124007 PRACTICE OF ENGINEERING GEOLOGY

This course aims to assess engineering geological conditions of an area by different engineering geological survey methods: visualization, drilling, penetration, compression, experimental water extraction.

124015 TECHNICAL PRACTICE 1

Site preparation, masonry work (construction, painting, paving, paving, rolling base, ...), finishing work.

124016 FIELD TRIPS

Cognitive internship to create conditions for students: Integrate into the real environment of corporate agencies; Apply the knowledge learned to understand the actual work; Know how to behave in corporate relationships.

124017 SOIL MECHANICS TESTING

The soil mechanics testing course aims to consolidate the knowledge learned in the soil mechanics course through experiments to determine the physical and mechanical properties of the soil.

124018 STRENGTH OF MATERIALS LAB

Consolidate students' theoretical knowledge of strength of materials, improve practical skills, perform experiments on physical and mechanical properties of some solid objects and evaluate strength, hardness and stability.

124029 TECHNICAL PRACTICE 2

Technical Practice 2 aims to help students grasp the reality of civil & industrial construction; apply learned theory into practice and learn and learn new techniques in construction technology. In addition, this module also helps students to be better prepared for the graduate labor period.

124057 MASONRY TECHNIQUES

Provide students with economic - technical norms showing the cost of materials, labor and construction machines to complete a unit of construction work volume such as 1m3 brick wall, 1m3 concrete, 1m2 tiled , 1 ton of reinforcement, 100m of pile length, etc. from preparation to finishing work.

124058 GEODESICS

The main content of the module includes basic geodetic issues but necessary for construction such as: Positioning points, orienting straight lines, using maps, measuring angles, measuring length, measuring height, measuring and drawing. maps, topographic cross-sectional

measurements, types of work layout, as-built measurements, construction deformation monitoring.

124059 ENGINEERING GEOLOGY

Basic knowledge of construction soil, underground water. Phenomena, dynamic geological processes, engineering geological survey methods.

124060 THEORETICAL MECHANICS

Statics: Basic concepts and axioms of statics, reduction of force systems, equilibrium conditions of force systems, balance problems of solids - solid body systems, friction, center of gravity.
Kinematics: point kinematics, two fundamental motions of a solid, complex point motion, parallel plane motion of a solid, rotation around a fixed point, general motion of a solid. Modeling the kinematics.
Kinetics: particle dynamics, geometrical characteristics of the mass of the system, general theorems of system dynamics, D'Alambert 's principle, principle of possible movement, Lagrange equation 2.
Mechanical majors: Civil Engineering, Mechanical Engineering, Traffic Engineering, Geotechnical and Petroleum Engineering.

124061 SOIL MECHANICS

Including: Soil formation, soil composition phases, soil physical characteristics; mechanical and related properties. Stress distribution in the soil, problems with deformation, bearing capacity of the ground, stability of soil mass and earth pressure on solid bodies.

124062 GEODESICS PRACTICE

Use theodolites and nitrous to measure the fundamentals; measure equal angle, measure vertical angle, measure length by distance and vertical mia, trigonometric altimeter, geometric altimeter.

124063 ENGINEERING DRAWING

This subject equips students with spatial thinking ability; skills in using common drawing tools as well as software and automatic drawing equipment, in order to represent and read technical ideas on drawings, in accordance with International (ISO) and Vietnamese standards (TCVN).

124064 STRENGTH OF MATERIALS 1

- Basic concepts of stress and stress in payment problems.
- Single and complex stress states in bars.
- Durability theories.
- features required when calculating payments.
- Problems of bars subjected to torsion and planar bending
- Stabilize the compression bar.

124065 CONSTRUCTION MATERIALS

The main mechanical and mechanical properties of building materials used for construction works.

Main technical features of common building materials used for construction works such as natural stone materials, construction ceramic materials, inorganic binders (construction plaster, Portland cement)), cement concrete, construction mortar ...

124066 AUTOCAD

Equip with basic knowledge on how to present drawings and present design drawings in the most correct and fastest way. Main content of the course: Basic drawing commands, model editing, showing dimensions on drawings, printing drawings, ...

124067 CONSTRUCTION MATERIALS TESTING

Consolidate theoretical knowledge of building materials, improve practical skills, perform experiments on physical and mechanical properties of some basic building materials such as: fired clay bricks, sand stone, cement, concrete.

124068 REINFORCED CONCRETE STRUCTURES 1

This course aims to analyze the main physical and mechanical properties of concrete, calculate the structural cross section and the required amount of reinforcement; rationally arrange reinforcement in sections when subjected to simple stress states; bending, pulling, compressing, eccentric pulling, eccentric compression. The calculation follows two limit states and is a mandatory basis for studying the calculation of house structures later.

