



Bachelor of Engineering (BEng) SOFTWARE ENGINEERING

The curriculum of the BEng in Software Engineering is designed for those engineering students who intend to launch a career in the design, development, testing, installation, and maintenance of computer software modules and systems. Coursework in the program is practice-oriented and prepares students to work in a variety of computer intensive environments that involve engineering analysis and software management – technical organizations, small or large businesses, product design or manufacturing companies, and data-directed services. The breadth of training in hardware, software, computer logic and laboratory tools will enable the graduate to work in a variety of roles in such environments as a software engineer or developer, software systems engineer, software project manager, data applications, or computer engineer, test and integration manager or technologist in computer applications. The graduate of this curriculum will be a software engineering specialist, but broadly versed in mathematics, physics, computer science, software development and business fundamentals.

Students are advised to not attempt upper division coursework (300 and 400-level classes unless you have earned a GPA of 2.50 or better in all IT, CS, and CT coursework taken at the 100 and 200-level. Failure to maintain an overall GPA of 2.00 or better in all coursework will be sufficient cause for being dropped from the program.

GENERAL EDUCATION (53 crs)	COMPLETED	Planned Timeline (By Semester)
<u>Communications (9 crs)</u>		
ENG 111 English Composition I (3) <i>Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation</i>	_____	_____
ENG 116 Technical Writing (3) <i>Pre-requisite: ENG 111</i>	_____	_____
SPCH 130 Public Speaking (3) <i>Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation</i>	_____	_____
<u>Mathematics (14 crs)</u>		
MATH 145 Introduction to Probability & Statistics (3) <i>Pre-requisite: MATH 130 or adequate score on the Course Placement Evaluation</i>	_____	_____
MATH 162 Calculus I (4) <i>Pre-requisites: MATH 150 and MATH 155 or MATH 160</i>	_____	_____
MATH 163 Calculus II (4) <i>Pre-requisite: MATH 155 and MATH 162</i>	_____	_____
MATH 314 Linear Algebra with Applications (3) <i>Pre-requisites: MATH 163 or adequate score on the Course Placement Evaluation</i>	_____	_____
<u>Laboratory Science (12 crs)</u>		
CHEM 121/L General Chemistry I/L (4) <i>Pre-requisite: MATH 130, high school chemistry, or an ACT score of 19 or higher in Natural Science</i>	_____	_____
PHYS 215/L Engineering Physics I/L (4) <i>Pre-requisite: MATH 162</i>	_____	_____
PHYS 216/L Engineering Physics II/L (4) <i>Pre-requisite: PHYS 161/L and MATH 162</i>	_____	_____
<u>Social/Behavioral Sciences (9 crs)</u>		
<i>Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation</i>		
<i>You must select courses from at least two different discipline areas from the following list:</i>		
ECON 201 Microeconomics (3)	_____	_____
Choose two electives from the following courses:		
ANTH 101/L Physical Anthropology w/Lab (4)		
ANTH 102 Intro to Social & Cultural Anthropology (3) (Fall)		
ANTH 111 Language and Culture (3)		
ANTH 207 Cultures of New Mexico (3)		
ANTH 110 Indian Culture of the Southwest		
ECON 200 Macroeconomics (3)		
GEOG 111 World Geography (3)		
PSCI 110 The Political World (3)		

- PSCI 120 Contemporary Political Issues (3)
- PSCI 200 American Politics (3)
- PSCI 210 State and Local Government (3)
- PSCI 212 The American Presidency (3)
- PSY 105 General Psychology (3)
- PSY 210 Theories of Personality (3)
- PSY 229 Adolescent Psychology (3)
- PSY 230 Psychology of Adjustment (3)
- PSY 232 Abnormal Behavior (3)
- PSY 270 Social Psychology (3)
- PSY 290 Developmental Psychology (3)
- SOC 101 Introduction to Sociology (3)
- SOC 213 Deviant Behavior (3)
- SOC 216 Ethnic and Intercultural Relations (3)
- SOC 220 Social Problems (3)
- SOC 225 Marriage and the Family (3)

* Plus, topic courses with student advisor's approval

Elective (3) _____

Elective (3) _____

Humanities and Fine Arts (9 crs)

Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation

You must select courses from at least two different discipline areas from the following list:

PHIL 220 Ethics (3) _____

Choose **two** electives from the following courses

- ART 105 Introduction to Art (3)
- ART 107 History of Art I (3)
- ART 208 History of NM Art & Architecture (3)
- ART 211 History of Art II (3)
- DANC 240 Dance Appreciation (3)
- ENG 270 Children's Literature (3)
- Pre-requisite ENG 111*
- ENG 262 Literature of the Southwest (3)
- Pre-requisite ENG 112*
- ENG 265 Native American Literature 1 (3)
- Pre-requisite ENG 111*
- ENG 266 Native American Literature II (3)
- Pre-requisite: ENG 111*
- ENG 280 Readings in Literature (3)
- Pre-requisite ENG 111*
- ENG 290 Study of Literature
- Pre-requisite ENG 111*
- ENG 294 Mythology (3)
- Pre-requisite ENG 111*
- HIST 101 Western Civilization I (3)
- HIST 102 Western Civilization II (3)
- HIST 161 History of the U.S. to 1877 (3)
- HIST 162 History of the U.S. from 1877 (3)
- HIST 200 History of the World Religions (3)
- HIST 220 Southwestern Women's History (3)
- HIST 230 Chicano Experience in the US (3)
- HIST 250 American Indian History (3)
- HIST 260 History of New Mexico (3)
- HUM 105 Humanities of the Southwest (3)
- HUM 311 Why the Social Sciences Matter ** (3)
- HUM 414 Humanity and Creativity ** (3)
- HUM 421 History, Literature, Art & Philosophy ** (3)
- MUS 103 Music History & Literature I (3)
- MUS 105 Music Appreciation (3)
- MUS 218 Music History & Literature II (3)
- PHIL 110 Intro to Philosophical Problems (3)
- PHIL 111 History of Philosophy (3)
- PHIL 150 Critical Thinking (3)
- PIS 200 Introduction to Pueblo Indian Studies (3)

