Student Handbook

2023-2024

Civil Engineering Program

College of Engineering

Najran University

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Introduction About The Student Handbook

Chairman's Message

"Welcome to the Civil Engineering Department at Najran University. We are proud to offer an outstanding educational program aimed at providing students with the knowledge and skills necessary for success in all fields of civil engineering within the Kingdom of Saudi Arabia and beyond.

The university's Civil Engineering Department is distinguished by an excellent teaching team with extensive experience in various areas, such as structural design, mix design and construction materials, environmental engineering applications, transportation engineering, water resources engineering, construction engineering and management, remote sensing and surveying, and geotechnical engineering. Students also have opportunities to participate in innovative research and practical projects that contribute to the development of their skills and prepare them for the job market.

We are committed to providing a supportive and stimulating learning environment that encourages academic excellence and innovation. We are dedicated to providing opportunities for applied learning through practical experiments, enabling our graduates to succeed in obtaining employment opportunities in the field of civil engineering.

We invite you to discover what our Civil Engineering Department has to offer, and we hope that you will join this dynamic and growing community. If you have any questions or inquiries, please do not hesitate to contact me."

Best regards,

Dr. Ali Hussain Alhamami

Chairman of the Civil Engineering Department

ahalhamami@nu.edu.sa

Program History

The Civil Engineering Department was established in 2006 as one of the major departments of Najran University and has been activity engaged in teaching in different specialization of Civil Engineering, such as; in addition of basic project management techniques ; Geotechnical Engineering, Water Resources and Environmental Engineering, Transportation Engineering and Highway Engineering, Construction Engineering, and Structural Engineering.

Civil Engineering Department is programmed to award Bachelor in Civil Engineering. Until now, the program is offered for males only. Courses in Civil Engineering are offered through the College of Engineering and have produced its first graduates in 2012/2013. The language of instruction of the program is English.

The program is mainly a teaching program giving emphasis on teaching basic skills, theoretical knowledge and practical experiences necessary for practicing the occupation of Civil Engineering. The department assists the students to be familiar with local and global Civil Engineering application trend, graduating qualified engineers with great knowledge in the specializations of Civil Engineering mentioned above.

The department is fully equipped with laboratories that cover all needs and aspects of Civil Engineering. These laboratories are subjected to a continuous updating to keep pace with the latest technology requirements.

Program Mission

Providing a distinguished environment for high-quality education to graduate broadly educated, technically competent individuals prepared for professional careers in the field of civil engineering and conduct scientific research using modern tools to contribute to building knowledge society and meet the community needs.

Program Objectives:

1. Provide the students with high quality education and skills in civil engineering science and its applications.
2. Provide an educational environment that keeps pace with scientific developments in the field.
3. Contribute to high quality scientific research to meet the new challenges in the field of Civil Engineering.

4. Serve the society through involvement in knowledge sharing outreach and professional activities

Program Organizational Chart

The Figure 1. Civil Engineering Department - Organizational Chart below shows the organizational chart for Civil Engineering Department.

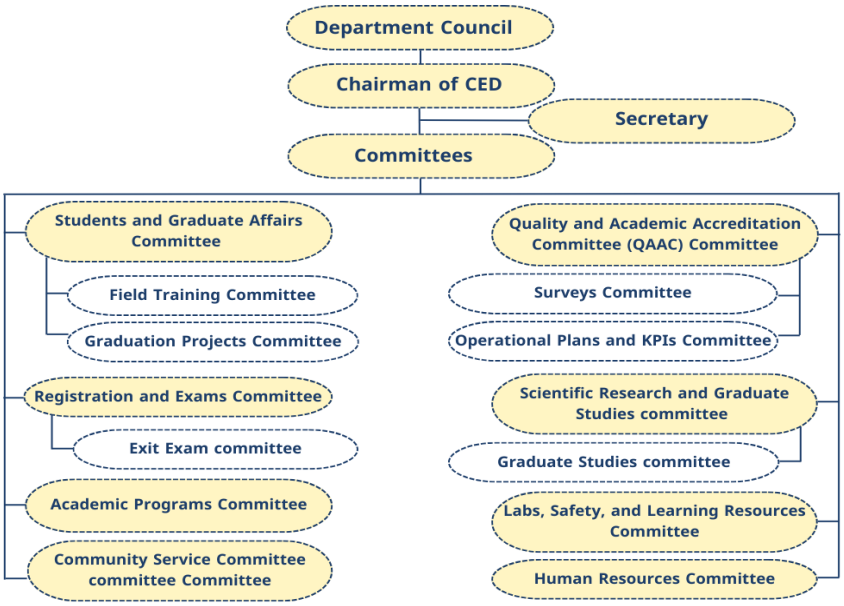

Figure 1. Civil Engineering Department - Organizational Chart

Program Offered

The Department of Civil Engineering offers Bachelor of Civil Engineering, after completion of 132 credit hours along with non-credit summer training.

Program Learning Outcomes

A-Knowledge and understanding

1. An ability to identify and formulate the concepts of civil engineering, related sciences and mathematics, and acquire new knowledge as needed, using appropriate learning strategies.

B–Skills

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
5. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

C-Values

6. An ability to recognize ethical and professional responsibilities in civil engineering situations and make informed judgments.
7. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Career Opportunities

1. All engineering administrations in the governmental authorities.
2. The projects operation and maintenance administrations in the governmental authorities.
3. The ministry of water and electricity.
4. The ministry of municipal and village affairs. 5- The Saudi commission for the engineers.
5. The general institution for the waters refinement. 7- The general institution for ports.
6. The Saudi airlines.
7. The military occupations management.
8. The constructions and contracting companies. 11- The electronics and communication companies. 12- The power and electric energy companies.
9. The Ministry of transportations.

10. The Ministry of agriculture and water recourses. 15- The general institution for the electricity.
11. The water and sewage authority. 17- The Saudi Arabia Aramco company.
12. The Saudi company for the basic industries (SABIC).
13. The unified Saudi company for electricity (SCECO). 20- The construction material factories.

The Academic Plan

The plan of study for Civil Engineering Program is shown in Table 1. Student will be admitted to Civil Engineering Program after completing the two semesters (level 1 and level 2) in the Preparatory year Program that consists of 27 credit hours including 6 credit hours Math courses, in addition to other educational courses. The courses of curriculum of Civil Engineering Program are shown in Figure 1. The curriculum consists of 132 credit hours. The curriculum includes seven courses of general education of 18 credits. Six courses of Arabic language and Islamic studies of 12 credits are required by the university. Two courses of 5 credit hours of communication skills (English courses). The study plan includes nine courses of 29 credit hours of mathematics and basic sciences. These courses cover four basic sciences such as math, math based physics, chemistry and computer programming. This is completely fit the requirement of civil engineering program by ABET. The curriculum also includes 24 courses of 68 credit hours of core civil engineering courses. In addition one course of co-operative field training of zero credit hour. A flowchart that illustrates the prerequisite structure of the civil engineering program's required courses is shown in Figure 2.

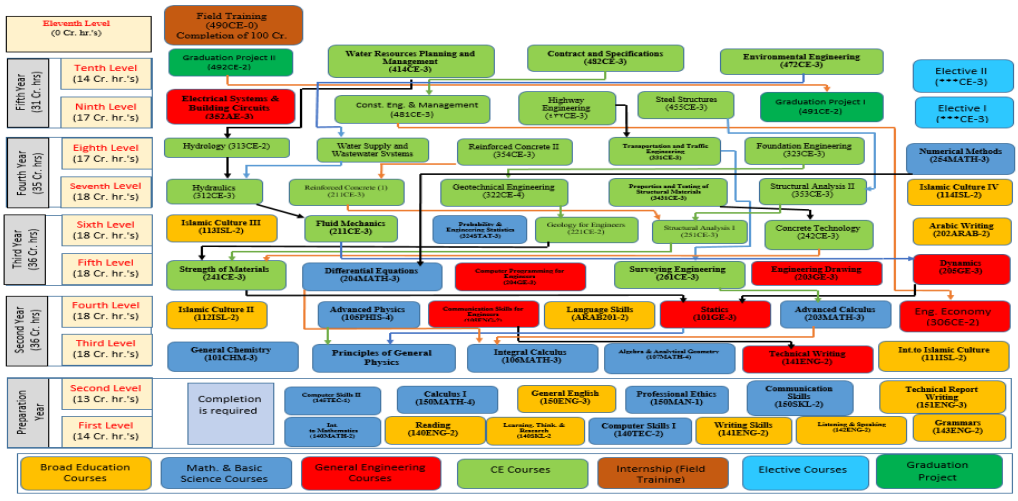

Figure 2. The curriculum chart of the updated plan

The plan of study for Civil Engineering Program is shown in Table 1 and Table 2. Student will be admitted to Civil Engineering Program after completion the two semesters (level 1 and level 2) in the Preparatory year Program that consists of 27 credit hours including 6 credit hours Math courses, in addition to other educational courses. The curriculum consists of 138 credit hours. The curriculum includes eight courses general education. This general education consists of six courses of 12 credit hours called university requirements (these courses are Arabic Language and Islamic Studies) and two courses of 5 credit hours communication skills (English courses). The study plan includes nine courses of 32 credit hours mathematics and basic sciences. These courses cover four basic science math, math based physics, chemistry and Computer Programming. The curriculum also includes 26 courses of 75 credit hours core civil and engineering courses (of which 69 hours are mandatory and 6 hours are elective). In addition to one course co-operative field training of zero credit hour.

