Management and Technology of Stone and Marble

Description of specialized courses:

Course No.	Course Name	Credit Hours
2793	Geology and Natural Stone Resources	3
2571	Principles of Management	2
2794	Quarrying Technology	2
2795	Technical Drawing and AutoCAD	2
2796	Specification and Testing of Stone	3
2797	Personal Development and Soft Skills	3
2798	Principles of Accounting	2
2799	Stone & Marble Production Processes	3
2800	Marketing Management	3
2801	Stone Design and Processing Workshop	2
2802	Stone Use in Art and Architecture	2
2803	Basics of Electricity	3
2804	Technical English	3
2805	Maintenance of Electromechanical Equipment	3
2806	Stone Maintenance and Restoration	2
2807	Information systems for Stone Facilities	2
2808	Quantity and Cost Calculations	2
2809	Quality standards	1
2580	Environmental and Waste Management	3
2587	Safety in Stone Industry	2
2577	Field Training 1	2
2582	Field Training 2	2
2585	Graduation Project	2

(2793) Geology and Natural Stone Resources:
Identification of geology and the various sciences related to it, the emergence of earth, the geological times, studying the geological eras, and the methods of estimating the age of earth, minerals, rocks and their characteristics, Factors of mechanical and chemical weathering, the soil and its types, the internal and external factors affecting the crustal rocks, the geological exploration methods for buildings and sites of various engineering projects.

(2571) Principles of Management:
Clarify the concept of management and the extent of need, its fields and its relations to other sciences, and the study of its elements, the elements of the administrative process as planning, organizing, directing and controlling.

(2794) Quarrying Technology:
This course define the student how to extract stone from quarries, quarrying equipment and techniques of quarrying, the labor needed for quarrying and the productivity of each worker. Also, this course talk about the waste produced from quarries and how to control it and identify the technical and political problems facing quarries in Palestine.

(2795) Technical Drawing and AutoCAD:
This course identifies the tools used in technical drawing, and identifies the principles of AutoCAD and shapes can be implemented using this software. Identify the types of drawings that can be implemented technically, and learn about the design of certain forms to be carried out on samples of the stone inside the stone and marble workshop.

(2796) Specification and Testing of Stone:
This course defines the types of stone, its classifications and the most important physical and mechanical properties of it, defects of stone, and the international quality standards of the stone, knowledge of the main quarries in Palestine and the specifications of stone in each area.
Introduction to the stone finishes, methods of calculating quantities, spaces and various sizes of stone. This course identifies the main problems facing the stone industry in Palestine. Identify the main tests, such as: Absorption, Compressive Strength, Specific Gravity, and comparing the tests results with the standards and specifications to indicate the stone quality in each area.

(2797) Personal Development and Soft Skills:
This course is designed to develop the student's personality and teaching him leadership and communication skills to be an active and creative human being. This course reviews the most important theories of communication, and basic skills for successful communication, and teamwork.
It also trains students to develop skills in oral and structural expression (such as writing CV, reports and memos). Also, this course develop the student's ability to provide the research work in front of a group and writing short and long articles using scientific methodology.

(2798) Principles of Accounting:
This course identify the student with the basics and principles of accounting, accounting system, the theory of double-entry, sources restrictions and accounting books, the accounting treatment of financial transactions, the accounting treatment of cash operations of the Fund, the accounting treatment for the operations of the goods, the accounting treatment for the operations of decisiveness, the accounting treatment of commercial paper, and final accounts and finance menus.

(2799) Stone & Marble Production Processes:
This course defines how to extract stone from quarries, and the stages of stone production to obtain stone slabs and building stone with different sizes. Also identifies the stone machines and stone polishing stages and stone defects and gaps existing in stone slabs.
Identify the inputs and outputs of the cutting and finishing machines and the optimal choice of inputs so that they are less wastage as possible, and to identify the key elements that go into calculating the costs of the various manufacturing processes. Also, describe the techniques of stone treatment using resin and polyester.

(2800) Marketing Management:
This course covers: the marketing process, its concept, and how it appeared? It focuses on the marketing mix, and its components. It also covers advertising concept, its importance, and the objectives and function of Advertising, consumer behavior, and advertising design, and technical aspects of the advertising. And also focuses on the concept of globalization and the basics of e-marketing.

This course aims to give the student basic knowledge in the principles and elements of marketing and how to choose the marketing mix, and marketing plans and the contents of those plans and environmental trends that affect marketing, and to give an overall picture of planning in marketing management and a focus on pricing policies, consumer behavior and the seller, and the factors influential in purchasing decisions, and product life cycle and stages of development, and to give an overview of the marketing research where the student can upon completion of the course contribute to solving marketing problems surrounding the work, in addition to the concepts of promotion of the product locally and internationally.

(2801) Stone Design and Processing Workshop:
Identification of stone finishes, equipment of stone cutting and finishing such as the polishing machine, Fraiza, ...etc. and how to implement these finishes like polished, honed, brushed, bush hammered, ..etc. and the finishes that can be done for the edge of stone.
As well as training on the implementation of different finishes of the stone using CNC machine such as columns and profiles of stone, and to identify ways of stone handling using cranes, forklifts and risks of each type.

