1981

Bachelor of Science and Engineering Course Descriptions

Nova Southeastern University

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NOVA COLLEGE
The Corporate Division

Develop Your Technical Potential
Part Time and Full Time Degree Programs
Designed for the Working Adult in Cooperation with Industry
"Second Bachelor" Programs for those who now need a Technical Degree

FORMAT
Classes will meet for 4.5 hours for 9 sessions either in the evening from 6:10 to 10:30 PM or on Saturday from 8:30 AM to 1:00 PM at the main Nova campus, or at industrial sites.

ADMISSION REQUIREMENTS
Students must be high school graduates (or equivalent), and take the Corporate Division Placement Test, which will evaluate ability to read, write, and perform mathematical calculations (hand calculator permitted) on the level needed for college work. College Board or Miller Analogy scores may be substituted by students in lieu of Placement Test. A student may take up to 2 courses as a Special Student or while in the process of applying before taking the Placement Test.

CAN I TAKE A COURSE OR TWO WITHOUT ENROLLING IN A DEGREE PROGRAM?
YES. In this case, you check “Special Student” on the application form. You do not have to take the Placement Test to take one or two courses as a “special student.”

HOW DO I APPLY FOR ADMISSION?
Complete the application forms and return with a non-refundable $15.00 application fee by mail or in person. All checks should be made payable to NOVA UNIVERSITY. All materials should be sent to Nova College, Registrar’s Office, Nova University, 3301 College Avenue, Fort Lauderdale, FL 33314.

HOW DO I REGISTER?
Discuss your needs with the counselor, by phone or in person, complete the registration form. It should be returned with a check in the appropriate amount made out to NOVA UNIVERSITY, and sent to the same address as indicated in the admission question above.

WHAT IS THE COST OF ATTENDING?
Application fee (non-refundable): $15.00
Registration fee: $15.00
Tuition (per credit): $75.00
Late registration fee (after Dec. 19): $10.00

WHAT CREDIT CARDS CAN I USE?
Master Charge
VISA
Hollywood Buy-O-Matic

FOR INFORMATION CALL:
BROWARD COUNTY: 475-7650
DADE COUNTY: 940-6644, Ext. 7649/50 (toll free)
PALM BEACH COUNTY: 732-6600, Ext. 7649/50 (toll free)

Nova University / College Avenue / Fort Lauderdale, Florida 33314

Nova University is fully accredited by the Southern Association of Colleges & Schools
### COURSES BEGINNING JANUARY 5, 1981

<table>
<thead>
<tr>
<th>COURSE NO.</th>
<th>SEC.</th>
<th>DESCRIPTION</th>
<th>DAY</th>
<th>TIME</th>
<th>PARKER</th>
<th>ROOM</th>
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<tbody>
<tr>
<td>CS 160</td>
<td>B</td>
<td>Digital Systems</td>
<td>TH</td>
<td>8:30-1:00</td>
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<tr>
<td>CS 160</td>
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<td>Digital Systems</td>
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<td>6:00-10:30</td>
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<tr>
<td>CS 170</td>
<td>B</td>
<td>Computer Programming I</td>
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<td>8:30-1:00</td>
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<td>CS 170</td>
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<td>CS 210</td>
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<td>Fortran</td>
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<td>CS 340</td>
<td>A</td>
<td>Introduction to File Processing</td>
<td>T</td>
<td>6:00-10:30</td>
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<tr>
<td>EE 410</td>
<td>A</td>
<td>Electromagnetic Theory</td>
<td>W</td>
<td>6:00-10:30</td>
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<tr>
<td>ETR 130</td>
<td>A</td>
<td>Electronics Lab I</td>
<td>M</td>
<td>6:00-10:30</td>
<td>213</td>
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<tr>
<td>ETR 250</td>
<td>A</td>
<td>Networks II</td>
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<td>6:00-10:30</td>
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<td>ETR 320</td>
<td>A</td>
<td>Electronics III</td>
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<td>8:30-1:00</td>
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<td>Coral Springs</td>
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<tr>
<td>MAT 210</td>
<td>A</td>
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<td>8:30-1:00</td>
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<td>Coral Springs</td>
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<tr>
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<td>Physics II</td>
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<td>6:00-10:30</td>
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<td>PHY 210</td>
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<td>Modern Physics</td>
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</table>

### COURSE DESCRIPTIONS

**CS-160 Digital Systems**  
History of computer technology, functions of operating systems, data representation, central processing system, the control unit, input/output devices, storage devices, octal and hexadecimal numbers. Boolean algebra, gates, concepts of machine languages, assembly languages.