124069 STRENGTH OF MATERIALS 2

- Complex bearing bars.
- Stabilize the straight bar under centered compression.
- Calculating the displacement of the bar system
- Calculate the planar superstatic system by force method.
- Load

124070 FOUNDATION ENGINEERING 1

Principles , foundation design process and rules and design order of shallow foundations: single foundation, tape foundation, raft foundation .

124071 REINFORCED CONCRETE STRUCTURES 2

- Reinforced concrete: Mainly calculates parts of reinforced concrete building structures including floors, frame structures, beams, foundations, roofs and 1-storey industrial buildings. At the end of this course, students can design small, medium and solid works by themselves.
- Brick and stone: This section will briefly introduce the mechanical and mechanical properties

of brick and stone masonry with or without reinforcement; how to calculate those masonry with different stress states.

124072 STRUCTURAL MECHANICS

Static flat bar system:

- Analyze geometrical structure.
- Analysis of internal forces of mobile and stationary load-bearing systems.
- Space system concept.
- Determination of displacement in a linear convergent plane bar system.
- Concept of superstatic system, superstatic order.
- Force method and calculation of the superstatic flat bar system.
- Transposition method for flat bar system.

124073 FOUNDATION ENGINEERING 2

Principles, processes, design rules for special types of foundations; deep foundation: pile foundation, bored pile foundation, barrette pile foundation, pipe pillar foundation; The foundation is subjected to horizontal loads and the foundation is subjected to dynamic loads. Calculation of building foundations on soft soil.

124074 FOUNDATION ENGINEERING SOLUTIONS

Help students master theoretical and semi-experimental principles to rationally design basic foundations to apply to different conditions of the ground under constructions; Particularly about the ground, students understand how to calculate problems related to the durability, stability and deformation of the ground.

124075 STEEL STRUCTURES 1

Calculation and design of simple structural steel or wood and plastics. Consists of 2 parts:

- Steel structure: can calculate the types of connections, design beams, columns, trusses in the form of shapes or combinations.
- Wood structure: calculate the connections, choose the cross section of the structure using wood or soft links and some other types of load-bearing wood structures.

124076 REINFORCED CONCRETE STRUCTURES 3

- Calculation of special reinforced concrete structures including: earth retaining walls, liquid storage tanks of all kinds, silos, bunkers and space roofs.
- Analyze internal forces in complex structural forms and grasp calculation techniques, reinforcement structures in those structures to apply in their professional practice in the long term.

124077 PROJECT OF FOUNDATION ENGINEERING

Apply the knowledge learned in the modules Soil Mechanics, Foundations and Foundations to design calculations for common foundations.

124078 ARCHITECTURAL DESIGN 1

Civil architecture .

Architectural design bases: implementation sequence, architectural layout, functional space; the economic - technical characteristics when designing civil works such as houses, apartments, working houses, hotels, public works, special works ... will be the basic contents of the subject. study this.

124079 PROJECT OF REINFORCED CONCRETE STRUCTURES

- Apply the knowledge learned in the subject of reinforced concrete structures on calculation and structure of flexural members to design a specific structure.
- Perform relatively complete calculation of the working floor using BTC. Including the determination of load types, determination of internal forces, combination and selection of reinforcement; Arrange reinforcement for structural members of floor - beams in 1 of 2 options: 1-way or 2 -way working plate.

124081 CONSTRUCTION COMPUTING 1

Guide students to analyze and practice using SAP - 2000 software according to the current versions widely used in the field of study today.

124082 APPLIED ELASTICITY – FINITE ELEMENT METHOD

This course helps students learn about a modern structural calculation method in the construction industry, understand the nature of structural analysis when using structural calculation software programmed according to the method. Finite elements are widely used today.

124083 STEEL STRUCTURES 2

Calculation of special steel structures including: Industrial building frames, prestressed steel structures, large span buildings, pylons and slab steel structures.

Analyzing the internal forces of complex structural forms in order to have initial skills to study in-depth and know the structures and connections of steel structures in difficult cases.

124084 PROJECT OF ARCHITECTURAL DESIGN

Through civil architecture, students when implementing this project will be able to choose one of the civil or public works such as apartments, offices, hotels, exhibition halls, libraries, post offices... to design specific architecture for a first work; including the planning of the total

ground, floor plans, cross-sections, cross-sections in all directions. This is one of the 3 compulsory projects for construction majors.