Table 1. Curriculum of Civil Engineering Program

Requirements		Total Credit	The percentage of the total	Number of	Remarks
University Requirements	Mandatory	12	8.7 %	6	Completion of the preparatory year is a requirement for admission to the College of Engineering
	Elective	--			
College Requirements	Mandatory	51	% 37	17	
	Elective	--			
Department Requirements	Mandatory	69	50 %	25	
	Elective	6	4.35 %	2	

Table 2. Curriculum of Civil Engineering Program

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Preparatory Year	Required	13	27	16.36%
	Elective	-	-	
Institution Requirements	Required	6	12	7.2%
	Elective	-	-	
College Requirements	Required	17	51	31%
	Elective	-	-	
Program Requirements	Required	25	69	41.8%
	Elective	2	6	3.6%
Capstone Course/Project		2	4	
Field Experience/ Internship		1	0	
Others	-	-	-	
Total		63	165	100%

* Add a table for each track (if any).Note: Projects and field experience courses provided just to show their credit and percentage separately but they are basically included in the Program requirements

Process for Students Evaluation and Examinations Grading System

The process of evaluating students' performance in the courses registered by the student in each semester will be conducted by the instructors who are teaching the courses. The instructor evaluates students' performance in each course. The instructor designs the assessments for finding out the attainment of the course learning outcomes specified by the curriculum committee. The instructor may distribute marks on home assignments, quizzes, mid-semester examinations, term project and a final examination to objectively evaluate students' performance, which later will be accumulated over percentage and finally converted into the attainment of the course learning outcomes (CLOs) and student outcomes (SOs) using CLOSO software. In the courses that involve laboratory classes, laboratory performance, written reports (for each experimental work throughout the semester) and the final laboratory examination are used to assess the attainment of the CLOs and SOs. Based on

the policy and implementation rules of examinations and grades, CE program has formulated a grading policy that was approved by the departmental council.

Assessment of a course is usually based on the combination of grades awarded to course work (performance throughout the semester) and the final examination. Each course has a total of 100 points. Out of this, the instructor evaluates 50% marks to the course work consisting of quizzes, homework, term projects and mid-term or other periodic assessments while the remaining 50% is evaluated in the final examination. A grade of "Incomplete" (IC) is given to the student if the course requirements are not fulfilled by the student. This is usually endorsed in courses that require a project to be completed by the student. It is awarded only on the recommendation of the instructor and approval of the Department Council. The student getting IC must fulfill the requirements during the following semester; otherwise the IC is automatically changed to "F".

Najran University requires that students do not miss more than 25% of the total number of lectures, labs, and tutorials. Students failing to meet this requirement in any of the courses are prohibited from appearing in the final examination of that course and earn a DN (Denied) grade in that course. A student who is absent in the final examination of a course(s) for an acceptable reason approved by the department council and the dean of the college, is allowed to take the examination at a later date.

خطأ! لم يتم العثور على مصدر المرجع. shows the grading system of Najran University. The instructor awards the marks out of 100. The marks are converted to a letter grade and grade points according to the following **خطأ! لم يتم العثور على مصدر المرجع.**

Table 3. Grading System at Bachelor of Civil Engineering Program in Najran University

Percentage	Evaluation	Letter Grade	Grade Point Average out of 5
95 – 100	Excellent Plus	A +	5.00
90 to less than 95	Excellent	A	4.75
85 to less than 90	Very Good Plus	B +	4.50
80 to less than 85	Very Good	B	4.00
75 to less than 80	Good Plus	C +	3.50

70 to less than 75	Good	C	3.00
65 to less than 70	Pass plus	D +	2.50
60 to less than 65	Pass	D	2.00
Less than 60	Fail	F	1.00
	Incomplete	IC	-
	Denied	DN	-

At the end of each semester, the instructors submit the grades of all courses through the online grading system (Edugate) that is approved by the department head and dean of college of Engineering. The student's performance and progress are determined by the grade point average (GPA). A sample of student's grade report and the calculated GPA for six (6) subjects in a typical semester is shown in Table 2.

Table 4. Calculated Grade Point Average (GPA).

Course	Credit Hours (CH)	Point Marks out of 100	Letter Grade	Grade points per Credit Hours (GP)	Total Grade Points CH×GP
Course 1	2	90	A	4.75	9.50
Course 2	3	85	B+	4.5	13.5
Course 3	3	78	C+	3.5	10.5
Course 4	3	82	B	4.0	12.0
Course 5	4	77	C+	3.5	14.0
Course 6	2	71	C	3.0	6.0
Total	17				65.5
Computed GPA = Total Grade Points / Total Credit Hours = 65.5/17=3.85					

Distribution of Credits Hours

Level (1st) (Preparatory Year)

Code	Course Title	Contact Hours	Credit Hours	Pre-requisite

Code	Course Title	Contact Hours	Credit Hours	Pre-requisite
140MATH-2	Introduction to Mathematics	3	2	---
140ENG-2	Reading)skill)	4	2	---
140SKL-2	Learning, Thinking & Research (skill)	2	2	---
140TEC-2	Computer Skills I	4	2	---
141ENG-2	Writing Ethics)skill)	4	2	---
142ENG-2	Listening & Speaking	4	2	---
143ENG-2	Grammar	4	2	---
Total Credit Hours		25	14	---

Level (2nd) (Preparatory Year)

Code	Course Title	Contact Hours	Credit Hours	Pre-requisite
145TEC-1	Computer Skills II	2	1	---
150MATH-4	Calculus I	5	4	---
150ENG-3	General English	10	3	---
150MAN-1	Professional Ethics	1	1	---
150SKL-2	Communication Skills	2	2	---
151ENG-2	Technical Report Writing	6	2	---
Total Credit Hours		26	13	---

Level (3rd)

Code	Course Title	Contact Hours (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks

Code	Course Title	Contact Hours (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
101CHM-3	General Chemistry	3 (3, 0, 0)	3	Completion of preparatory year	---
104PHIS-4	Principles of General Physics	5 (3, 2, 0)	4		---
106MATH-3	Introduction to Integration	3 (3, 0, 0)	3		---
107MATH-3	Algebra & Analytical Geometry	3 (3, 0, 0)	3		---
107ENG-3	Technical Writing	3 (3, 0, 0)	3		---
111ISL-2	Introduction to Islamic Culture 1	2 (2, 0, 0)	2		----
Total Hours		19 (17, 2, 0)	18	---	---

Level (4th)

Code	Course Title	Contact Hours (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
112ISL-2	Introduction to Islamic Culture 2	2 (2, 0, 0)	2		
105PHIS-4	Advanced Physics	5 (3, 2, 0)	4	104PHIS-4	---
108ENG-2	Communication Skills for Engineers	2 (2, 0, 0)	2	107ENG-3	---
Arab 201-2	Language Skills	2 (2, 0, 0)	2	---	
101GE-3	Statics	4 (3, 0, 1)	3	104PHIS-4	---
203MATH-3	Advanced Calculus	3 (3, 0, 0)	3	106MATH-3	---
306GE-2	Engineering Economy	3 (2 ,0 ,1)	2	---	---

Code	Course Title	Contact Hours (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
Total Hours		21 (17, 2, 2)	18	---	---

Level (5th)

Code	Course Title	Contact Hours (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
241CE-3	Strength of Materials	4 (3, 0, 1)	3	101GE-3	---
204MATH-3	Differential Equations	3 (3, 0, 0)	3	106MATH-3	---
204GE-3	Computer Programming for Engineers	4 (2,2,0)	3	---	---
260CE-3	Surveying Engineering	5 (2, 2, 1)	3	203MATH-3	---
203GE-3	Engineering Drawing	4 (2, 2, 0)	3	---	---
205GE-3	Dynamics	4 (3, 0, 1)	3	101GE-3	---
Total Hours		24 (15, 6, 3)	18	---	---