**CS-170 Computer Programming I**  
An introduction to good programming techniques including flow charting, code design, debugging techniques and documentation, problem-solving methods and algorithm development to be used in the design of computer programs. The language, BASIC, will be taught as part of this course. An introduction to the use of microcomputers and computer terminals.

**CS-210 Fortran**  
Introduction to the language Fortran with reference to the latest standards, special techniques for programming in Fortran.

**CS 340 Introduction To File Processing**  
An introduction to the concepts and techniques of structuring data on bulk storage devices, applications of data structures and file processing, arrays, records, strings, lists, trees, stacks. Manipulations and limitations of files. Prerequisite: Some programming courses.

**EE-410 Electromagnetic Theory**  
Fundamentals of static electric and magnetic fields, electro-quasi-statics potential and voltage, charge singularities, boundary conditions, as well as Maxwell's equations in cartesian, spherical and cylindrical coordinates subject to given boundary conditions. Ampere's law, Gauss' law, electric and magnetic functions. Prerequisite: Physics II, Calculus III

**ETR-130 Electronics Lab I**  
- (1 cr.)  
Lab work to complement electronics theory course. Prerequisite: Networks I, or Circuit Theory I and Circuit Theory II, and Electronics I

**ETR 250 Networks II**  
A C circuit theory, capacitance, inductance, source free RL & RC circuits, application of unit step forcing function, RLC circuits, sinusoidal analysis, phasor sinusoidal steady state response. Polyphase circuits, average power and RMS power. Prerequisite: Calculus I.

**ETR 320 Electronics III**  
Passive and wave-shaping circuits: logic circuits, multi-vibrators and blocking oscillators; investigation of limitations, advantages and methods employed in integrated circuit technology. A strong use of mathematics to solve a number of problems in electronics analysis course. Fourier & Laplace transforms. Prerequisite: Calculus II & Electronics II
### SUMMARY OF PROGRAM REQUIREMENTS

All courses are 3 semester hours of credit unless otherwise indicated.

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<tr>
<th>EE</th>
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<td>Communications (3 cr.)</td>
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<td>Behavioral Science (3 cr.)</td>
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<td>MAT-140 Technical Mathematics</td>
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<td>MAT-150 College Mathematics</td>
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<td>MAT-210 Calculus I</td>
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<td>MAT-220 Calculus II</td>
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<td>MAT-310 Differential Equations</td>
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<td>MAT-320 Advanced Calculus</td>
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<td>MAT-420 Linear Algebra</td>
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<td>MAT-430 Fns. of a Complex Variable</td>
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<td>MAT-450 Probability &amp; Statistics</td>
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<td>PHY-140 Physics I</td>
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<td>PHY-210 Modern Physics</td>
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<td>PHY-212 Science of Matter or Chemistry</td>
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<td>CS-160 Digital Systems</td>
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<td>CS-170 Computer Programming I</td>
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<td>CS-220 Business Oriented Language (COBOL)</td>
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<td>CS-230 Structured Programming</td>
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<td>CS-410 System Design &amp; Analysis</td>
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<tr>
<td>CS-420 Operating System Concepts</td>
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<td>CS-430 Simulation &amp; Modeling</td>
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<td>CS-440 Microcomputers</td>
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<td>CS-450 Data Base Management Systems Design</td>
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### REQUIREMENTS