124085 CONSTRUCTION TECHNOLOGY - MACHINERY

− Construction techniques: basic knowledge about construction methods of civil and industrial works, including main contents: construction of earthworks, construction of formwork, reinforcement, concrete. Construction work of components in the project and construction and finishing work.

− Construction machines: Basic knowledge about the characteristics and general structure of construction machines; structure, technical features, exploitation and use, simple calculation ... of machines commonly used in basic construction such as lifting machines, machines

− Earthworks, foundation reinforcement equipment, construction material production machines and construction machinery mining.

124086 BIM IN CIVIL ENGINEERING

Learn about BIM (Building Information Modeling) to create and use information models in the design, construction and operation phases of a project.

Some specific applications of BIM construction information model for construction companies today are:

- Architectural design: from the ideation stage, energy analysis of the building.
- Structural design: make design plans, analyze structural diagrams.
- Electromechanical design: plan design, optimize design (collision reduction, altitude assurance, performance analysis)
- Shop drawing drawings, statistics
- Simulation of construction and erection sequence
- Component fabrication service
- Managing the total premises, assessing the feasibility of the construction site, labor safety
- Virtual Reality, Augmented Reality, 3D Printing, 3D Scanning

124087 ARCHITECTURAL DESIGN 2

Industrial architecture.

Architecture of single-storey, multi-storey industrial houses and types. Consists of 2 parts:

* Principles of industrial house design.
* Principles of industrial building components (roof, floor, positioning shaft, crane ...) .

124088 PROJECT OF STEEL STRUCTURES

Students will perform a relatively complete calculation of a steel structure, usually a steel single-storey industrial building with a crane, including determining load types, determining internal forces, combinations and selecting cross-sections for those structural parts.

124089 PROJECT OF BUILDING CONSTRUCTION

Project of Building Construction consists of 2 parts:

Part 1: Preparation of technical measures: Students must be able to state construction techniques with a predetermined type of work (whole block or assembly). Including support measures, formwork structure and concrete pouring or assembly of a reinforced concrete or steel building for civil or industrial buildings.

Part 2: Organizing: Students must plan the total construction site plan, make construction progress (line diagram, network diagram) with calculation of technical coefficients.

124090 CONSTRUCTION ELECTRIC TECHNIQUES

The course equips students with the general problems of calculating and designing power supply systems for construction works. The program also introduces students to some concepts about:

- Lightning protection system
- Communication system (communication system)
- Security system (security system)
- Fire protection system
- Elevator electrical system (electrification for elevator)
- Central air conditioning system and electric water pump system.
- TV antenna system (master antenna)

124091 ENGLISH FOR CIVIL ENGINEERING

Including the main contents of Architecture, Construction Structure, building materials and construction.

124092 STRUCTURAL DETAILING PROCEDURE

Redraw some drawings as required from the architectural design file of a project (apartment, office building, school, hospital, ...) or a new item of the work that has been appraised.

Calculate floor structure, longitudinal beams, stairs, lake (existing or assumed), frame (flat or spatial). Calculating and designing foundation solutions (single, tape, raft; pressed piles, bored drilling ,…) to choose the optimal solution for implementation.

Requirement :

- Proficient in using software: Autocad, Sap-2000, Microsoft Project 2003, ... to design, draw, calculate, statistics, ... to meet industry standards on architecture, construction structure, items to be implemented through the project.
- Construction can be done as soon as the project or work item is implemented.

124093 CONSTRUCTION ECONOMICS

Economic management and organization of production and business in the construction industry. Dive into the management and use of investment capital, evaluate the economic efficiency of

investment capital, thereby offering the best investment projects and managing project implementation. Determination of economic and technical criteria in design and construction. Proposing measures to reduce construction costs on the basis of analyzing economic activities of construction companies .

124094 CONSTRUCTION PROJECT MANAGEMENT

Help students understand the process and implementation sequence of construction investment project management, progress management, project quality and safety, cost and material management, payment decision. project contract payment, investment capital settlement...

124095 WATER SUPPLY & SEWAGE

Introduction to water supply and sewage problems outside and inside the house. The water supply section will cover the types of water sources and water treatment schemes, the water supply system for the area and for the construction site as well as the indoor water supply system; in which emphasis will be placed on the calculation and design of the water supply network. The sewage section will cover the main issues of regional and indoor drainage and wastewater treatment methods.

124096 CONSTRUCTION ESTIMATES

Help students get acquainted with professional work, practice students familiarize themselves with the work of building bowls and formwork at the internship workshop at the school.

- Directly involved in construction work.
- Practice the finishing work of smoothing, cladding, painting,....