Level (6th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
113ISL-2	Islamic Culture III	2 (2, 0, 0)	2	---	---
211CE-3	Fluid Mechanics	5 (2, 2, 1)	3	205GE-3	
324STAT-3	Probability and Engineering	3 (3,0, 0)	3	---	---

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
	Statistics				
221CE-2	Geology for engineers	3 (2, 0,1)	2	241CE-3	
251CE-3	Structural Analysis (1)	4 (3,0, 1)	3	241CE-3	
242CE-3	Concrete Technology	4 (3, 0,1)	3	241CE-3	
202ARAB-2	Arabic Writing	2 (2, 0, 0)	2	---	
Total Hours		23 (17, 2, 4)	18	---	---

Level (7th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
312CE-3	Hydraulics	5 (2, 2,1)	3	211CE-3	---
352CE- 3	Reinforce Concrete (1)	4 (3, 0, 1)	3	251CE-3	
322CE-4	Geotechnical Engineering	(3 ,2 ,1)6	4	221CE-2	
343CE-3	Properties and Testing of structural Materials	5 (2, 2, 1)	3	242CE-3	
353CE-3	Structural Analysis (2)	4 (3, 0, 1)	3	251CE-3	
114ISL-2	Islamic Culture IV	2 (2, 0, 0)	2	---	---
Total Hours		26 (15, 6, 5)	18	---	---

Level (8th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
313CE-2	Hydrology	3 (2, 0, 1)	2	312CE-3	
370CE-3	Water Supply and Wastewater Systems	5 (2, 2, 1)	3	312CE-3	
354CE- 3	Reinforced Concrete (2)	4 (3, 0, 1)	3	352CE- 3	
331CE-3	Transportation and Traffic Engineering	4 (3, 0, 1)	3	CE-3260	
323CE-3	Foundation Engineering	4 (3, 0, 1)	3	322CE-4	
254Math-3	Numerical Methods	3 (3,0,0)	3	204MATH-3	
Total Hours		25 (16, 4, 5)	17	---	---

Level (9th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite
352AE-3	Electrical Systems & Building Circuits	3 (3 ,0 ,0)	3	------
481CE-3	Construction Engineering and Management	4 (3, 0, 1)	3	306GE-2
434CE-3	Highway Engineering	5 (2, 2, 1)	3	331CE-3
455CE-3	Steel Structures	4 (3,0,1)	3	353CE-3
491CE-2	Graduation Project I	3 (1, 2, 0)	2	Completion of 100 Credit Hours
CE-I***	*Elective I	4 (3, 0, 1)	3	
Total Hours		23 (15,4,4)	17	---

Level(10th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite	Remarks
492CE-2	Graduation Project II	3 (1 ,2 ,0)	2	491CE-2	
414CE-2	Water Resources Planning and Management	4 (3, 0, 1)	3	313CE-2	
482CE-3	Contract and Specifications	4 (3, 0, 1)	3	481CE-3	
472CE-3	Environmental Engineering	4 (3, 0, 1)	3	370CE-3	
CE-II***	*Elective II	4 (3, 0, 1)	3		
Total Hours		19 (13,2,4)	14		---

Level (11th)

Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite
490CE-0	Field Training	---	0	Completion of 100 Credit Hours

* (Total Credit Hours = 138)

* (Total Credit Hours with Preparatory Year = 165)

Elective Courses for 9th Level

.No	Code	Course Title	Contact Hour	Credit Hours	Pre-requisite

			(Lect., Lab, Tut.)		
1	415CE-3	Design of Hydraulics Structures	4 (3,0,1)	3	312CE-3
2	424CE-3	Improvement of Geotechnical Materials	4 (3,0,1)	3	322CE-4
3	463CE-3	Remote sensing and GIS Applications in Civil Engineering	5 (2,2,1)	3	260CE-3
4	456CE-3	Analysis and Design of Buildings	4 (3,0,1)	3	354CE-3
5	483CE-3	Construction Cost Estimation	4 (3,0,1)	3	306GE-2
				15	

Elective Courses for 10th Level

.No	Code	Course Title	Contact Hour (Lect., Lab, Tut.)	Credit Hours	Pre-requisite
1	473CE-3	Environmental assessment and management of environmental systems	4 (3,0,1)	3	313CE-2
2	425CE-3	Selected Topics in Geotechnical Engineering	4 (3,0,1)	3	322CE-4
3	433CE-3	Transportation planning	4 (3,0,1)	3	331CE-3
4	457CE-3	Selected topics in Structural Engineering	4 (3,0,1)	3	354CE-3
5	484CE-3	Selected Topics in Construction Engineering	4 (3,0,1)	3	481CE-3
				15	

General University Course Description

104PHYS-4 Principles of General Physics 4
(3,2,1)

Physics and Measurement, Motion One Dimension, Vectors, Motion in Two Dimension, The laws of Motion, Circular Motion and other application of Newton's Law, Energy of a system, Conservation of Energy, Linear Momentum and Collisions, Rotation of rigid objects about a fixed axis, Angular Momentum, static Equilibrium and Elasticity.

101CHEM-3 General Chemistry 3
(3,0,0)

This course will introduce the student to the basic vocabulary used in different branches of chemistry, and to major concepts in the field (eg. Stoichiometry, thermochemistry,) with emphasis on problem solving. The course topics included general chemistry concepts. Thermochemistry, bonding, solid-state structures, fundamentals of organic chemistry including polymers. Solution chemistry, thermodynamics, kinetics, equilibrium, acids and bases, electrochemistry, and nuclear chemistry. Use of computer for data acquisition and multimedia resources. Introduction to atomic theory, chemical reactions, bonding, stoichiometry, nomenclature, gas laws, colligate properties, colloids and solutions. Oxidation-reduction reactions, kinetics. Acid and base equilibria, buffers, translation elements, solubility, complex ions, hybridization. Laboratory study of the chemical properties and semi-micro qualitative analysis of the representative group elements of the periodic table**.**

106MATH-3 Integral Calculus 3
(3,0,1)

In this course, students will learn the basics of the basics of the calculus of functions of one variable. They will also apply these ideas to a wide range of problems to improve their ability to think critically, to analyse a problem and solve it using a wide array of tools. The course topics include function and graphs, polynomials, exponential, logarithmic and trigonometric functions. Limits and continuity, limits at infinity, infinite limits, properties of continuous functions, and the intermediate value theorem. The derivative, techniques of differentiation, chain rule, implicit differentiation, L'Hopital's rule, and application. Integration, definite and indefinite integral, fundamental theorem of calculus, integration by substitution, integration by parts, improper integrals, and application.

107MATH-3 Algebra & Analytical Geometry 3 (3,0,1)

Systems of linear equations, matrices, types of matrices, algebraic of matrix, inverse of matrices, determinants, Cramer's rule. Vectors in two and three dimensions and properties of vectors, scalar (dot) and cross products. Distance formula, gradient (or slope), positive and negative slopes, Inclination, parallel and perpendicular lines, straight line general formula, perpendicular distance from a point to a line, the general formula of circle. Conic sections: the parabola, the ellipse, the hyperbola. Rectangular, polar and spherical coordinates; curves in polar coordinates. Equations of lines and planes in space, surfaces

107ENGL-3 Technical Writing for Engineers

This course will enable the student to improve his ability to write expository essays. The course topics include Investigation of topic-selection processes, development of thesis statements, outlining as it relates to support for a selected thesis statement, both in sentence and slug-style, and practice and emphasis on critical thinking skills.

