components of GPS technology are described and techniques, through which GPS technology can be used in land surveys, are presented. Field exercises will be assigned utilizing GPS equipment as part of the laboratory activities. (Prerequisite: CE 311)

### **CE 319 – Structural Analysis/ 3(3, 0)**

This course covers the calculation of design loads and load paths for buildings and other structures. In this course, uses the classical analysis techniques to determine support reactions, internal member forces, and structural displacements of statically determinate and indeterminate structural systems. (Prerequisites: ENGR 213 & M 158)

### **CE 320 - Highway Engineering/ 3(3, 0)**

The content in this course consists of highway systems, traffic flow theory, highway planning, vehicle and driver characteristics, geometric design, highway structure design, pavement design, drainage, earthwork, intersections, traffic control, and highway maintenance. (Prerequisite: CE 311)

### **CE 413 - Structural Steel Design/ 3(3, 0)**

The content of this course consists of an introduction to the design of structural elements found in steel buildings, in particular, the design of steel tension members, beams, columns, beam-columns, and connections. Emphasizes the AISC-LRFD Specifications for steel design, though reference is made to the ASD Specification with comparisons made where appropriate. (Prerequisite: CE 319)

### **CE 414 – Reinforced Concrete Design/ 3(3, 0)**

This course covers the design of reinforced concrete beams, slabs, columns and footings using ultimate strength design. An introduction to working stress analysis is also included. (Prerequisite: CE 319)

### **CE 415 – Fluid Mechanics/ 3(3, 0)**

This course teaches fundamental concepts relating to the characteristics of fluids, fluid statics, fluid kinematics and governing principles of fluid motions, and closed conduit and open channel flows. In this course, students develop a clear understanding of the basic physical principles that govern the static and dynamic behavior of fluids with the ability to apply the analytical and mathematical skills needed to describe and predict fluid behavior,



and the ability to apply fundamental principles and skills to the engineering solution of some practical fluid systems problems such as flow in pipes and open channels. (Prerequisite: ENGR 313)

**CE 418 - Soil Mechanics/ 3(3, 0)**

In this course, students will learn the properties of soils, soil classifications, seepage and flow nets, stress distribution; consolidation and settlement, compaction, soil stabilization, shearing strength, rupture theory, and subsurface soil investigation. (Prerequisite: ENGR 213)

**CE 419 - Foundation Engineering/ 3(3, 0)**

Foundation engineering course focuses on the investigation, design and construction of the foundations of engineering structures. This course addresses the site investigation of the geotechnical projects, followed by the design and construction of shallow and deep foundations. Further, they will be exposed to the understanding of earth pressure for the stability of retaining structures along with various techniques for the stability of slopes. (Prerequisite: CE 418)

**CE 428 - Hydrology and Drainage/ 3(3, 0)**

This course focuses on the fundamentals of hydrology, including hydraulics of open and closed systems, water quality and drainage. Characteristics of pressures and flows in pipes, stormwater runoff, culvert and ditch flow will be studied. (Prerequisite: CE 415)

**CE 430 - Transportation Planning/ 3(3, 0)**

This course examines planning for urban facilities, which include contemporary transportation planning for road, rail, water, air, and new technologies. It also provides a critique of urban, regional, and national planning methodologies and a review of strategic versus tactical planning strategies and current research. (Prerequisite: CE 320)

**CE 459 - Senior Project Proposal/ 1(1, 0)**

This course is to enhance the students' chance of successfully completing senior project CE 460. It is a prerequisite for the senior project (CE 460). This course is designed to afford students planning to take senior project the opportunity to prepare prior to registering for the senior project course. Students will be able to select a topic, do literature review as well as determine the methodology for accomplishing their senior projects. (Prerequisite: Senior Standing)

**CE 460 - Senior Project/ 3(2, 3)**

This course is designed to afford students to complete whatever they planned for their project on the Senior Project Proposal. In this course, the students will build, test, and demonstrate the project they started in the senior project proposal. Written technical reports and oral presentations on the project are required. Part of this course involves the student working with their advisor who acts as a consultant. (Prerequisite: CE 459)

**EAET 150 - Mechanical Drawing and Basic CAD / 3(2, 3)**

This course is designed to develop knowledge, insight, and skills needed by the engineering professional or technologist for graphic expression. This course teaches the fundamentals of drafting through the use of CAD and pencil sketches on grid paper. The student will be introduced to basic computer-aided (CAD) with the AutoCAD program. Student will use AutoCAD to setup drawings and add lines, circles, arc, other shapes, geometric constructions, dimensioning, and text. Students will use display and editing techniques as well as obtain information about their drawings and work with drawing files. (Prerequisite: None)

**EAET 170 - Introduction to Engineering/ 3(3,0)**

This course stresses the role of Engineering and Technology in the society in general and in technological environment in particular; presentation of various physical and mathematical tools for solving technical problems; adequate use of graphical analysis; technical sketching; digital and analog computers; introduction to analysis and synthesis of electrical, mechanical, environmental and pollution-control systems. (Prerequisite: None)

**EAET 250 - Technical Communications / 3(3, 0)**

This course is designed to familiarize the student with concepts, principles, and contemporary practices used in industry to create, write and present technical information. Attention will be given to report writing, oral

presentations, and graphics communications. It will also include word processing and group exercises that reinforce the areas of Technical Communications. (Prerequisite: E 151)

**EAET 255 - Engineering Economic Analysis/ 3(3, 0)**

Basic concepts in engineering Economic Analysis, principles of equivalence of time value of money, return on investment, evaluation of alternatives, the effects of taxes on economics analysis, break-even and crossover analysis, replacement policies, optimization of engineering design. Case studies are used. (Prerequisite: M158)

**EAET 310 - Engineering Computing/ 3(2, 3)**

The objective of the course is to introduce students to numerical methods for solving problems in civil engineering (both for modeling and experimental work). The course provides students with the necessary background to enable them to use basic computational tools and gain a fundamental understanding of numerical methods. It also introduces them to basic computer programming and inculcates a systematic logical thought process towards problem-solving. (Prerequisite: CS 150)