#### Behavioral Science (3 cr.)
- MAT-140 Technical Mathematics
- MAT-150 College Mathematics
- MAT-210 Calculus I
- MAT-220 Calculus II
- MAT-230 Calculus III
- MAT-310 Differential Equations
- MAT-320 Advanced Calculus
- MAT-420 Linear Algebra
- MAT-430 Fns. of a Complex Variable
- MAT-440 Numerical Analysis
- MAT-450 Probability & Statistics
- PHY-140 Physics I
- PHY-150 Physics II
- PHY-160 Physics III
- PHY-210 Modern Physics
- PHY-212 Science of Matter or Chemistry
- CS-160 Digital Systems
- CS-170 Computer Programming I
- CS-210 Fortran
- CS-220 Business Oriented Language (COBOL)
- CS-230 Structured Programming
- CS-240 Digital Design
- CS-255 Computer Programming II
- CS-310 Programming Techniques
- CS-320 Organization of Programming Languages
- CS-340 Introduction to File Processing
- CS-350 Computer Circuit Design
- CS-360 Computer Architecture
- CS-410 System Design & Analysis
- CS-420 Operating System Concepts
- CS-430 Simulation & Modeling
- CS-440 Microcomputers
- CS-450 Data Base Management Systems Design

#### Mathematical Science
- MAT-140 Technical Mathematics
- MAT-150 College Mathematics
- MAT-210 Calculus I
- MAT-220 Calculus II
- MAT-230 Calculus III
- MAT-310 Differential Equations
- MAT-320 Advanced Calculus
- MAT-420 Linear Algebra
- MAT-430 Fns. of a Complex Variable
- MAT-440 Numerical Analysis
- MAT-450 Probability & Statistics
- PHY-140 Physics I
- PHY-150 Physics II
- PHY-160 Physics III
- PHY-210 Modern Physics
- PHY-212 Science of Matter or Chemistry
- CS-160 Digital Systems
- CS-170 Computer Programming I
- CS-210 Fortran
- CS-220 Business Oriented Language (COBOL)
- CS-230 Structured Programming
- CS-240 Digital Design
- CS-255 Computer Programming II
- CS-310 Programming Techniques
- CS-320 Organization of Programming Languages
- CS-340 Introduction to File Processing
- CS-350 Computer Circuit Design
- CS-360 Computer Architecture
- CS-410 System Design & Analysis
- CS-420 Operating System Concepts
- CS-430 Simulation & Modeling
- CS-440 Microcomputers
- CS-450 Data Base Management Systems Design

### PROGRAM REQUIREMENTS

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<th>DEGREE CODE</th>
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<tr>
<td>B.S. Electrical Engineering (EE)</td>
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<tr>
<td>B.S. Computer Science (CS)</td>
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<tr>
<td>B.S. Computer Science with a Business Systems Option</td>
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<tr>
<td>B.S. Electronic Technology (ET)</td>
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<tr>
<td>Basic Electronic Cert. (BEC)</td>
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<tr>
<td>Advanced Electronic Cert. (AEC)</td>
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<td>Computer Science Cert. Individualized</td>
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- 100 level are beginning courses
- 200 and 300 level are intermediate courses
- 400 level are advanced courses
Course Descriptions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>MAT-210</td>
<td>Calculus I</td>
<td>Functions, limits, derivatives of algebraic functions, introduction to derivatives of trigonometric functions, logarithmic functions, application of derivatives to physics problems, related rates and maximum/minimum problems, definite and indefinite integrals with applications.</td>
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<tr>
<td>MAT-230</td>
<td>Calculus III</td>
<td>Sequences and series, Taylor series, Vector analysis functions of several variables, partial derivatives, total differential chain rule, multiple integral and application functions of a complex variable. Prerequisite: Calculus II or Equivalent</td>
</tr>
<tr>
<td>PHY-150</td>
<td>Physics II</td>
<td>Electrostatics, electric currents, electric fields and electric potential, AC and DC circuits, magnetic fields, capacitance, inductance and electromagnetic waves. Prerequisite or Co-requisite Calculus I</td>
</tr>
<tr>
<td>PHY-210</td>
<td>Modern Physics</td>
<td>An introduction to modern concepts of physics including atomic structure and microscopic structure of matter, quantum mechanics, elementary particles, special relativity, wave particle duality, statistical physics, X-rays, molecular binding, nuclear physics, including nuclear structure. Prerequisite: Physics I, II, III, Calculus I</td>
</tr>
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</table>

WHAT ARE REGISTRATION POLICIES?

