UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Economiche, Aziendali e Statistiche
ACADEMIC YEAR	2020/2021
MASTER'S DEGREE (MSC)	BUSINESS ECONOMIC SCIENCES
SUBJECT	COMMODITY ECONOMICS AND TECHNOLOGY OF PRODUCTION AND LOGISTICS CYCLES
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	21021-Attività formative affini o integrative
CODE	17587
SCIENTIFIC SECTOR(S)	SECS-P/13
HEAD PROFESSOR(S)	SPARACIA SERGIO Professore a contratto Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	114
COURSE ACTIVITY (Hrs)	36
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**SPARACIA SERGIO** Thursday 10:00 13:00 Stanza 14 - Terzo Piano

DOCENTE: Prof. SERGIO SPARACIA

PREREQUISITES	Nothing
LEARNING OUTCOMES	Knowledge and understanding - Fundamental concepts of commodities regarding the origins and the nature of goods, with particular attention to understanding production cycles and their functioning in the circulation in the markets (raw materials; products; services; waste) for goods characterizing the basic production sectors, the food industry and biotechnology; - Energy systems and the different sources, renewable or not, with study of the production and use of energy and problems relating to the electricity market and the environment; - Customs classification of goods; - Nature-goods-nature relationship, limited natural resources, environmental effects of commodity production processes. Applying knowledge & understanding - Skill development related to raw materials and goods: characterization; classification; application of customs standards; application of quality management systems in relation to the food sector (H.A.C.C.P. and Food Safety); - Development of appropriate skills to carry out evaluations, both technical and monetary, of the raw materials to be used in a production process, the technology to be adopted, and the use or disposal of by-products and waste; - Development of skills aimed at making connections between customs sectors and international trade; - Development and strengthening of the relationship between business and the environment, of the competences related to applying the instruments and systems of environmental management. Autonomy of judgement - Ability to critically assess and manage customs issues related to international trade; - Ability to critically assess and manage commodities, commodity markets and production technologies in the "season of change" which characterizes the green economy. Communication skills - Acquisition of technical terms and concepts relating to the contents of the discipline, with particular reference to commodities and customs; - Ability to transfer and discuss skills (competencies) acquired in diverse professional contexts; - Ability to measure and report changes in commodities and their related effects on the production cycle, also in an environmentally sound approach. Learning skills - Acquisition of an approach to lifelong learning through the consultation of scientific publications and the analysis of market trends for the principal commodities (gold, oil, agricultural products, etc); - Ability to develop the main technical aspects and the economic implications of applying "Clean Technologies" in the field of industrial transformation processes, using a sustainable approach.
ASSESSMENT METHODS	Oral examination (30/30 evaluation) The assessment is carried out of thirty. Rejected: Not sufficient 18: Just sufficient 19-21: Fully sufficient / More than sufficent 22-24: Fairly good 25-27: Good 28-29: Very good 30: Excellent 30 e lode: Excellent cum laude
EDUCATIONAL OBJECTIVES	This discipline includes elements in continuous evolution which adapt to the changing and growing social and economic needs of enterprises and markets, even including sustainability in the management of corporate decisions related to raw materials, production processes, products and services. In this context, the educational objectives proposed are not only to acquire the skills needed to describe and classify goods, but also to explore in depth various issues related to the technical conditions of transformation (technology, robotics and automation of production processes and control systems) and to respond adequately to the diversified sustainability needs required by the market: a training capable of giving a perception of the environment, diversification and specialization that, proceeding from the basic production sectors to the food industry (adulteration, sophistication, fraud, legislation, HACCP, GDO certification, etc.), is able to provide useful skills for managing the ever-increasing acceleration of the movement of products in global markets. In addition, the analysis of the energy system and energy production, with reference to non-renewable and renewable sources, allows one to describe and properly assess the risks and benefits of the green economy and the impact of “hydrogen economy” in production processes and goods. The second part of the programme is focused on the acquisition of skills related to the rules governing international trade and customs. Finally, the analysis of the nature-goods-nature relationship the business-environment relationship is aimed at understanding the factors and dynamics related to pollution, the analysis of the life cycle assessment (LCA), management methods (EMS basics and the environmental balance) and environmental communication (environmental relationship).