203MATH-3 Advanced Calculus 3 (3,0,1)

Infinite Sequences, Infinite series, convergence and divergence of infinite series, integral test, ratio test, root test and comparison test. Conditional convergence and absolute convergence, alternating series test. Power Series, Taylor and Maclaurin series, Vector valued functions, their limits, continuity, derivatives and integrals. Motion of particle in space, tangential and normal components of acceleration. Function in two or three variables, their limits, continuity, partial derivatives, chain Rule, directional derivatives, tangent planes and normal lines to equations, Extreme of Functions of Several Variables, Lagrange Multipliers, Double integral and its applications to area, volume, moments and centre of mass. Double integrals in polar coordinates, triple integral in rectangular, cylindrical and spherical coordinates and applications to volume, the moment and centre of mass. Vector fields, line integrals, surface integrals, Green’s theorem, and the divergence theorem. Stoke’s theorem

Prerequisites: 106Math-3

108ENGL-2 Communication Skills for Engineers 2 (2,0,1)

The use of good English: gather ideas and information, to organize ideas relevantly and coherently; engage in debates; participate in group discussions; face interviews; present scientific seminars; make oral presentations; transfer

information from non-verbal to verbal texts and vice versa; take part in social and professional communication

Prerequisites: 107ENG

105PHYS-4 Advanced Physics 4 (3,2,1)

Atomic structure: electronics configuration, classification of elements, energy levels. Crystal structure: lattice, symmetry, space group, examples for simple structure. Electrical properties of materials and electricity: classification of materials. Magnetic properties of materials and magnetism. Thermal properties of materials: thermal energy, thermoelectric power (See back Effect). Mechanical properties of matter (Young's modulus, tensile materials

Prerequisites: 104 PHIS -4

204MATH-3 Differential Equations 3 (3,0,1)

Introduction and classification, solutions of first order differential equations and their applications, (Growth and decay problems and linear motion problems). Solutions of higher order linear differential equations and their applications (spring problem and projectile problems). Laplace transforms and its applications, linear systems of differential equations. Series solutions of differential equations. Fourier series

Prerequisites: 106 Math-3

254MATH-3 Numerical Methods 3 (3,0,0)

Types of errors, errors analysis. Numerical solutions of nonlinear equations of single variables: fixed point iteration method, bisection method, false position method, Newton-Raphson method, secant method. Numerical solutions of a system of linear equations: Gauss-Jordon iterative method. Gauss-Jordon iterative method with partial and complete pivoting. Interpolation: Lagrange interpolation formula, divided differences, Newton interpolation, Numerical differentiation. Numerical integration. Introduction to numerical solutions of ordinary differential equations

Prerequisites: 204 MATH

324STAT-3 Engineering Probability and Statistics 3 (3,0,0)

Concepts of statistics and its applications in science and engineering, measure of central tendency, measure of dispersion, regression, correlation, and their applications. Concepts of probability and its applications in science and engineering, probability axioms, conditional probability, independent probability for events, some probability distributions and random variables: discrete and continuous random variables, distributions for applications in engineering such as Poison and Weibull distributions and other probability

distributions are important for engineers, time series, computer applications using statistical software

111ISL-2 Introduction to Islamic Culture 2
(2,0,0)

The meaning of Islamic creed, its most important terminology and characteristics. Moderation of the people of Sunnah. Explanation of different ranks of the Islamic religion: Islam, Faith and charity. Belief in the Oneness of the lordship (Divinity) of ALLAH, Belief in the Oneness of the worship of ALLAH. Testimony that there is no god but ALLAH: its meaning, its term, its pillars, and its invalidator. Worship: definition, types, its terms and its pillars. Belief in the Oneness of the Names and the Attributes of ALLAH: Its meaning and the pathway of the people of Sunnah, and examples of some divine attributes, and the benefits of faith in Names and attributes. Warning on invalidators of belief in Oneness of ALLAH: GREAT shirk, great disbelief, and rules on clear disbelief, and signs of disbelief, and the dangers of disbelief. Great hypocrisy and signs of hypocrites. Explanation of adulterators of belief in oneness of ALLAH: Lesser associating partners (Shirk) to of ALLAH, lesser disbelief and lesser hypocrisy. Innovation in Islamic Religion: definition, judgement, types, and examples. Definition of Loyalty an Enmity:judgement and manifestations of sanctioned loyalty, and forbidden loyalty, and the rules pertaining dealing with the disbelievers.

112ISL-2 Islamic Culture 2 2
(2,0,0)

Believes based on scientific basis and methodologies deduced from the Holy Qur'an, Biography of Prophet Muhammad, Peace be upon him (PBUH), and other well known Islamic references. The concept of ethics in Islam. The rules of Islam in dealing with instincts through ethics and moral rules.

The Islamic ethics and values necessary for their daily life. Explain that Islam is a religion that takes care of both daily life and the hereafter through solid historical examples. The Islamic solutions for daily life problems. Explain the effect of applying the Islamic ethics and values on community.

201ARAB-2 Language Skills 2
(2,0,0)

تعريف الكلمة: لغة واصطلاحا. أقسام الكلمة: اسم، وفعل، وحرف. علامات الاسم: (أل) التعريف، التنوين، والحديث عنه. أقسام الاسم من حيث الإعراب والبناء: معرب، ومبني. أقسام الفعل: ماض، وأمر، ومضارع. العلامة التي يعرف بها كل فعل، وحكمه من حيث الإعراب والبناء. تعريف الكلام. صور ائتلاف الكلام ست. تعريف الإعراب، وبيان أنواعه، مع بيان ما يشترك فيه الاسم والفعل، وما يختص به كل واحد منهما، وبيان العلامات الأصول والفروع. مما خرج عن الأصل في إعرابه سبعة أبواب:

خمسة في الأسماء:

الأسماء الستة، المثنى وما ألحق به، جمع المذكر السالم وما ألحق به، الجمع بالألف والتاء المزيدتين وما ألحق به في حالة النصب، الممنوع من الصرف في حالة الجر.

واثنان في الأفعال:

الأفعال الخمسة، الفعل المضارع المعتل الاخر في حالة الجزم. الصرف: الميزان الصرفي–المجرد والمزيد. المعاجم: طريقة الكشف في المعاجم العربية المختلفة. الأدب والنصوص: من القرآن لكريم سورة الحجرات من أولها إلى آخر الآية رقم(12)

من الحديث الشريف: خطبة الوداع، أو بعض الأحاديث المختارة ذات التوجيه الاجتماعي والسلوكي. من الشعر والنثر: مختارات شعرية ونثرية تمثل الأدب العربي.

113ISL-2 Islamic Culture 3 2
(2,0,0)

Believes based on scientific basis and methodologies deduced from the Holy Qur'an, Biography of Prophet Muhammad, Peace be upon him (PBUH), and other well known Islamic references. The concept of ethics in Islam. The rules of Islam in dealing with instincts through ethics and moral rules.

The Islamic ethics and values necessary for their daily life. Explain that Islam is a religion that takes care of both daily life and the hereafter through solid historical examples. The Islamic solutions for daily life problems. Explain the effect of applying the Islamic ethics and values on community.

202ARAB-2 Arabic Writing

اصطلاحا. أقسام الكلمة: اسم، وفعل. وحرف تعريف الكلمة: لغة، علامات الاسم :)ال(التعريف، التنوين، والحديث عنه. أقسام االسم من حيث اإلعراب والبناء :معرب، ومبني. أقسام الفعل : ماض، وأمر، ومضارع .العالمة التي يعرف بها كل فعل، وحكمه من حيث اإلعراب والبناء .تعريف الكالم .صور ائتالف الكالم ست .تعريف اإلعراب، وبيان أنواعه، مع بيان ما يشترك فيه االسم والفعل، وما يختص به كل واحد منهما، وبيان العالمات ألصول والفروع. مما خرج عن ألصل في إعرابه سبعة أبواب :خمسة في ألسماء ألسماء الستة المثنى وما ألحق به جمع المذكر السالم وما ألحق به الجمع باألف والتاء المزيدتين وما ألحق به في حالة النصب الممنوع من الصرف في حالة الجر .واثنان في ألفعال :ألفعال الخمسة الفعل المضارع المعتل آلخر في حالة الجزم . الصرف : الميزان الصرفي المجرد والمزيد –المعاجم : طريقة الكشف في المعاجم العربية المختلفة .ألدب والنصوص : من القرآن الكريم سورة الحجرات من أولها إلى آخر آلية رقم 22 من الحديث الشريف : خطبة الوداع، أو بعض ألحاديث المختارة ذات التوجيه االجتماعي والسلوكي .من الشعر والنثر : مختارات شعرية ونثرية تمثل ألدب العربي.

114ISL-2 Islamic Culture 4 2
(2,0,2)

Believes based on scientific basis and methodologies deduced from the Holy Qur'an, Biography of Prophet Muhammad, Peace be upon him (PBUH), and other well known Islamic references. The concept of ethics in Islam. The rules of Islam in dealing with instincts through ethics and moral rules.

The Islamic ethics and values necessary for their daily life. Explain that Islam is a religion that takes care of both daily life and the hereafter through solid historical examples. The Islamic solutions for daily life problems. Explain the effect of applying the Islamic ethics and values on community

College Courses Descriptions

101GE-3 Statics 3
(3,0,1)

Basic concepts and principles of statics. Vector operations. Equilibrium of particles in two and three dimensions. definition of moment and couple; reduction of systems forces; equilibrium of rigid bodies; statically determinate structures including beams, trusses, frames, and machines; internal forces; shear force and bending moment diagrams in beams; friction and its applications, centroid and center of gravity of lines, areas, and volumes; moment of inertia and radius of gyration.