(2802) Stone Use in Art and Architecture:
This course identifies the patterns of art and architecture and the history of the use of stone in architecture. Identify the uses stone waste in art and how to exploit and use stone waste in the production of mosaic and other products.
Identify the uses of rocks and stones in the facade of buildings and different facilities; study all types of stones and various methods of installation.
Identify the stone finishes that are suitable for internal cladding and finishes that are suitable for external cladding, and stone specifications for each type. Learn how to produce columns and ornaments and decorations for different entrances and brackets.

(2803) Basics of Electricity:
Identify the basic elements of an electrical circuit, voltage sources, electrical resistors, the characteristics of the AC and DC current of electrical circuits by Ohm's Law, circuit analysis, respectively, and parallelism of electrical resistors, the concept of energy and electric power. Learn how to calculate the electrical cost of each machine for stone industry.
Identification of Digital Multi-meter and how to use it, applications to Ohm's law, identify the carryover Relay and plugged in circles process, connect the electrical transformers, checking diode, the use of diode unifier uniformity in circles, checking the transistor, the construction circle process to work as a key electronic transistor.

(2804) Technical English:
This course aims to develop the skills of the student in English language in the field of stone and marble, such as writing letters, memos and conversations, read the reports, summaries, chatting in the workplace, import and export, visits, meetings, work orders, and identify the terminology and vocabulary related to the colors of the stone finishes and machinery and equipment used in the manufacturing of stone

(2805) Maintenance of Electromechanical Equipment:
This course is designed to give the student the theoretical and practical experience in management of stone sector equipment from the electrical and mechanical sides through in-depth study of this machinery, and the connection between its various parts in addition to the control circuits responsible for the implementation of the various operations carried out by the machinery.

Practical knowledge of planning and implementation of programs of remedial and preventive maintenance, and maintenance costs for each machine with the total cost, and thus calculate the cost of daily, monthly and annual maintenance.

(2806) Stone Maintenance and Restoration:
This course identifies the concept of maintenance and repair of the stone and the difference between them. Identify methods of installing the stone and materials used in installing and fixing the stone.
Identify the periodic maintenance of the stone used in flooring and stone used in the interfaces and walls. Identify the cleaning and isolating materials used for natural stone and the goal from the use of these materials.

(2807) Information systems for Stone Facilities:
The course includes basic concepts that will help the student in how to assemble information related stone facilities that helps taking appropriate decision, understanding of information systems for facilities of stone and marble. Dealing with information network and get the required information from its different sources. Needs of stone facilities to the information, the structure of information systems, components, systems, information systems, information processing, planning, analysis and design and the use of systems to exchange information. The costs and the value of information, documentation requirements information and recording and presentation of data, trading information, communication and information network, databases and computerized applications in stone and marble industry.

(2808) Quantity and Cost Calculations:
This course Describe how to calculate areas and volumes of stone products and distinguish between square meter, cubic meter and the meter length. Identification about the input and output of the machinery and equipment used in stone facilities such as Block cutting machines, Gang saw, Slab cutting machines, …etc. and how to calculate the waste percentage for those equipment.
Identify the objectives of cost calculation and how to adjust and control those costs, the elements of industrial costs and methods of reducing it, and processing waste and how to minimize the waste percentage. Compare the actual cost with the standard cost and analysis for it. Evaluate the performance of sub-units at the facility to determine their efficiency in the performance of various tasks. Assist management in planning, control and decision-making through the provision of information and data. Determine the cost of the good or service and knowledge of the concept of productivity and its importance, and management cycle of productivity in addition to the knowledge of the types of productivity.

(2809) Quality standards:
This course focuses on the definition and importance of quality, and the concept of total quality management and its importance, and the philosophy and principles of total quality management, and in particular: the role of senior and top management, strategic perspective of quality, customer focus, strengthening the relationship with suppliers, enabling employees and teams of quality, continuous improvement, quality tools, quality management systems, also the course focuses on the criteria of the International Organization for Standardization (ISO) and its application, and international awards for quality.

(2580) Environmental and Waste Management
This course aims to define the nature of industrial waste, whether liquid or solid, and dust, and how to control it and to minimize its effects on Industrial sector and the local

environment. This course also identifies Water pollution, air pollution, soil pollution, and noise pollution in addition to General principles for environmental assessment.
Identify Environmental effects of the residues and waste of stone and marble industry. Identification techniques of recycling of solid and liquid waste and identify the technological aspect in sedimentation and flocculation and filtration of stone powder and using it in other industries.

(2587) Safety in Stone Industry
Definition of the work environment and the nature of the risks and causes of industrial accidents and the methods of identifying the safe and proper planning to avoid their occurrence. Identify tools of public safety; identify the impact of stone industry pollutants on the public safety. Identify the occupational disease.

(2577), (2582) Field training 1& 2:
The goal of the field and practical training is the integration of the student in the practical life, and its impact on the development of student's personal career, in addition to the practical application of many theoretical issues.
Also, practical training aims to develop new ideas that assess in solving technical problems that faces stone industry.
The student must give periodic reports about his training in the stone companies and to get full advantage of this training, the students will be followed up by supervisor of the students in the company and the university.

(2585) Graduation Project:
Students are expected to design and draw their projects. Graduation project can be a research project, or practical application of real-life topics and areas of her relationship with stone and marble.
By the end of the semester, the project is judged by a committee for assessment. This is intended to give students some practical guidance, which may assist to become self-confident in their future profession.