Engineering

Degree Type
Bachelor of Science in Engineering

Administrator: Chair, Department of Physics and Engineering

Requirements: 90 credits

Required Courses:

Item #	Title	Credits
ENGR1010	Introduction to Engineering	3
ENGR1050	Engineering CAD and Prototyping	3
ENGR1100	Engineering Software Skills	3
ENGR2100	Engineering Statics	3
ENGR2110	Engineering Dynamics	3
ENGR2200	Digital Systems	3
ENGR2200L	Digital Systems Laboratory	1
ENGR2210	Electrical Circuits	3
ENGR2210L	Electrical Circuits Laboratory	1
ENGR2310	Instrumentation and Measurements Laboratory	1
ENGR3100	Mechanics of Materials	3
ENGR3110	Engineering Thermodynamics	3
ENGR3110L	Materials and Thermodynamics Laboratory	1
ENGR3400	Control Systems	3
ENGR3400L	Control Systems Laboratory	1
ENGR3410	Engineering Economics and Ethics	3
ENGR4971	Senior Design Project I/Capstone	2
ENGR4972	Senior Design Project II/Capstone	2
MATH2510	Calculus I	4
MATH2520	Calculus II	4
MATH3530	Calculus III	4
MATH3540	Differential Equations	4
PHYS2110	Physics for Science and Engineering I	3
PHYS2110L	Physics for Science and Engineering I Laboratory	1
PHYS2120	Physics for Science and Engineering II	3
PHYS2120L	Physics for Science and Engineering II Laboratory	1
PHYS3500	Statistical Analysis for Physics and Engineering	3
CHEM2230	General Chemistry for Engineering Students	3
CHEM2230L	General Chemistry for Engineering Students Laboratory	1

ENGR4971, ENGR4972: must be taken at Northwest Nazarene University.

Student must complete one of the following concentrations:

Agricultural Engineering Concentration: 17 credits

Item #	Title	Credits
COMP3230	Introduction to Spatial Analysis	3
ENGR4100	Fluid Mechanics	3
ENGR4110	Machine Design	3
ENGR4120	Fluids and Thermal Laboratory	1
ENGR4130	Mechatronics	3
ENGR4130L	Mechatronics Laboratory	1
ENGR4170	Agricultural Automation	3

Civil Engineering Concentration

Item #	Title	Credits
ENGR4100	Fluid Mechanics	3

In addition to the NNU course listed above (3 credits), students pursuing this concentration are required to complete the following courses at Boise State University (15 credits):

CE270 Geomatics and Geospatial Data – 3 credits

CE320 Principles of Environmental Engineering – 3 credits

CE352 Principles of Structural Engineering – 3 credits

CE360 Principles of Geotechnical Engineering – 3 credits

CE370 Principles of Transportation Engineering – 3 credits

Computer Engineering Concentration: 17 credits

Item #	Title	Credits
COMP2220	Computer Programming I	3
COMP2220L	Computer Programming I Laboratory	1
COMP2630	Computer Architecture	3
COMP2750	Data Structures	3
COMP3630	Networks and Data Communications I	3
ENGR4230	Embedded Systems	3
ENGR4230L	Embedded Systems Laboratory	1

Electrical Engineering Concentration: 17 credits

Item #	Title	Credits
ENGR4210	Microelectronics	3
ENGR4210L	Microelectronics Laboratory	1
ENGR4230	Embedded Systems	3
ENGR4230L	Embedded Systems Laboratory	1
ENGR4250	Electromagnetics	3
ENGR4260	Communication Systems	3
ENGR4270	Advanced Circuits	3

Mechanical Engineering Concentration: 17 credits

Item #	Title	Credits
ENGR4100	Fluid Mechanics	3
ENGR4110	Machine Design	3
ENGR4120	Fluids and Thermal Laboratory	1
ENGR4130	Mechatronics	3
ENGR4130L	Mechatronics Laboratory	1
ENGR4140	Vibrations	3
ENGR4150	Heat Transfer	3

Engineering Physics Concentration: 17 credits

Item #	Title	Credits
ENGR4100	Fluid Mechanics	3
ENGR4120	Fluids and Thermal Laboratory	1
ENGR4250	Electromagnetics	3
PHYS3130	Modern Physics	3
PHYS3130L	Modern Physics Laboratory	1
PHYS3410	Analytic Mechanics	3
PHYS4810	Fundamentals of Quantum Mechanics	3

All engineering students are required to take and pass the Fundamentals of Engineering exam during their last semester before graduation in order to earn an 'A' in ENGR4972 - Senior Design Project II/Capstone.

Semiconductor Engineering Certificate: 11 credits

Students currently enrolled in the NNU BSE program or individuals who have previously earned an ABET-accredited bachelor's degree in engineering may pursue this certificate.

Item #	Title	Credits
ENGR4300	Semiconductor Devices	3
ENGR4300L	Semiconductor Devices Lab	1
PHYS4720	Solid State Physics	3

In addition to the NNU courses listed above (seven credits), students pursuing this certificate are required to complete the following courses at Boise State University (four credits):

ECE440 Introduction to Integrated Circuit Process - 3 credits
ECE440L Intro to Integrated Circuit Processing Lab - 1 credit

Accelerated Master of Engineering Pathway

NNU undergraduate students wishing to begin coursework toward a Master of Science degree the final year of their bachelor's degree program have the following options. NNU in collaboration with Boise State University (BSU), works with its students to apply for an accelerated master's degree program at BSU. This accelerated program gives bachelor's degree students a "fast-track" option to pursue their Master of Science degree at BSU. Upon successful completion of this 4+1 model, the student will have earned a Bachelor of Science in Engineering degree from NNU and the potential of completing BSU's Master of Science (MS) in Materials Science and Engineering, in Mechanical Engineering, in Electrical and Computer Engineering, or in Electrical and Computer Engineering with a semiconductor emphasis.

Prior to their final year in their bachelor's program, NNU students must apply by April 30 for admission to BSU's Accelerated Master of Science program. Students must also apply to NNU's graduate program as a non-degree seeking student.

Students who have been accepted into the BSU program will be able to apply two NNU graduate courses to the BSU Master of Science degree as well as their NNU Bachelor of Science in Engineering degree. Students admitted into NNU's graduate program may choose to take additional 4000-level courses at the 5000-level.

Bachelor of Science in Engineering Courses	CR	Approved Graduate Level Courses	CR
ENGR4100 Fluid Mechanics	3	ENGR5100 Fluid Mechanics	3
ENGR4130 Mechatronics	3	ENGR5130 Mechatronics	3
ENGR4140 Vibrations	3	ENGR5140 Vibrations	3
ENGR4150 Heat Transfer	3	ENGR5150 Heat Transfer	3
ENGR4210 Microelectronics	3	ENGR5210 Microelectronics	4
ENGR4230 Embedded Systems	3	ENGR5230 Embedded Systems	3
ENGR4260 Communication Systems	3	ENGR5260 Communication Systems	3
ENGR4300 Semiconductor Devices	3	ENGR5300 Semiconductor Devices	3
PHYS4720 Solid State Physics	3	PHYS5720 Solid State Physics	3
PHYS4810 Fundamentals of Quantum Mechanics	3	PHYS5810 Fundamentals of Quantum Mechanics	3
Total Credits			**90**