

Course description form

1. Course Name
Plane Survey
2. Course description
<ol style="list-style-type: none"> 1. Introduction to Surveying: An explanation of the basic concepts in surveying and their importance in the field of engineering. 2. Fundamentals of Measurements: A study of the tools and techniques used in area measurements, such as the scale and theodolite. 3. Plane Surveying: An examination of the techniques used in measuring horizontal distances and preparing terrain diagrams. 4. Surveying Technology: A study of technological developments in the field of surveying, such as the use of GPS devices and drones. 5. Cadastral data analysis: How to analyze data used in surveying and use it in engineering.
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 101, GEO 106
6. Total number of study hours
8
7. Course objectives
<ol style="list-style-type: none"> 1. Understanding Basic Concepts: Teaching student's basic concepts and terminology in the field of plane space and how to apply them in engineering work. 2. Developing practical skills: Providing the practical understanding and skills necessary to make accurate planar measurements using available tools and techniques. 3. Use of technology: Teaching students how to use modern technology available in the field of planar surveying, such as electronic measuring devices and processing software. 4. Data Analysis: Training students to read and analyze cadastral data and present it in an understandable way. 5. Understanding Terrain: Enhance students' understanding of terrain and how to accurately represent it in maps and graphs.

<p>6. Enhancing geometric thinking: Developing geometric thinking skills and the ability to analyze and solve problems related to plane space.</p> <p>7. Promote Collaboration and Communication: Encourage students to collaborate with each other and enhance effective communication skills, especially when implementing surveying projectsH.</p>
<p>8. Course outcomes</p>
<ol style="list-style-type: none"> 1. Understand basic concepts: Understand the concepts of space and measurements used in surveying. 2. Use of tools and techniques: Distinguish and use different surveying tools such as scales and theodolites. 3. Terrain recognition: Learn how to measure and represent terrain and land surfaces. 4. Capacity for horizontal measurements: Measure horizontal distances using appropriate tools. 5. Use of technology: Understand how to use advanced technology e.gGPS and laser in surveying operations. 6. Cadastral data analysis: Analyzing cadastral data and using it to provide accurate engineering information. 7. Interact with maps: Read and understand cadastral maps and analyze the information available on them. 8. Monitoring skills: Develop monitoring skills and the ability to accurately determine locations. 9. Interaction with computer programs: Using computer programs specialized in the field of surveying to analyze data and prepare maps.
<p>9. Teaching and learning methods</p>
<p style="text-align: center;">Blended learning (electronic and in-person) FnoScientific and video clips, laboratories</p>
<p>10. Evaluation methods</p>
<p style="text-align: center;">Daily, quarterly, and final tests, submitting weekly reports</p>
<p>11. Infrastructure</p>
<p style="text-align: center;">Buildings and classrooms and laboratories of the College of Engineering Technology</p>

Course description form

1. Course Name
Engineering drawing
2. Course description
The engineering drawing subject is considered one of the basic courses in engineering and technical education, as it focuses on developing students' skills in preparing and understanding engineering drawings and visual communication of engineering ideas.
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 102
6. Total number of study hours
8
7. Course objectives
The goal of computer engineering drawing, also known as computer-aided engineering drawing or computer-aided design (CAD), is the use of computer programs and tools to create accurate, detailed technical drawings and models of engineering components, systems, and structures. It combines engineering principles with computer technology to enhance the efficiency, accuracy and productivity of design and drafting processes
8. Course outcomes
<ol style="list-style-type: none"> 1. Understand basic concepts: Achieve a deep understanding of basic concepts in engineering drawing such as lines, angles, and geometric shapes. 2. Using drawing tools: Learn to use and manipulate engineering drawing tools effectively, such as the ruler, geometric pen, and compass. 3. Drawing and designing shapes: Ability to draw geometric shapes accurately and use geometric design to represent ideas and visualizations. 4. Recognizing symbols and labels: Understanding of engineering symbols and nomenclature used in drawing and the ability to read and understand engineering drawings. 5. Engineering analysis: The ability to analyze engineering drawings to understand the properties of shapes and relationships between elements.
9. Teaching and learning methods
Blended learning (electronic and in-person) for Scientific and video clips, laboratories

10. Evaluation methods
Daily, quarterly and final tests, submitting weekly reports
11. Infrastructure
Buildings and classrooms and laboratories of the College of Engineering Technology