How to Drop and Add Courses.

The first week of classes is the Drop/Add Period. After a class has met once you must receive written permission from the instructor or your counselor to add the class. The normal refund policy applies to a course dropped during the drop and add period unless another course of equal credit, with the same term beginning date, is added in its place.

The Registrar’s Office must be notified in writing of the course to be dropped. This may be done by completing a change of Registration form available in the Registrar’s Office or by mailing a simple written note to the Registrar’s Office.

Tuition Refund Policy

The following refund policy will be computed based upon the date written notification of the drop is received by the Registrar’s Office:

- 100% refund prior to the first class meeting.
- 75% refund prior to the second class meeting, regardless of class attendance.
- 50% refund prior to the third class meeting, regardless of class attendance.
- Fees are non-refundable.

NOVA COLLEGE OFFERS A NUMBER OF ADDITIONAL DEGREE PROGRAMS IN BOTH DAY AND EVENING FORMAT.

For Information Call: 475-7340

How to Withdraw

If you wish to withdraw from a course after the refund period is over you must submit a completed withdrawal form to the registration office within the first half of the course. After one half of the course is completed, instructor’s or counselor’s approval is required to withdraw from a course.

How to Take an Incomplete

With the written approval of the course instructor, you may have up to one additional term to complete the course and receive a letter grade. An incomplete form must be completed and signed by the instructor in order to receive a grade of “I”. The grade of “I” remains permanently on the record if the work is not completed within the extension period.

FINANCIAL AID

Nova University participates in various governmental financial aid programs for the benefit of its students.

For information call: 475-7410
Course Descriptions

MAT-150  College Mathematics (Precalculus)
Review of algebra, trigonometric functions, graphs of functions, logarithms, exponents, functions of the natural number, introduction of calculus, concept of limits, integrals.

MAT-220  Calculus II
Riemann sums, the definite integral, methods of integration, continuation of exponential logarithmic functions, inverse trigonometric functions, L'Hopital's rule, and improper integrals. Prerequisite: Calculus I or Equivalent

MAT-310  Differential Equations
Solving first order ordinary differential equations, exact, separable and linear. Applications to rates and mechanics, theory of higher order linear differential equations. Methods of undetermined coefficients and variation of parameters, application to vibrating mass and electric circuits; power series solutions. Partial differential equations: the methods of separation of variables, linear partial differential equations and their application to electronics and electrical engineering problems; solutions of initial boundary problems; Fourier series and Fourier transforms; inhomogeneous problems; introduction of numerical methods. Laplace transforms. Prerequisite: Calculus III or Equivalent

PHY-140  Physics I
Basic principles of mechanics including Vectors, force, equilibrium, displacement, velocity, acceleration, mass, Newton's Laws, work energy, gravitation, momentum, rotational motion, mechanics of systems of particles and rigid bodies. Prerequisite Calculus I

WHAT ARE REGISTRATION POLICIES?

How to Drop and Add Courses.

The first week of classes is the Drop/Add Period. After a class has met once you must receive written permission from the instructor or your counselor to add the class. The normal refund policy applies to a course dropped during the drop and add period unless another course of equal credit, with the same term beginning date, is added in its place.

The Registrar's Office must be notified in writing of the course to be dropped. This may be done by completing a change of registration form available in the Registrar's Office or by mailing the form to the Registrar's Office.

After the third class meeting, a student may withdraw from a course by completing a "Withdrawal Form" available in the Registrar's Office. After one half of the course is completed, instructor's or counselor's approval is required to withdraw from a course.

How to Withdraw

If you wish to withdraw from a course after the refund period is over you must submit a completed withdrawal form to the registration office within the first half of the course. Between that time and the last class meeting before the final exam, you may withdraw and obtain a "W" only with the consent of the instructor or academic counselor on the withdrawal form. You are expected to attend all classes and may be administratively withdrawn without further notice if you do not meet attendance requirements of the course.