



**Bachelor of Engineering (BEng)
MECHANICAL ENGINEERING
Solar Energy Concentration**

The curriculum of the BEng in Mechanical Engineering is designed for those engineering students who intend to launch a career in the design, installation, maintenance and repair of solar energy conversion and storage devices, modules and systems used for alternative energy sources or controllers. Coursework in the program is practice-oriented and prepares students to work in a variety of green technology engineering organizations, small or large businesses, product design or manufacturing companies, and alternative energy consultancies and public policy agencies. The breadth of training in hardware, software, power engineering, troubleshooting equipment and other technological tools will enable the graduate to work in a variety of roles in such environments as an electric grid engineer, a power engineering network designer, and alternative energy engineer or a project manager. The graduate of this curriculum will be a professional engineering specialist in solar energy power sources, but broadly versed in mathematics, physics, general design, computer science, and business fundamentals.

Students are advised not to attempt upper division coursework (300 and 400-level classes) unless you have earned a GPA of 2.5 or better in all coursework taken at the 100 and 200-level. Failure to maintain an overall GPA of 2.0 or better in all coursework will be sufficient cause for being dropped from the program.

GENERAL EDUCATION (61 crs)	COMPLETED	Planned Timeline (By Semester)
Area I Communications (9 crs)		
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>	_____	_____
Area II Mathematics (21 crs)		
MATH 145 Introduction to Probability and Statistics (3) <i>Pre-requisite: MATH 130 or adequate score on the Course Placement Evaluation</i>	_____	_____
MATH 162E Calculus I (4) <i>Pre-requisites: MATH 155</i>	_____	_____
MATH 163E Calculus II (4) <i>Pre-requisites: MATH 162E</i>	_____	_____
MATH 264 Calculus III (4) <i>Pre-requisites: MATH 163 adequate score on the Course Placement Evaluation</i>	_____	_____
MATH 314 Linear Algebra with Applications (3) <i>Pre-requisites: MATH 163 or adequate score on the Course Placement Evaluation</i>	_____	_____
MATH 316 Applied Ordinary Differential Equations (3) <i>Pre-requisite: MATH 163, with MATH 264 recommended.</i>	_____	_____
Area III Laboratory Sciences (12 crs)		
CHEM 121/L General Chemistry I with lab (4) <i>Pre-requisite: MATH 130 or adequate score on the Course Placement Evaluation</i>	_____	_____
PHYS 215 Engineering Physics I with lab (3) <i>Pre-requisite: ENGR 120 OR MATH 162; Co-requisite: PHYS 215L</i>	_____	_____
PHYS 215/L Engineering Physics I lab (1) <i>Pre-requisite: ENGR 120 OR MATH 162; Co-requisite: PHYS 215</i>	_____	_____
PHYS 216 Engineering Physics II with lab (3) <i>Pre-requisite: PHYS 215/L; Co-requisite: PHYS 216L</i>	_____	_____
PHYS 216/L Engineering Physics II with lab (1) <i>Pre-requisite: PHYS 215/L; Co-requisite: PHYS 216</i>	_____	_____
Area IV Social/Behavioral Sciences (6-9 crs)		
Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation		
ECON 201 Microeconomics (3)	_____	_____
Electives (3-6 crs)		
You must select courses from different discipline areas		
Elective (3) _____	_____	_____

- Elective (3) _____
- 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)
- ECON 201 Microeconomics (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

Area V Humanities and Fine Arts (6-9 crs)

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

HUM 100 First year Experience: History and Culture of Northern New Mexico (3) _____

Pre-requisite: ENG 108 or adequate score on the Course Placement Evaluation

Electives (3-6 crs)

You must select courses from *different discipline areas*

Elective (3) _____

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Choose two electives from the following list:

- 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)
- DANC240 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)
- PHIL 220 Ethics (3)
- PIS 200 Introduction to Pueblo Indian Studies (3)
- THE 120 Introduction to Theatre I (3)
- THE 130 History of Theatre (3)

* 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.