Course description form

1. Course Name	Engineering mathematics
2. Course description	Providing students with the mathematical concepts and tools necessary to analyze and understand engineering challenges accurately and effectively
3. Educational institution	Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center	Geomatics engineering techniques
5. Course Code	GEO 103
6. Total number of study hours	6
7. Course objectives	The goal of engineering mathematics is to provide engineers with a strong mathematical foundation and problem-solving skills. It enables engineers to analyze engineering systems and Model and improve it, interpret and analyze data, design control systems, and make informed decisions based on quantitative analysis. By integrating mathematical principles with engineering concepts, engineering mathematics provides a powerful toolkit for engineers to address a wide range of complex engineering problems
8. Course outcomes	<ol style="list-style-type: none"> 1. Understand basic mathematical concepts: Achieving a deep understanding of the basic mathematical concepts related to engineering. 2. Apply mathematical concepts to solve problems The ability to apply mathematical concepts to solve practical and realistic problems. 3. Analysis of mathematical structures: The ability to analyze and understand mathematical structures and relationships between geometric shapes and objects. 4. Recognizing geometric shapes: Recognizing various geometric shapes and understanding their properties. 5. Using mathematical tools in analysis Using mathematical tools effectively in engineering analysis and interpretation. 6. Dealing with equations and systems Understanding and solving mathematical equations and engineering systems. 7. Interacting with engineering data The ability to collect, analyze and interpret engineering data.

8.	Integration of concepts into other fields Integration of engineering concepts with other areas of mathematics and science
9.	Teaching and learning methods
	Blended learning (electronic and in-person) For Scientific and video clips, laboratories
10.	Evaluation methods
	Daily, quarterly, and final tests, submitting weekly reports
11.	Infrastructure
	Buildings and classrooms and laboratories of the College of Engineering Technology

Course description form

1. Course Name	Engineering geology
2. Course description	Providing a deep and applied understanding of the relationship between geology and engineering and how soil and rock impact engineering projects.
3. Educational institution	Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center	Geomatics engineering techniques
5. Course Code	GEO 104
6. Total number of study hours	4
7. Course objectives	<p>The goal is to apply geological principles and knowledge to engineering and infrastructure development projects. Engineering geology is a branch of geology that focuses on assessing and mitigating geological hazards and understanding the geological characteristics of a site to ensure the safe and sustainable construction of infrastructure. In general, the goal of engineering geology is to ensure that engineering projects are planned, designed and implemented in a way that takes into account geological factors, minimizes risks, and maximizes the stability, safety and long-term sustainability of the constructed infrastructure.</p>
8. Course outcomes	<ol style="list-style-type: none"> 1. Understand basic concepts Achieving a deep understanding of engineering geology concepts such as soil and rock formations and earthquakes. 2. Analysis of geological features The ability to analyze and interpret geological features and their impact on engineering projects. 3. Interact with geological formations: The ability to interact with geological formations and understand how they affect the environment and engineering projects. 4. Natural resources examination Students' ability to examine and use natural resources in the context of engineering projects. 5. Geological risk assessment The ability to evaluate and examine geological risks and analyze their impact on projects. 6. Application of technology in geological analysis Using technology in data collection and geological analysis to improve the accuracy of results. 7. Learn about standards and regulations: Learning about geological standards and regulations related to the field of engineering.

9.	Teaching and learning methods
	Blended learning (electronic and in-person) For Scientific and video clips, laboratories
10.	Evaluation methods
	Daily, quarterly and final tests, submitting weekly reports
11.	Infrastructure
	Buildings and classrooms and laboratories of the College of Engineering Technology

Course description form

1. Course Name	English
2. Course description	This course aims to enhance students' English language skills in a variety of linguistic aspects, from listening and speaking to reading and writing. The course focuses on developing students' abilities to communicate in English comprehensively, with an emphasis on cultural understanding and use of the language in life and academic contexts.
3. Educational institution	Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center	Geomatics engineering techniques
5. Course Code	GEO 105
6. Total number of study hours	2
7. Course objectives	The aim of the Advanced English Language Skills subjects is to enhance and hone individuals' English proficiency beyond the intermediate level. It aims to develop advanced language skills, including reading, writing, listening, and speaking, to effectively communicate and understand complex information in different contexts. And improve and expand language proficiency to a high level of proficiency. It enables individuals to engage in complex communication, understand sophisticated written and spoken texts, and express themselves effectively in academic, professional, and social settings that require advanced English language proficiency.
8. Course outcomes	<ol style="list-style-type: none"> 1. Understanding grammar: Learn about basic and advanced grammar rules of the English language. 2. Ability to analyze sentence structures and use tenses correctly. 3. Expand vocabulary: Increasing the size of the Responses Engineering English. 4. Understand words in a variety of contexts and use them correctly. 5. Read and understand texts: Develop effective reading skills. 6. Linguistic writing: Effectively develop English writing skills. 7. Producing various texts, such as articles, letters, and reports.
9. Teaching and learning methods	

