BACHELOR OF SCIENCE IN CIVIL ENGINEERING ELECTIVES

Table 1: Science Electives

Science Elective Courses *(Pre-Requisite)* ➢ Must Complete (1) from this List
BIOL 1110: Principles of Biology I
BIOL 1115: Principles of Biology II *(BIOL 1110 with grade C or above)*
BIOL 2120: General Biology I *(BIOL 1110 with grade B or above or BIOL 2130 with grade C or above, or placement by the department)*
BIOL 2259: Fundamentals of Microbiology *(BIOL 1110 or BIOL 2120 with grade C or above; CHEM 1203 or CHEM 1251 with grade of C or above)*
BIOL 2273: Anatomy and Physiology *(BIOL 1110 or BIOL 2120 with grade C or above; CHEM 1203 or CHEM 1251 with grade C or above)*
BIOL 3111: Cell Biology *(Biology major or permission of the department; BIOL 2120, BIOL 2130, CEHM 1252, CHEM 1252L with grade C or above)*
BIOL 4250: Microbiology *(BIOL 3111 with grade C or above)*
ESCI 1101: Earth Science-Geography *(None)*
GEOL 1200: Physical Geology *(None)*
GEOL 2100: The Violent Earth *(None)*
GEOL 3190: Environmental Geology *(Prerequisite: GEOL 1200 and GEOL 1200L)*

Table 2: Liberal Studies Electives

Liberal Studies Elective Courses *(No Pre-Requisites)* ➢ Must complete (1) from the LBST 1100 Series list ➢ Must complete (3) from the LBST 2100/2200 Series list ➢ Must complete LBST 2301 from the 2100/2200 Series
Liberal Studies 1100 Series
LBST 1101: The Arts and Society (Dance)
LBST 1102: The Arts and Society (Film)
LBST 1103: The Arts and Society (Music)
LBST 1104: The Arts and Society (Theater)
LBST 1105: The Arts and Society (Visual Arts)
Liberal Studies 2100 and 2200 Series
LBST 2101: Western Cultural and Historical Awareness
LBST 2102: Global and Intercultural Connections
LBST 2211: Ethical Issues in Personal, Professional, and Public Life
LBST 2212: Literature and Culture
LBST 2213: Science, Technology, and Society
LBST 2214: Issues of Health and Quality of Life
LBST 2215: Citizenship
Liberal Studies 2301 (REQUIRED)
LBST 2301: Critical Thinking and Communication

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Table 3: Social Science Electives

Social Science Elective Courses *(No Pre-Requisites)* ➤ Must complete (1) from the list
ANTH 1101: Introduction to Anthropology
DTSC 1302: Data and Society B
ECON 1101: Economics of Social Issues
ECON 2101: Principles of Economics – Macro
ECON 2102: Principles of Economics – Micro
GEOG 1105: The Location of Human Activity
POLS 1110: American Politics
SOCY 1101: Introduction to Sociology
SOWK 1101: The Field of Social Work

Table 4: Mechanical Engineering/Electrical Engineering Electives

MEGR and ECGR Elective Courses *(Pre-Requisite)* ➤ Must complete (1) from the list	**R = Required** **SE = Select Elective** **E = Elective**	Subject Area (Credit Hours)			**Last Two Academic Year Semesters that the Course was Offered**	**Maximum Section Enrollment for the Last Two Terms the Course was Offered**
		Math & Basic Sciences	**Engineering Topics** √ = Sign. Design	**General Education**		
ECGR 2161: Basic Electrical Engineering I *(PHYS 2102 with grade C or above)*	SE		3		Fall 2021 Spring 2022	10 14
MEGR 3111: Thermodynamics I *(MATH 2171, PHYS 2101 with grade C or above)*	SE		3		Fall 2021 Spring 2022	72 40
MEGR 3121: Dynamics Systems I *(MATH 2141, MATH 1242 with grade C or above)*	SE		3		Fall 2021 Spring 2022	52 39

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Table 5: CEGR Design Electives