Prerequisites: 107Math-3

102GE-2 Introduction to Engineering Design 2
(2,0,1)

Introduction to active learning, teamwork, team dynamics, team norms and communication, conducting effects meetings and quality assessment. Understanding the seven habits of highly qualified professionals. Organization of work and design notebook. Reverse engineering and design project. Computer modeling and heuristics for solving problems, stochastic process, optimization and expert systems. Schedule and time management.

204GE-3 Computer Programming for Engineers 3 (3,0,1)

Computer organization and hierarchy of programming language, Fortran 90 as a high level language, arithmetic computations, algorithm design, selection statements, repetition statements, debugging and testing of programs, logical and character data type, data files and formatted outputs, array processing, subprograms, introduction to derive data types and structures, numerical

applications. Analysing and design of civil engineering structural systems through the uses of computers. Emphasis will be placed on available computer software used in engineering projects and industry in civil engineering disciplines

203GE-3 Engineering Drawing 3
(1,4,1)

Introduction to drawing, Drawing equipment and use, Skills of Freehand Sketching, Methods of Projection: Orthographic, Isometric Dimensioning of View. Third View Prediction, Primary and Successive Auxiliary Views. Intersections of Surfaces and Bodies. Development of Surfaces. Sectioning. Introduction to Assembly Drawings. Introduction to computer graphics, Engineering Applications.

205GE-3 Dynamics 3
(3,0,1)

Basic considerations (Vector operations, Newtonian mechanics), Engineering applications of virtual work, Kinematics of particles, Newton's law, Equations of motion, Work and energy, Impulse momentum, and vibrations.

Prerequisites: 101GE-3 Static

306GE-2 Engineering Economy 2
(2,0,1)

Introduction to Engineering economy. Interest formulas and equivalence. Bases for comparison of alternatives. Decision making among alternatives. Evaluating replacement alternatives. Break even and minimum cost analysis. Cost accounting. Depreciation. Economic analysis of operations. Economic analysis of public projects. Basic management process approach, strategies and planning methods, project planning and scheduling, Bar chart, critical path methods, PERT method, resource leveling and allocation, time cost trade off. Construction and organizational approaches, leadership elements and decision-making, computer applications.

407GE-2 Management of Engineering Projects 2
(2,0,1)

Characteristics of Construction Industry; project delivery systems; the design and construction process; construction contracting; construction planning; project control, conceptual cost estimation; and Quality and Safety Management.

Prerequisites: 306GE-2

Departmental Course Descriptions

241 CE-3 Strength of Material
3 (3, 0, 1)

Stress, strain, and Hook's law. Moduli of elasticity and rigidity, and Poisson's ratio. Statical determination of axial force, shear force, bending moment and torque in bars, beams and circular shafts. Load-shear-moment relationship in beams. Section kinematics; strain and stress distribution and their resultants. Normal and shear stress distributions in beams of different shapes. Transformation of stress and strain, Mohr's circle. Spherical and cylindrical pressure vessels. Elastic buckling of columns

Pre-requisite: 101GE.

261CE-3 Surveying 1
3 (2, 2, 1)

Introduction to the basic surveying theory and practice; Units of measurements and conversions; Error analysis; Distance measurements by taping; Levelling; Angle measurements; Traversing and traverse computations; Topographic surveying and mapping; Area and volume computations; Circular curves; Use of surveying software such as Wolfpack and Surfer.

221CE-3 Soil Mechanics 1
3 (2, 2, 1)

Introduction to soil and soil mechanics, Soil composition, Soil type and structure, Index properties, Identification and Classification of soils, Site Investigation, Compaction of soils.

221 CE-3 Fluid Mechanics
3 (2, 2, 1)

Introduction and basic concepts of fluid mechanics, fluid properties, pressure and fluid statics in immersed surfaces, stability of floating bodies, fluid kinematic, energy equation, momentum equation, flow and loses in pipes, flow measurements, and dimensional analysis

251 CE-3 Structural Analysis11
3 (3, 0, 1)

Types of structures, supports and loads. Idealization of structures and loads. Geometric stability and determinacy. Analysis of determinate trusses, beams, plane frames and arches. Reaction computations axial force, shear force and bending moment diagrams. Internal force releases. Load-shear-moment relationship. Differential equation of elastic curve. Deflections by

integration, moment-area, conjugate-beam and virtual work methods. Influence lines of determinate structures.
Pre-requisite: 241CE-3.

312 CE-3 Hydraulics
3 (2, 2, 1)

Analysis of pipe flow networks, concepts of fluid flow, types of flow, states of flow, geometric properties of channel sections, velocity distribution in open channels, flow resistance and boundary layer theory, design of channel sections, energy considerations in open channels: specific energy and discharge diagrams, momentum considerations in open channels: specific force diagram and hydraulic jump. Gradually varied flow, hydraulic machines: pumps and turbines.
Pre-requisite: 211CE-3.

CE-3 Reinforced Concrete 1
3(3, 0, 1)

Fundamentals and design theories based on ultimate strength design and elastic concept using ACI code. ACI Code requirements. Load factors. Analysis and design of reinforced concrete members subject to flexure, shear and diagonal tension in accordance to ACI strength method. Development length of reinforcement, deflection and crack controls in reinforced concrete members.
Pre-requisite: 241CE-3.

342 CE-3 Properties of Testing of Materials 3 (2, 2, 1)
Methods of sieve analysis, density, absorption, and abrasion of sand and concrete aggregates. Normal consistency, setting times, compressive and tensile strengths of cements. Design and testing of concrete mixes for required workability, compressive, tensile, flexure strength and modulus of elasticity at various ages. Strength tests: on concrete cores, using Schmidt hummer and ultrasonic waves. Tensile test for reinforcing steel, and calculation of elastic modulus. Tests on isotropic and anisotropic materials and use of dial and electrical strain gages. Finding the Brinell Hardness number of various materials. Tension tests on ductile and brittle materials. Non-destructive testing on concrete.

Pre-requisite: 241CE-3

353 CE-3 Structural Analysis 2
3 (3, 0, 1)

Analysis of indeterminate structures: trusses, beams, plane frames and arches. Method of consistent deformation and flexibility matrix formulation. Pre-strain, temperature change and support movement effects. Slope deflection method, matrix analysis of beams and plane frame using the stiffness method, moment distribution, sway consideration and analysis of non-prismatic members.
Pre-requisite: 251CE-3

313 CE-3 Hydrology
3 (2, 2, 1)

The hydrologic cycle, Fundamentals of meteorology: (Temperature, humidity, Wind, Precipitation, Evaporation, Transpiration, and Infiltration), Stream flow and runoff, Stream flow hydrograph and Unit hydrograph, Groundwater flow , Types of aquifers and hydraulics of wells, Salt water intrusion in coastal aquifers.

Pre-requisite: 312CE-3

371 CE-3 Sanitary Engineering 3
(2, 2, 1)

Source of water supply; quantity of water and wastewater; quality of water supply; drinking water standard; water treatment system; coagulation-flocculation; sedimentation; filtration; disinfection; softening; iron and manganese removal; taste and odour removal; collection and distribution of water; characteristics of wastewater; effluent standard; wastewater collection; wastewater treatment processes

354 CE-3 Reinforced Concrete 2
3 (3, 0, 1)

Design of one-way, two-way, ribbed and flat slabs floor systems. Design for “torsion” and “combined shear and torsion” by the strength method. Design of continuous beams. ACI moment redistribution for minimum rotation capacity. Design of columns under axial and eccentric loadings, short and long columns, staircases, and types of concrete footings.
Pre-requisite: 352CE-3

381 CE-2 Computer Application in Civil Engineering 2 (1, 2, 1)

Study different applications in civil engineering through the use of computers. Emphasis will be placed on available computer software used in engineering projects and industry in civil engineering disciplines.

Pre-requisite: 204 GE

355 CE-3 Steel Structures
3 (3, 0, 1)

Analysis and design of roof trusses. Design of tension and compression members, columns under eccentric loadings, column bases and footings. Design of beams, welded and bolted connections. Different loads on different steel bridges. Design of steel bridges beams using Influence lines.
Pre-requisite: 353CE-3

322 CE-3 Soil Mechanics 2
3 (2, 2, 1)

Principle of Effective Stress, Permeability and capillarity of soils, seepage and Flow's nets, Stress distribution of soils, Compressibility and settlement, Consolidation Behaviour, Shearing strength of soils. Lateral earth pressure and Retaining walls
Pre-requisite: 221CE-3

462 CE-3 Surveying 2
3 (2, 2, 1)

Electronic surveying measuring equipment, introduction to the application of geographic information systems (GIS) and global positioning system (GPS) for civil engineering, introduction to photogrammetry, Geometric principles, Survey camera, Photo-interpretation, Applications of photogrammetry, Plotting instruments, Remote sensing, Computer applications
Pre-requisite: 261CE-3

431 CE-3 Highway Engineering
3 (2, 2, 1)

Highway planning, design criteria and controls, cross sectional elements, sight distances, Geometric Design: horizontal and vertical alignments, intersections, Surface and Sub-surface Drainage. Highway Pavement Materials and Mix Design, Structural Design of Pavement Thickness (flexible and rigid pavement), Pavement Maintenance.