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Course description form

1. Course Name	Human Rights
2. Course description	Prepare students to understand human rights concepts and apply them in international and national work contexts and encourage them to engage in human rights protection and think critically about contemporary challenges.
3. Educational institution	Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center	Geomatics engineering techniques
5. Course Code	NTU 100
6. Total number of study hours	2
7. Course objectives	The study of human rights forms an important part of legal education and general learning. This course provides understanding and awareness of a range of issues and principles that relate to human rights and freedoms.
8. Course outcomes	<ol style="list-style-type: none"> 1. Promoting awareness of human rights: Provide students with a comprehensive understanding of the basic concepts and principles of human rights. 2. Understanding the historical and legal foundations: Providing a historical and legal overview of the development of human rights throughout the ages. 3. Analysis of human rights issues: Develop the ability to analyze and understand legal issues related to human rights in various contexts. 4. Promoting social awareness: Linking human rights to social and cultural contexts and identifying their impact on daily life. 5. Encouraging discussion and critical thinking: Motivate students to participate in discussions on human rights issues and exchange views. 6. Understanding international and national legislation: Provide an overview of international and national legal instruments that protect human rights. 7. Promoting social responsibility: Drawing attention to the responsibility of individuals and societies to promote and protect human rights. 8. Develop research and writing skills: Enhancing research and writing skills on human rights topics.
9. Teaching and learning methods	Blended learning (electronic and in-person)
10. Evaluation methods	

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Course description form

1. Course Name	Engineering mechanics
2. Course description	This course aims to provide students with basic concepts and skills in engineering mechanics, allowing them to understand and analyze mechanical systems and design mechanical parts and systems.
3. Educational institution	Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center	Geomatics engineering techniques
5. Course Code	GEO 107
6. Total number of study hours	8
7. Course objectives	The goal of engineering mechanics is to provide engineers with a solid understanding of the principles and laws that govern the behavior of physical objects, enabling them to analyse, design and improve engineering structures and systems. By applying the principles of mechanics, engineers can ensure the safety, effectiveness, and efficiency of various engineering projects across various disciplines.
8. Course outcomes	<ol style="list-style-type: none"> 1. Understand basic concepts Achieving a deep understanding of basic concepts in the field of engineering mechanics, such as dynamics, mechanics of materials, heat and heat transfer. 2. Application of engineering principles .The ability of students to apply engineering principles in the analysis and design of mechanical systems and structures.

<ol style="list-style-type: none"> 3. Systems analysis and design developing engineering analysis skills for fixed and mobile mechanical systems. 4. Understand the behavior of materials: Understanding the behavior and properties of materials used in mechanical engineering and how to design and test mechanical parts. 5. Interact with technology motivating students to use technology in designing and analyzing mechanical systems. 6. Develop practical skills enhancing practical skills and engineering thinking through practical projects and practical experiments.
<p>9. Teaching and learning methods</p>
<p style="text-align: center;">Blended learning (electronic and in-person) For Scientific and video clips, laboratories</p>
<p>10. Evaluation methods</p>
<p style="text-align: center;">Daily, quarterly, and final tests, submitting weekly reports</p>
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<p style="text-align: center;">Buildings and classrooms and laboratories of the College of Engineering Technology</p>

Course description form

1. Course Name
Engineering physics
2. Course description
Providing students with the physics skills and concepts necessary to understand and analyze engineering challenges and design engineering systems and structures effectively
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 108
6. Total number of study hours
2
7. Course objectives
Teach students to solve Newtonian kinetic equations, equations of motion, and predict motion using a principle saveenergy.
8. Course outcomes
<ol style="list-style-type: none"> 1. Understanding physical concepts: Achieve a deep understanding of basic concepts in physics such as motion, electricity, and magnetism. 2. Applying concepts to engineering problems: the Ability to analyze and apply physical concepts to solve engineering problems. 3. Analyzing engineering cases using physical concepts: The ability to use physical concepts in analyzing and interpreting specific engineering cases. 4. Understanding the effect of magnetism and electricity on engineering materials: Understand how magnetic and electrical interaction affect the mechanical and thermal properties of engineering materials. 5. Interpretation of light and optical phenomena in engineering: then ability to

	understand and interpret light and optical phenomena in the context of engineering design.
6.	Using the principles of heat and energy conversion: Ability to understand how thermal energy can be converted and used in the design of engineering systems.
7.	Laser impact analysis and engineering applications: Understand the principles of lasers and analyze their impact on engineering design and applications.
9.	Teaching and learning methods
	Blended learning (electronic and in-person) For Scientific and video clips, laboratories
10.	Evaluation methods
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Course description form