Area VI Library Technology, Library Research Skills (1 crs)

LT 101 Library Research Skills (1) _____

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

Area VII Foreign Language (3 crs)

Elective (3) _____

Pre-requisite: None _____

PROGRAM REQUIREMENTS (71 crs)

Solar Energy and Storage (42 crs)

ME 160L General Engineering Design I (3) _____

Pre-requisite: None _____

ME 202 Engineering Statics (3) _____

Pre-requisite: PHYS 215/L or adequate score on the Course Placement Evaluation _____

ME 301 Thermodynamics (3) _____

Pre-requisite: CHEM 121/L, PHYS 216/L or adequate score on the Course Placement Evaluation _____

ME 306 Dynamics (3) _____

Pre-requisite: ME 202 or adequate score on the Course Placement Evaluation _____

ME 302 Mechanics of Materials (3) _____

Pre-requisite: ME 202 _____

ME 317 Fluid Mechanics (3) _____

Pre-requisite: ME 306 _____

ME 318L Mechanical Engineering Lab (3) _____

Pre-requisite: ME 301 & ME 317 _____

ME 320L Heat Transfer (4) _____

Pre-requisite: ME 301 and ME 317 _____

ME 390 Power Systems (3) _____

Pre-requisite: ME 306 and ME 317 and EECE 203L _____

ME 403 Solar Thermal Applications (3) _____

Pre-requisite: ME 320L _____

ME 459 Advanced Mechanical Engineering Design (3) _____

Pre-requisite: ME 302 _____

ME 490 ME Capstone I (4) _____

ME 491 ME Capstone II (4) _____

Pre-requisite: ME 490 _____

Support Technologies (20 crs)

ENGR 110L Introduction to Engineering (2) _____

Pre-requisite: None _____

ENGR 120L Introductory Mathematics for Engineering Applications (4) _____

Pre-requisite: MATH 130 or adequate score on the Course Placement Evaluation _____

EECE 152L Computer Programming I (4) _____

Pre-requisite: None _____

EECE 203L Circuit Analysis I (4) _____

Pre-requisite: PHYS 216/L _____

EECE 453 Electric Energy Storage Devices (3)

Pre-requisite: EECE 203

EECE 472 Photovoltaic Devices (3)

Pre-requisite: EECE 203L

Electives (9)

Elective in ENGR/EECE/ME/MATH at upper division level (9)

TOTAL CREDIT HOURS 132

First Semester (13 cr)

ENGR 120L Introductory Mathematics for Engineering Applications (4)

ME 160L Gen. Engineering Design I (3)

ENGR 110L Introduction to Engineering (2)

LT 101 Library Research Skills (1)

HUM 100 FYE: History and Culture of Northern New Mexico (3)

Second Semester (18 cr)

ENG 111 English Composition I (3)

MATH 162E Calculus I (4)

PHYS 215/LEngineering Physics I with lab (4)

EECE 152L Computer Programming I (4)

MATH 145 Introduction to Probability and Statistics (3)

Third Semester (18 cr)

MATH 163E Calculus II (4)

PHYS 216/LEngineering Physics II with Lab (4)

ME 202 Engineering Statics (3)

CHEM 121/LGeneral Chemistry I with lab (4)

ECON 201 Microeconomics (3)

Fourth Semester (16 cr)

EECE 203L Circuit Analysis I (4)

ME 306 Dynamics (3)

SPCH 130 Public Speaking (3)

ENG 116 Technical Writing (3)

ME 302 Mechanics of Materials (3)

Fifth Semester (16 cr)

ME 301 Thermodynamics (3)

Foreign Language (3)

MATH 264 Calculus III (4)

MATH 316 Applied Ordinary Differential Equations (3)

HFA Elective (3)

Sixth Semester (18 cr)

ME 317 Fluid Mechanics (3)

ME 495 Advanced Mechanical Engineering Design (3)

ENGR/EECE/ME/MATH Elective in 3XX/4XX (3)

MATH 314 Linear Algebra with Applications (3)

SBS Elective (3)

EECE 472 PV Devices (3)

Seventh Semester (17 cr)

ME 390 Power Systems(3)

ME 320L Heat Transfer (4)

ME 490 Capstone I (4)

ME 318L Mechanical Engineering Lab (3)

HFA/SBS Elective (3)

Eighth Semester (16 cr)

EECE 453 Electric Energy Storage Devices (3)
 ME 491 Capstone II (4)
 ENGR/EECE/ME/MATH Elective 3XX/4XXX (3)
 ENGR/EECE/ME/MATH Elective 3XX/4XX (3)
 ME 403 Solar Thermal Applications (3)

Educational Planning Form (Semester)

Fall Semester	Spring Semester	Summer
Total Units	Total Units	Total Units
Fall Semester	Spring Semester	Summer
Total Units	Total Units	Total Units
Fall Semester	Spring Semester	Summer
Total Units	Total Units	Total Units