423 CE-3 Foundation Engineering
3 (3, 0, 1)

Site exploration and selection. Types of foundations. Bearing capacity of shallow foundations. Mat Foundations. Foundation settlement. Deep foundations. Pile Foundations. Sheet pile structures. Slopes stability.
Pre-requisite: 322CE-3

491 CE-2 Graduation Projects 1
2 (2, 0, 1)

Choosing the topic, establishing the project, literature review, preparing for/or preliminary conducting the experiments, collecting the field data & developing the mathematical / computer model if applicable, writing the first part of the project along with any preliminary findings.

At the beginning of the semester, the students propose a topic on which they are supposed to work as a group. Project students meet in class weekly, discuss their research, and screen their progresses for peer and faculty critique and suggestions. At the end of the semester, students present their thesis projects to the supervising committee.

414 CE-3 Water Resources Planning and Management 3 (3, 0, 1)

Global water availability ,water Use by Sector, water Scarcity, water resources in Saudia Arabia , sustainable management of Water Resources, economic analysis of alternative water plans, design, and operation of water resources systems using mathematical optimization and models, linear Programming, river Basin Planning, system performance Indicators, river Basin modelling and flood Management.
Pre-requisite:313CE-3

432 CE-3 Transportation and Traffic Engineering 3 (3, 0, 1)
Transportation systems; vehicle characteristics and human reactions; traffic flow characteristics; highway capacity analysis; intersection control and design; public transportation; urban transportation planning; parking and terminal facilities; transportation safety; intelligent transportation systems and computer applications; introduction to railways, waterways, airports, and pipelines
Pre-requisite: 431CE-3

472 CE-2 Environmental Engineering 3 (2, 0, 1)

Environment Chemistry: Greenhouse gas, causes of global warming and climate change. Energy_and Matter: classification of material flow, material balance equations. Carbon Footprint_Reduction: clean energy, energy efficiency, innovative techniques to control CO_2 emissions. Pollution: Water Pollution, Air Pollution, and Noise Pollution, measurements, causes & effects and control. Solid Waste Management: reduce, reuse, and recycle, MSW landfill. Environmental Assessment Method definition, importance, main features, Well-known tools such as LEED, Case study in Saudi Arabia.

Pre-requisite: 371CE-3

433 CE-2 Construction Equipment and Methods 2 (2, 0, 1)

Overview of the construction industry. Earthmoving machinery and operations: excavation and lifting, loading & hauling, compacting & finishing, productivity estimation. Reinforced concrete construction and concrete form design. Construction economics.

492 CE-2 Graduation Projects 2 2 (2, 0, 1)

Continuation of part I of the project including : running and finalizing the experimental program or the mathematical / computer model, analysing the result, and findings and drawing the conclusion, writing the complete project report, presenting and defending the project.

Throughout the semester, the students try to implement what they proposed in graduation project-I as a group. Project students meet in class or lab weekly, segregate the work into sub-projects, and integrate the individual works in order to reach their target, and faculty critique and suggestions. At the conclusion of the semester, students present their design projects along with the thesis to the supervising committee.

Pre-requisite: 491CE-2

Academic Supervision

An academic advisor is assigned to each student. The student is advised to meet with his academic advisor at least once per semester which should be prior to course registration. The academic advisor may assist the students on:

- Course choices, selections, and degree requirements.
- Selecting the elective and free course that match student's future development and career goals.
- Regulations, policies, and procedures on transfer credits, and academic curricula.
- Getting information about scholarships, coop training opportunities, fellowships, and undergraduate research opportunities within the department.
- Identifying and assessing alternatives and consequences of their decisions related to career goals.

Facilities (Offices, Classrooms And Laboratories):

Faculty And Staff

The Civil Engineering Department has good number of faculty members having Ph.D in different specialization in civil engineering fields. The name of the Department members with their designation are as follows:-

Table 5. Name of Faculties with Qualification and designation in Civil Engineering Department

id	Faculty Name	Qualification and Specialization	Designation	E mail
1	Dr. Ali Alhamami	PhD in Civil Engineering, Specialization:Construction Engineering & Management	Assistant Professor	Ahalhamami@nu.edu.sa
2	Fadi Althoey	PhD Civil Engineering Materials and structures	Assistant professor	Fmalthoey@nu.edu.sa
3	Dr. Mana Mohammed Almansour	PhD in Engineering Specialization: Buildings and Environmental Sustainability	Assistant Professor	mmsalmansour@nu.edu.sa
4	Saleh Hamel	PhD-Civil Engineering Specialization: Sustainability and Environmental Engineering	Associate Professor	Shalsalem@nu.edu.sa
5	Mohammad Alharthai	PhD-Civil Engineering Transportation Engineering	Assistant professor	maalharthai@nu.edu.sa
7	Dr. Abdulaziz Alshehri	PhD in Civil Engineering Specialization: Transportation Engineering	Assistant Professor	Ahalshehry@nu.edu.sa

id	Faculty Name	Qualification and Specialization	Designation	E mail
8	Dr. Mohammed Abu Saq	PhD in Civil Engineering Specialization: Construction Materials	Assistant Professor	miabusaq@nu.edu.sa
9	Ismail Elkhrachy	PhD - Civil Engineering Specialization: Surveying Engineering.	Professor	iaelkhrachy@nu.edu.sa
10	Abdulnoor A.J Ghanim	PhD-Civil Engineering Specialization: Water Resources Eng.	Associate Professor	aaghanim@nu.edu.sa
11	Abdullah A. Al-Homidy	PhD-Civil Engineering Specialization: Geotecnics	Assistant Professor	aaalhomidy@nu.edu.sa
12	Ibrahim Hakeem	PhD-Civil Engineering Specialization: Structural Engineering	Assistant Professor	iyhakeem@nu.edu.sa
13	Gamil M. S. Abdullah	PhD Civil Engineering Specialization Geotechnical Engineering	Associate Professor	gmabdullah@nu.edu.sa
14	Dr. Ahmed Mustafa Maglad	PhD-Civil Engineering Specialization: Structural Engineering	Assistant Professor	ammaglad@nu.edu.sa
15	Moustafa Abdulrahim Hassan Mohamedsalih	PhD-Civil Engineering Specialization: Structural Engineering	Assistant Professor	masalihe@nu.edu.sa
16	Ahmed Abd El Aal	PhD- Engineering Geology Specialization: Rock mechanic	Assistant Professor	Akahmed@nu.edu.sa

Najran University Library Services

The University library (Prince Mesha'al Library) is centrally located within the University campus. Its current collections of monographs and bound periodicals exceed 310,000 volumes from more than 300 publishers. The collection is comprised of 80% in Science and Engineering and 20% in Humanities and Social Sciences. The library subscribes to 1,264 periodical titles and 1,249 electronic journals too. It also maintains 37,522 reels of journal earlier issues on microfilm. The library contains a large range of information resources such as books, periodicals, digital libraries, documents, manuscripts, audio-visual material, maps and atlases, and other electronically accessible material. It contains more than one hundred thousand books. The website can be found at: http://www.nu.edu.sa/web/guest/979

The services offered by the library are summarized below:

- Online Searching:

  The NU Library has online access through the internet to more than 600 international databases covering humanities, social sciences, sciences and engineering.