THE 120 Introduction to Theatre I (3)

THE 130 History of Theatre (3)

Plus, topic courses with advisor's approval

Electives (3) _____

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* If your major is in the area of the Humanities/Fine Arts, **unless otherwise regulated by a given department**, you should select 9 hrs from Area V and 6 hrs. from Area IV; if in the Social/Behavioral Sciences, you should select 9 hrs from Area IV and 6 hrs from Area V. Consult your major advisor. In any case, you must complete a minimum spread of 15 hrs between Areas IV and V. .

** Students in associate degree programs are advised that upper-division courses are not covered under financial aid.

HEALTH, PHYSICAL EDUCATION & RECREATION (1 crs)

Electives (1) _____

MAJOR REQUIREMENTS (74 crs)

Computer Science (6)

CS 201 Mathematical Foundations of Computer Science (3) (Fall)

Pre-requisite: EECE 152L

CS 241 Data Organization (3) (Fall)

Pre-requisite: EECE 152L

Electrical, Electronic, and Computer Engineering (53)

EECE 105L Microcomputer Systems (4)

Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation

EECE 132 Computer Networks I (3)

Pre-requisite: EECE 152L

EECE 152L Computer Programming I (4)

EECE 231 Intermediate Programming (3)

Pre-requisite: EECE 152L

EECE 238L Computer Logic Design (4)

Pre-requisites: MATH 163, PHYS 216/L

EECE 330 Computer Networks II (3)

Pre-requisite: EECE 132

EECE 331 Data Structures and Algorithms (3)

Pre-requisites: EECE 231, EECE 337

EECE 337 Introduction to Computer Architecture and Organization (3)

Pre-requisite: EECE 238L and CS 241

EECE 342 Wireless and Mobile Computing (3)

EECE 330, IT 350

EECE 432 Introduction to Parallel Processing (3)

Pre-requisites: EECE 231, EECE 337

EECE 435 Software Engineering (3)

Pre-requisite: EECE 152L

EECE 437 Operating Systems (3)

Pre-requisite: EECE 152L

EECE 447 Routing and Switching (3)

Pre-requisite: EECE 330

EECE 470 Software Quality Assurance (3)

EECE 435

EECE 490 EECE Capstone I (4)

Pre-requisite: EECE 152L

EECE 491 EECE Capstone II (4)

Pre-requisite: EECE 152L

Engineering and Information Technology (6)

IT 350 Database Management (3)

Pre-requisite: CS 241L

ME 160L General Engineering Design I (3)

Pre-requisite: MATH 160

Business (9 crs)

ENGR 474 Engineering Project Management (3)

Pre-requisite: ENG 111 with senior standing recommended

Electives in ENGR at 4XX-level (6)

TOTAL CREDITS 128

SUGGESTED SEQUENCE OF COURSES

HFA = Humanities & Fine Arts (Area V)

SBS = Social/Behavioral Science (Area IV)

FIRST SEMESTER (15 crs)

ENG 111 English Composition I (3)
MATH 145 Introduction to Probability and Statistics (3)
ECON 201 Microeconomics (3)
HFA Elective (3)
HFA Elective (3)

SECOND SEMESTER (18 crs)

ENG 116 Technical Writing (3)
MATH 162 Calculus I (4)
SBS Elective (3)
EECE 152/L Computer Programming I (4)
EECE 105/L Microcomputer Systems I (4)

THIRD SEMESTER (17 crs)

SPCH 130 Public Speaking (3)
MATH 162 Calculus II (4)
CS 241 Data Organization (3)
PHYS 215/L Engineering Physics I with Lab (4)
EECE 231 Intermediate Programming (3)

FOURTH SEMESTER (15 crs)

PHYS 216/L Engineering Physics II with Lab (4)
CHEM 121/L General Chemistry I/L (4)
HPER Elective (1)
ME 160L Gen. Engineering Design I (3)
EECE 132 Computer Networks I (3)

FIFTH SEMESTER (16 crs)

MATH 314 Linear Analysis with applications (3)
EECE 238/L Computer Logic Design (4)
CS 201 Math Foundations of CS (3)
EECE 435 Software Engineering (3)
EECE 330 Computer Networks II (3)

SIXTH SEMESTER (15 crs)

EECE 337 Intro. Comp. Arch and Org. (3)
PHIL 220 Ethics (3)
EECE 470 Software Quality Assurance (3)
EECE 447 Routing & Switching (3)
ENGR 4XX Elective (3)

SEVENTH SEMESTER (16 crs)

EECE 432 Intro. to Parallel Processing (3)
EECE 331 Data Structures & Algorithms (3)
EECE 490 Capstone I (4)
IT 350 Database Management (3)
ENGR 4XX Elective (3)

EIGHTH SEMESTER (16 crs)

SBS Elective (3)
EECE 437 Operating Systems (3)
IT 491 Capstone II (4)
EECE 342 Wireless and Mobile Computing (3)
ENGR 474 Engineering Project Management (3)

Educational Planning Form (Semester)

Fall Semester	Spring Semester	Summer

Total Units	Total Units	Total Units
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Fall Semester	Spring Semester	Summer

Total Units	Total Units	Total Units
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Fall Semester	Spring Semester	Summer

Total Units	Total Units	Total Units
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Fall Semester	Spring Semester	Summer

Total Units	Total Units	Total Units
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