CEGR and Technical Elective Courses *(Pre-Requisite)* ➤ Must take (2) 'Design Electives' ➤ Only (1) 'Design Elective' per Technical Area / Option ➤ All courses must be completed with a 'C' or better	R = Required SE = Select Elective E = Elective	Subject Area (Credit Hours)			Last Two Academic Year Semesters that the Course was Offered	Maximum Section Enrollment for the Last Two Terms the Course was Offered
		Math & Basic Sciences	Engineering Topics √ = Sign Design	General Education		
Option 1: Environmental Engineering						
CEGR 4142: Water Treatment Engineering *(CEGR 3141)*	SE		3(√)		Fall 2020 Fall 2021	17 24
CEGR 4242: Wastewater Treatment Design *(CEGR 3141)*	SE		3(√)		Spring 2019 Spring 2022	4 21
CEGR 4147 Stormwater Management *(CEGR 3141,CEGR 3143)*	SE		3(√)		Fall 2020 Fall 2021	15 25
Option 2: Geotechnical Engineering						
CEGR 4264 Landfill Design and Site Remediation *(CEGR 3258, CEGR 3278, or Dept. Approval)*	SE		3(√)		Fall 2021 Spring 2022	24 8
CEGR 4270 Earth Pressures and Retaining Structures *(CEGR 3122, CEGR 3278, or Dept Approval)*	SE		3(√)		Fall 2020 Fall 2021	3 7
CEGR 4278 Geotechnical Engineering II *(CEGR 3278)*	SE		3(√)		Fall 2021 Spring 2022	24 24
Option 3: Structural Engineering** **CEGR 3221 or CEGR 3225 must satisfy the 'Restricted Elective' first. A 'Design Elective' can be selected from the remaining two choices. A single course (CEGR 3221 or CEGR 3225) cannot count as both a 'Restricted Elective' and a 'Design Elective' at the same time.*						
CEGR 3221 Structural Steel Design I *(CEGR 3122, CEGR 3255 with grade C or above)*	SE		3(√)		Fall 2021 Spring 2022	24 41
CEGR 3225 Reinforced Concrete *(CEGR 3122, CEGR 3255 with grade C or above)*	SE		3(√)		Fall 2021 Spring 2022	41 47
CEGR 4122 Power Plant Design *(CEGR 2102, CEGR 3122, CEGR 3278 with grade C or above)*	SE		3(√)		Spring 2021 Spring 2022	8 28
Option 4: Transportation Engineering						
CEGR 4185 Geometric Design of Highways *(CEGR 3153, CEGR 3161)*	SE		3(√)		Fall 2020 Fall 2021	39 32
CEGR 4161 Advanced Traffic Engineering *(CEGR 3161)*	SE		3(√)		Fall 2020 Fall 2021	25 15
CEGR 4162 Transportation Planning *(CEGR 3161)*	SE		3(√)		Spring 2021 Spring 2022	28 32
CEGR 4262 Traffic Engineering *(CEGR 3161)*	SE		3(√)		Spring 2020 Spring 2022	33 21

BSCE ELECTIVES

Table 6(a): Unrestricted Engineering and Technical Electives (Page 1 of 2)