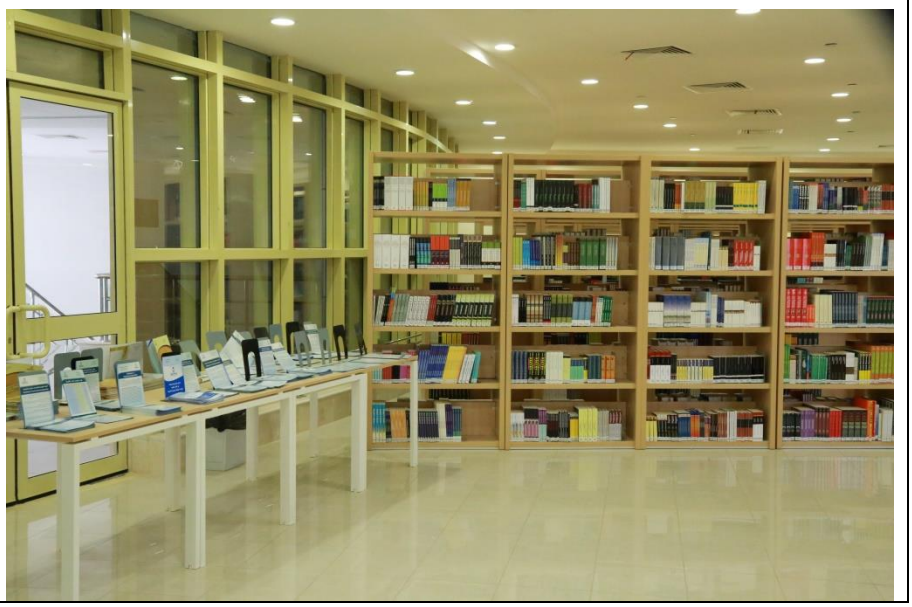

Figure 3. The NU Library

- Book Loans and Reading in the Library:

In addition to the online searching and use of international databases, instructors and students can go directly to the central library and order their books. Besides the central library, we have another departmental library for the Department of Civil Engineering from which the instructors can easily make their loans of specialized content.

Offices Facilities

The civil engineering department occupies the part of three floors in the college of engineering building within Najran University campus. There are 51 offices for Faculty members, one secretariat room, one conference room, and six laboratories and one-computer lab. Each staff member has office with space ranging from 6 to 12 square meters. Office size allows enough space for individual and collective work including the possibility to hold meetings with at most two to three colleagues or students. All facilities that needed are available for each office. Sample of faculty members' office is shown in the figure below.

Figure 4. Sample of Civil Engineering faculty office

Classrooms Facilities

The College of Engineering provides excellent teaching classrooms. Classrooms are adequately equipped with chairs and desks, instructor desk, interactive data show, and a white board. Each classroom is equipped with a wireless network allowing instructors to use internet. There are 23 classrooms available each with capacity of 30 students (Fig.4), and 2 large-size classrooms each with capacity of 60 students (Fig.5),

also there are two amphitheaters with capacity of 150 students with high audio and video facilities.

Figure 5. Picture showing a typical small classroom

Figure 6. Picture showing a typical large class room

Laboratory Facilities

Most laboratories that concern the Civil Engineering Department are available. All laboratories have adequate equipment for carrying out experimental work for courses and research activities. The available laboratories are as follows:

a. Soil Mechanics Laboratory.
b. Structural Materials Laboratory.
c. Highway Engineering Laboratory.
d. Surveying and Remote Sensing Laboratory.
e. Water Resources & Environmental Engineering Laboratory.
f. Computer Laboratory.
g. Laboratory.

Soil Mechanics Laboratory

The Soil Mechanics Laboratory (Figure 6) is utilized to determine the geotechnical properties of soil (physical, engineering, and mechanical) and geotechnical design parameters.

Figure 7. Soil Mechanics Laboratory

Figure 8. Soil Mechanics Laboratory

Sanitary and Water Resources Laboratory

The Sanitary and Water Resources Laboratory (Figure below) is used to teach concepts and perform research related to sanitary Engineering, water and wastewater reclamation and related fields. The laboratory is also utilized for research purposes.

Figure 9. Water Resources & Environmental Engineering Laboratory

Structural Materials Laboratory

The Concrete Quality Control and Assurance Laboratory (Figure 9 & 10) provides a wide scope of services and tests on fresh and hardened properties of concrete.

Surveying and Remote Sensing Laboratory

The Surveying and Remote Sensing Laboratory contains surveying instruments that used to train students in the practical aspect of the Surveying courses. The laboratory contains traditional surveying instruments as tapes, surveying compass, digital Planimeters, levels (automatic, digital levels) and its accessories, and the digital Theodolites. The laboratory contains modern surveying instruments including total stations with different accuracies and Global Positioning System (GPS).

Highway Engineering Laboratory

The laboratory (Figure 11) is fully equipped to provide effective support to academic and research related activities in the field of flexible pavement design and analysis for undergraduate Civil Engineering program.

Figure 10. Asphalt Laboratory

Computer Laboratory

The Computer Laboratory contains 30 desktop. Engineering software packages are provided and served by Windows. All software packages are provided in every general access computer lab, available software packages are:

- Autocad
- SAP2000
- Premavira
- Ansys

- Matlab

Figure 11. Computer laboratory

Department Committees

The department has several committees and sub-committee each of which is composed of a convener and at least two faculty members to assist in managing academic and administrative affairs of the department.

1. Quality and Academic Accreditation Committee (QAAC)
2. Operational Plans and KPIs Committee (sub-committee)
3. Surveys (sub-committee)
4. Academic Program Committee
5. Labs, Safety, and Learning Resources Committee
6. Students and Graduate Affairs Committee.
7. Graduation Projects (sub-committee)
8. Field Training (sub-committee).
9. Scientific Research and Graduate Studies committee.
10. Graduate Studies committee (sub-committee).
11. Registration and Exams Committee.
12. Exit Exam (sub-committee).
13. Human Resources Committee.

14. Community Service Committee.

Admission Requirements & Regulations For The Bachelor Programs

Admission Requirements

Students who are admitted to Civil Engineering program in Najran University should satisfy the general and special requirements as follow-

General Requirement

The general requirements are enlisted as follow-

1. The students shall only be admitted to the university upon the calculation of his average on 30% in general aptitude, 30% in achievement test and 40% in general secondary education, if the students wishes to enrol in preparatory year.
2. The students should obtain the general secondary certificate or its equivalent from the kingdom or abroad.
3. Not more than two academic years should have elapsed from the date of his obtaining such certificate or its equivalent.
4. The students should have a good conduct and proper behavior.
5. The students should successfully pass exam or personal interview (when conducted).
6. The students should be medically fit.
7. The students should obtain approval from his authority to pursue his studies if he works for any governmental or private body.
8. The students should not have been expelled from Najran University or any other university for academic or disciplinary reasons.
9. After the students is admitted, if it turns out that he has already been expelled for disciplinary or academic reasons, his admission shall be considered as void.
10. Students fulfilling all the requirements should present the stipulated documents to the deanship of admission and registration of the university.

11. The enrolled student cannot be enrolled for another degree at the same university or at any other university and should not have already obtained such degree.
12. The files of students shall be ruled out if it is found that he is late for admission tests. .
13. The files of students shall be ruled out if it is found that he is late for personal interviews and unable to present a genuine reason.
14. Students, who are late in carrying out the admission procedures within the deadline set by the university and do not present an acceptable excuse to the deanship of admission and registration shall not be admitted.

The admission procedures are regulated by the "Education and Examination Regulations" available at URL https://dadr.nu.edu.sa/%D8%B4%D8%B1%D8%AD-%D8%B7%D8%B1%D9%8A%D9%82%D8%A9-%D8%A7%D9%84%D8%AA%D9%82%D8%AF%D9%8A%D9%85-%D8%B9%D9%84%D9%89-%D8%A7%D9%84%D9%82%D8%A8%D9%88%D9%84-%D8%A7%D9%84%D8%A5%D9%84%D9%83%D8%AA%D8%B1%D9%88%D9%86%D9%8A

Policy On Disciplinary Actions For Poor Student Attendance And Absences.

The CEP believes that mandatory attendance is an essential component of student achievement and the CEF staff works hard to make sure that attendance is accurately recorded, monitored, and reviewed for every student.

1. Each course instructor performs student absences and delays regularly.
2. The admission system automatically sends a notification message to the student in the event of absence or delay in theoretical or practical lectures.
3. When a student misses more than 10 and 20 percent of any marking period, whether excused or unexcused, they will be notified of sending first and second warnings of absence respectively.
4. After a student receives a warning, the academic advisor invites the student to conduct a counselling session with him to understand the reasons behind the student's absence and attempt to warn them about the consequences of repeated absences and address the underlying causes, if possible.
5. When a student misses 25 % of the classes, and an excuse is not provided, a student, the student is prohibited from taking the final exam in the course he was absent from.

Based on the above information, the policy on disciplinary actions for poor student attendance and absences includes the following points:

1. **Regular Monitoring:** Each course instructor regularly monitors student absences and delays.
2. **Notification System:** The admission system automatically sends a notification message to the student in the event of an absence or delay in theoretical or practical lectures.
3. **Warning System:** If a student misses more than 10% and 20% of any marking period, whether excused or unexcused, they will receive first and second warnings of absence, respectively.
4. **Prohibition from Final Exam**: If a student misses 25% of the classes and fails to provide an excuse, they will be prohibited from taking the final exam in the course they were absent from.
5. The student who has been prohibited from taking the final exam due to exceeding a 25% absence rate, should submit a valid excuse, and submits a request to have the prohibition lifted.
6. The relevant documents are then forwarded to a specialized committee at the college level to address the matter. The committee thoroughly examines all cases, verifies the submitted excuses, and ultimately determines whether the student's deprivation should be lifted or not.