1. Course Name
Descriptive geometry
2. Course description
Descriptive Geometry is a course that focuses on learning and applying concepts and skills related to description and characterization in the context of engineering. This course aims to teach students how to accurately describe engineering objects and phenomena and use technical terms and concepts correctly.
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 109
6. Total number of study hours
3
7. Course objectives
Studying the Descriptive Engineering course aims to provide students with the basic concepts of description and characterization in the engineering context, and to develop their skills in describing engineering phenomena and structures with accuracy and understanding. The course includes teaching the use of appropriate methods and tools for engineering description and analysis of structures, with an emphasis on practical applications in the design of engineering products and projects. Studying this course enhances students' abilities to communicate effectively and deal with engineering challenges efficiently and professionally
8. Course outcomes
<ol style="list-style-type: none"> 1. Ability to describe accurately: Enable students to describe engineering objects and phenomena accurately and use appropriate technical terminology. 2. Using engineering tools effectively: Teach students to use appropriate engineering methods and tools for description and description, such as engineering drawings and software CAD. 3. Understanding engineering structures: Students' ability to analyze and understand engineering structures and parts and their important properties. 4. effective communication: Developing students' abilities to communicate and interact effectively with engineering work teams and the target audience through engineering description.

9.	Teaching and learning methods
	Blended learning (electronic and in-person)
10.	Evaluation methods
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Course description form

1. Course Name
Computer principles
2. Course description
The computer principles course in universities is a study subject that provides the basics of computer science and information technology to students. The course covers topics such as computer structure and networks, basics of operating systems, databases, and information security. It also includes practical applications that help students understand and apply the concepts in a practical and effective manner, which It prepares them for advanced levels in computer science and related disciplines.
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 110
6. Total number of study hours
3
7. Course objectives
aThe goal of studying the computer principles course in engineering colleges includes teaching students the basics of computer science and programming to understand and use basic concepts in the fields of engineering, in addition to understanding the principles of computer structure, networks, operating systems, database concepts, and information security, while enhancing their abilities in practical applications to solve engineering problems and develop solutions. In an innovative and effective way to prepare them for the requirements of the labor market in the engineering field.
8. Course outcomes
<ol style="list-style-type: none"> 1. Understanding the basics of computer science: Acquire basic concepts in computer science and programming, enabling students to understand computing applications in the field of geomatics. 2. Programming ability: Develop programming skills using languages such as Python or Java to analyze geomatic data and apply appropriate algorithms. 3. Dealing with systems Geographic information (GIS): Understand and apply the concepts and basics of geographic information systems in analyzing and

	visualizing spatial data.
4.	Interaction with geographic databases: Learn to use and manage geographic databases and extract the necessary data for geomatics purposes.
5.	Applications Process in geomatics projects : Applying school concepts in practical projects to analyze spatial data, design geographic maps, and use technology to achieve geomatics goals.
9.	Teaching and learning methods
	Blended learning (electronic and in-person)
10.	Evaluation methods
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11.	Infrastructure
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Course description form

1. Course Name
Arabic Language
2. Course description
The Arabic language course in engineering colleges usually aims to teach students the linguistic and cultural basics of Arabic, with a focus on vocabulary, grammatical rules, and written and oral expression. The course aims to enable students to communicate effectively in an Arab engineering environment, and may also include reading technical texts in Arabic and understanding Arab engineering culture.
3. Educational institution
Northern Technical University / Engineering Technical College / Mosul
4. Scientific department/center
Geomatics engineering techniques
5. Course Code
GEO 111
6. Total number of study hours
2
7. Course objectives
Studying the Arabic language aims to facilitate communication and interaction with the local community and Arabic-speaking engineers, and to enhance understanding of local culture and traditions. It also contributes to enhancing job opportunities by increasing communication capabilities and enhancing comprehensive learning through a comprehensive educational experience. In addition, it contributes to enhancing scientific research capabilities and scientific communication with knowledge sources in the Arabic language.
8. Course outcomes
<ol style="list-style-type: none"> 1. Ability to communicate: Students gain the ability to communicate effectively in Arabic with colleagues and clients in engineering contexts. 2. They are technical texts: The ability to read and understand technical texts in Arabic used in engineering fields. 3. For effective writing: The ability to write reports and engineering documents in Arabic in an accurate and understandable manner. 4. Cultural Interaction: Understand the Arabic engineering culture and interact appropriately with the Arabic-speaking engineering community. 5. Continuous learning: Promoting continuity in learning the Arabic language

	during the course of the engineering career for continuous communication and skills development
9.	Teaching and learning methods
	Blended learning (electronic and in-person)
10.	Evaluation methods
	Daily, quarterly and final tests, submitting weekly reports
11.	Infrastructure
	Buildings and classrooms and laboratories of the College of Engineering Technology