CEGR and Technical Elective Courses (Pre-Requisite)   ➢ Choose (2) CEGR electives (any CEGR course that is 3000 level or above)   ➢ Choose (2) CEGR or Technical electives from this list (pages 1 and 2)
Civil and Environmental Engineering (CEGR)
Any CEGR course that is 3000 level or above *(Check undergraduate catalog for pre-requisites)*
Accounting
ACCT 3330: Managerial Cost Accounting *(ACCT 2122, ACCT 3323 with grade C or above)*
Biology
BIOL 4250: Microbiology *(BIOL 3111 with grade C or above)*
BIOL 4144: Advanced Ecology *(BIOL 2140L, BIOL 3144, BIOL 3144L with grade C or above)*
BIOL 3000 level or above with Departmental Approval
Business Administration
MKTG 3110: Marketing Concepts *(ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, INFO 2130, MATH 1120, STAT 1220)*
FINN 3120: Financial Management *(Math 1120, STAT 1220, ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, INFO 2130)*
BLAW 3150: Business Law I *(INFO 2130)*
COMM 3160: Business Communications *(INFO 2130)*
BLAW 3250: Business Law II *(BLAW 3150)*
CMET 4127: Construction Law and Regulatory Issues *(None)*
Chemistry
CHEM 1252: General Chemistry II *(CHEM 1251)*
CHEM 2000 level or above with Departmental Approval
Computer Science
ITCS 3000 level or above with Departmental Approval
Earth Sciences
GEOL 3130: Structural Geology *(GEOL 3115 or permission of instructor)*
GEOL 3190: Environmental Geology *(GEOL 1200, GEOL 1200L)*
GEOL 3000 level or above with Departmental Approval
ESCI 3180: Environmental Impact Analysis *(None)*
ESCI 4140: Hydrologic Processes *(ESCI 1101, ESCI 1101L, GEOL 1200, GEOL 1200L)*
Economics
ECON 3125: Managerial Economics *(ECON 2102, MATH 1120, MATH 1241, STAT 1220 or equivalent, INFO 2130, all with grade of C or above)*
ECON 4150: Urban and Regional Economics *(ECON 2101, ECON 2102, MATH 1120 or MATH 1241, STAT 1220 or equivalent, all with grade of C or above)*
ECON 4160: Economics of Transportation *(ECON 2101, ECON 2102, MATH 1120 or MATH 1241, STAT 1220 or equivalent, all with grade C or above)*
ECON 4171: Economics of International Trade *(ECON 2101, ECON 2102, ECON 3122 or ECON 3171, MATH 1120 or MATH 1241, STAT 1220 or equivalent, all with grade C or above)*
ECON 4181: Energy and Environmental Economics *(ECON 2102 with grade C or above)*
ECON 3000 level or above with Departmental Approval
Engineering
Any CEGR, EEGR, CPGR, MEGR, SEGR course, 3000 level or above with Department Approval
Geography
GEOG 2120: Geographic Information Systems *(None)*
GEOG 3100: The City and Its Region *(None)*
GEOG 3115: Urban Transportation Problems *(None)*
GEOG 3150: Manufacturing Geography *(None)*
GEOG 3200: Land Use Planning *(None)*
GEOG 3210: Regional Planning *(None)*
GEOG 3215: Environmental Planning *(None)*
GEOG 4155: Retail Location *(None)*
GEOG 4160: Geography of Transportation Systems *(None)*
GEOG 3000 level or above with Department Approval
Management Information Systems
INFO 3200 level or above with Department Approval

BSCE ELECTIVES

Table 6(b): Unrestricted Engineering and Technical Electives (Page 2 of 2)

CEGR and Technical Elective Courses (Pre-Requisite)
➤ Choose (2) CEGR electives (any CEGR course that is 3000 level or above)
➤ Choose (2) CEGR or Technical electives from this list (pages 1 and 2)
Mathematics
MATH 2242: Calculus IV (MATH 2241 with grade of C or above)
MATH 2164: Matrices and Linear Algebra (MATH 1120 or MATH 1241 with grade of C or above)
MATH 3000 level or above with Department Approval
Physics
PHYS 3000 level or above with Department Approval
Operations Management
OPER 3100: Operations Management *(ACCT 2121, ACCT 2122 or ACCT 3323, ECON 2101, ECON 2102, INFO 2130, MATH 1120, STAT 1220 with grade of C or above)*
OPER 3201: Operations Planning and Control *(OPER 3100 with grade of C or above)*
OPER 3203: Decision Modeling and Analysis *(OPER 3100 with grade of C or above)*
OPER 3204: Management of Service and Project Operations *(OPER 3100 with grade of C or above)*
OPER 3206: Quality Assurance and Management *(OPER 3100 with grade of C or above)*
Operations Research
OPRS 3111: Operations Research-Deterministic Models *(MATH 1242 , MATH 2164)*
OPRS 3113: Operations Research – Probabilistic Models *(MATH 1242, MATH 2164, (MATH 3122, STAT2122, STAT 3122 or STAT 3128 or Department Approval)*
OPRS 3000 level or above with Department Approval
Statistics
STAT 3000 level or above with Department Approval