Withdrawal

A student has the right to withdraw from an academic semester -without being considered fail within the withdrawal period announced in the academic calendar for the current semester. The withdrawal must be submitted online. No withdrawal is allowed during the last five weeks before the final examinations. If the college council accepted the student excuse, the council may search for additional chance of final examinations.

Attendance

Regular engineering courses require full time attendance for academic success. The college requires that students should attend at least 75% of the lectures, practical and laboratorial sessions A student failing to meet this limit in any of his registered courses will be prohibited from attending the final examination of this course.

Transfer Students and Transfer Courses

Transfer of students to civil engineering program at Najran University can be done through three different channels as follows:

Transfer from Other Universities:

General Requirements: With the consent of the administrator in charge, students may transfer from other universities in conformity with the rules adopted by the student affairs committee and according to the following general guidelines:

- The student must be enrolled at an accredited college or university.
- The student must not have been dismissed from that university for educational or disciplinary reasons.
- The student must meet the requirements of admission transfer.
- The transferred students are required to complete more than 60% of the total required credit hours in Najran University. The college council is responsible for equating the courses studied at other universities to the equivalent courses of the department and accordingly a recommendation is forwarded to the department council. The equated courses are then credited and applied to the student's academic record, but not be applied to the cumulative GPA.
- The transfer procedure should be completed within the period specified by the dean of admission and registration, provided that the period does not exceed end of the second week from the beginning of the academic semester. After the fulfilment of all requirements, the student receives a transfer notice allowing him to attend courses after the issuance of a university ID.
- The enrolment is considered void in the case of coming out that the student had been previously dismissed from a university due to disciplinary or educational reasons.

These requirements and process for accepting transfer students are governed by the Article #15.1 of the Policy on Regulations of Study and Examinations.

Additional Requirement: In addition to the above mentioned general requirements, few more requirements are set by the council of civil engineering program. These requirements may be changed each year by the approval of program council. Currently these requirements are:

- Assure the students finish successfully the Preparatory Year Program or equivalents.
- Verify the condition of specialization in Najran University.
- Transfer from the similar engineering program.
- The student should have a minimum cumulative GPA of 3.5 (out of 5.0) or equivalent from a reputed college. This is complemented with other conditions developed by the College Council on a yearly basis.

Internal Transfer from Other Colleges within the University

General Requirements: With the consent of the administrator in charge, students

may transfer from one college to another within the university in conformity with the regulations adopted by the Student Affairs Committee, and according to the following guidelines:

- The Student's grade point average (GPA) should not be less than 2.0.
- The Student must not have been previously transferred during his study at the university.
- The academic period remaining must be sufficient for the completion of the graduation requirements
- The student should apply to the dean of admission and registration about his transfer from one college to another by completing the appropriate form. Upon completion of the transfer procedures, the student will receive a notification allowing him to study at the college in which they are transferred to.
- All the transfer procedures are completed within the period determined by the office of dean of admission and registration, provided that the period does not exceed the first week after beginning of an academic semester.
- All the completed courses that are transferred from one college to another are academically recorded including semester grades, and grade point average (GPA) throughout his study in the university

Additional Requirements: Few additional requirements are set by the council of civil engineering program beside the above mentioned general requirements. These requirements could be changed each year with the approval of program council. These requirements are:

- Students can apply for transfer only after studying at least one semester in the college they are registered. (Summer semester is not counted).
- Transfer from any non-science college to any college of engineering is not allowed.
- Transfer from any college that does not require preparatory year, is not allowed.

The minimum GPA for transferring from other colleges of the University to Civil Engineering program is illustrated in Table 4 below.

Table 4: The condition for transfer of student within the University

From	To	Minimum CGPA	Number of students
College of Medicine	Civil Engineering Program College of Engineering	3.75	According to the capacity of the department which is decided each year by the department council

College of Dentistry	Civil Engineering Program College of Engineering	3.75	According to the capacity of the department which is decided each year by the department council
Applied Medical Sciences	Civil Engineering Program College of Engineering	3.75	According to the capacity of the department which is decided each year by the department council
College of Computer Science and Information Systems	Civil Engineering Program College of Engineering	3.75	According to the capacity of the department which is decided each year by the department council

Transfer From Any Other Program To Civil Engineering Within The College

General Requirements: With the consent of the administrator in charge, students may transfer from any other program of the college to Civil Engineering within the university in conformity with the regulations adopted by the student affairs committee, and according to the following guidelines:

- The student must have spent at least one semester in their major.
- The student is not entitled to be transferred within the same college from one major to another for more than twice during their tenure in the university.
- The academic period remaining must be sufficient for completion the graduation requirements.
- All the studied courses that are transferred from one major to another are mentioned in their academic record, including any awards, semester grades, and grade point averages GPA throughout their tenure in the university.

Additional Requirements:

The minimum GPA for transferring student within the University to Civil Engineering program is illustrated in table below.

Table 5 Transfer to Civil Engineering Program from any other program of the College

From	To	Minimum CGPA	Max number of students allowing to transfer per semester
Department of Electrical Engineering	Department of Civil Engineering	3.75	According to the capacity of the department which is decided each year by the department council
Department of Architecture Engineering	Department of Civil Engineering	3.75	According to the capacity of the department which is decided each year by the department council

Visiting Student of Civil Engineering to Other Universities

A student from the program (CE) is entitled to complete some courses in another university upon the fulfillment of the following conditions:

1. The student should be regular in their academic record and apply using a prescribed form available on the website: http://www.nu.edu.sa/web/engineering-college/70
2. The college should receive the application at least two semesters earlier from their enrolment as a visitor student.
3. The student must receive a prior consent from their academic institution permitting him to study as a visitor student along with the courses to be studied.
4. The college is responsible to stipulate the equivalence of courses between two programs. The student would be given official letter from the Dean of Admission and Registration Affairs enabling them to begin registration.
5. The studied courses must be completed at an accredited college or university.
6. The courses, studied by the student outside the university, are made equivalent by considering all of its contents and the assigned credit hours must not be less than any courses included in the graduation requirements.

7. The maximum number of credit hours that can be counted from other university should be less than 20% of the total credit hours required to graduate at Najran University.
8. The equivalent courses for the visiting student are not considered in calculating their cumulative GPA.
9. The student must provide the obtained grades to the office of dean of admission and registration within two weeks of the beginning of the academic semester. If the student fails to submit their grades, they are considered as non-attending.

Visiting Student from Other Universities to Civil Engineering Department

The student at another university is entitled to study in Najran University as a visiting student under the following conditions-

1. The student should have an academic record of at least two semesters from their current university.
2. The student must not have been dismissed due to disciplinary or educational reasons.
3. The student must obtain a prior written consent and enlisted courses to be studied from the deanship of admission and registration of his current university in order to study as a visitor in Najran University.
4. The maximum limit of academic semesters that the student is allowed to study as a visitor is 2 semesters.
5. The courses the student wishes to study should be registered in accordance with the registration requirements.
6. The visiting student does not receive any grants by Najran University.
7. By the end of his study, the student is provided with the results obtained in the courses studied by a transcript demonstrating the attained grades.

Transfer Credit

Courses, taken by the students outside the Najran University, may be transferred upon the approval from the college council. Civil engineering department or the concern department recommends on the approval of the equivalent courses along with its corresponding credit hours. The transferred equivalent courses are recorded in the student's academic profile. The equivalent credit hours are approved for only those courses in which the students has obtained a letter grade of 'C' or above. But the points of the equivalent courses are not used in the computation of CGPA of the student.

The transferred student submit an application asking for equivalent credits to the chairman of civil engineering department along with the original academic record and certified detailed description of the courses taken outside Najran University. The chairman of Civil Engineering department refers the application to the concerned academic advisor and curriculum committee for evaluation of equivalent credit. This evaluation is performed on a case-by-case basis. This evaluation is considered according to the following circumstances:-

a) The credit hour of the course is equal or more than that of the equivalent course in Najran University.
b) The grade of the course obtained is 'C' or above.
c) The content of the course matches at least 80% of the same in Najran University.

After the department approves the credit transfer, the department applies for getting approval of the college council using the equivalency evaluations. After college council approves the application, it is sent to the deanship of admission and registration. The requirements and process for courses equivalency and credit transfer are governed by Article #43 of the Policy on Regulations of Study and Examinations.

Updated by:
Students and Graduate Affairs Committee