	Pursuant to Circular n. 3642/C of 15 April 2011 - MINISTRY OF ECONOMIC DEVELOPMENT, the exam is valid for the purposes of recognizing the professional qualifications required for starting business activities related to the food industry sector and the serving of foods and drinks.
TEACHING METHODS	Lessons
SUGGESTED BIBLIOGRAPHY	-DISPENSE E MATERIALE SONO DISPONIBILI PRESSO IL CENTRO STAMPA DEL DIPARTIMENTO SEAS. -COMMERCIO INTERNAZIONALE E DOGANE. AUTORI: E. VARESE; F. CARUSO. GIAPPICHELLI EDITORE, TORINO. -TECNOLOGIA DEI CICLI PRODUTTIVI. AUTORE: MORGANTE. MONDUZZI EDITORE, BOLOGNA. PER EVENTUALI APPROFONDIMENTI ALLE DISPENSE: -MERCEOLOGIA. AUTORI: L. CIRAOLO, M. GIACCIO, A. MORGANTE, V. RIGANTI. MONDUZZI EDITORE, BOLOGNA. (Per studenti lavoratori e non frequentanti e' possibile concordare un programma differenziato d'accordo con il docente).

SYLLABUS

Hrs	Frontal teaching
2	RESOURCES AND RESERVES: Natural heritage and natural resources; Effects of technological progress on the availability of resources; Classification of resources and reserves; Some features of the planet Earth. LITHOSPHERE, ATMOSPHERE, HYDROSPHERE AND BIOSPHERE: Features of the lithosphere; The raw materials of the lithosphere; Stages of mining production; The atmosphere; The hydrosphere and the biosphere; The water cycle; The biosphere.
2	RAW MATERIALS FOR THE PRODUCTION OF ENERGY: Energy and forms of energy; Forms of energy (mechanical energy, thermal energy, electromagnetic energy, chemical energy and nuclear energy); Energy measurement; Power measurement; Energy sources - classification and basic characteristics; Yields of energy transformations; Types of energy sources.
4	FOSSIL FUELS: Chemical energy; The measurement of calorific value; Coal (general aspects, commodity classification of coal, the coal cycle, basics of coal conversion processes, coal gas and coke, gasification and liquefaction); Oil and its components (general aspects, commodity classification, oil refining and oil industry products, production and international trade); Natural gas (methane, extraction and processing of natural gas, the transportation of natural gas, the principal uses of natural gas, the world's natural gas reserves, the world's production and consumption, international trade).
2	RENEWABLE ENERGY SOURCES: geothermal energy; wind energy; photovoltaic energy; energy from biomass; small-scale hydraulics; economic aspects of renewable energy sources. ELECTRICITY: General aspects; Production of electricity; thermoelectric energy; Hydroelectric energy; Evolution of electricity generation in Italy; Problems of transportation and the electricity market; Life Cycle Assessment applied to the analysis of electricity production; Innovative fuels: Hydrogen; Energy Market Managers (GME): PUN Index; MGP; MTE; PCE; etc.
6	BASIC PRODUCTION SECTORS METALLURGY: Ore preparation; Extraction of metals from ore; Physical and mechanical properties of metals. STEEL INDUSTRY: The modern steel cycle (Preparation of raw materials, production of cast iron, the production of steel, Steel Casting, the lamination process); Commercial classification of steels; technological evolution of the steel industry; Organization and structure of the steel industry. ALUMINIUM AND COPPER INDUSTRIES: Aluminium and its alloys; Aluminium production processes; Uses of aluminium, Copper and its alloys; Copper production processes; Uses of copper. CHEMICAL INDUSTRY: Historical Aspects; Chemical industrial processes; Size and chemical industry diversification; Chemical industry production.
6	FOOD AND BIOTECHNOLOGY INDUSTRIES: Meaning, nature and variety of food and biotechnological processes. Fundamental lines of food technology evolution. Classification of food and food technology. Food fraud. Food safety. Quality and food quality improvement. Packaging and labels. Certification in the food industry and mass retailers. The market for food and agriculture products. Features and commercial classification of the main agricultural-food products. Biotechnology. Techno-economic aspects of biotechnology. Potential and future prospects of the food industry and biotechnology.
6	CLASSIFICATION, IDENTIFICATION OF PRODUCTS, INTERNATIONAL TRADE AND CUSTOMS: Commodities, customs and "technology" in international trade. Customs issues and business strategies. Italian customs organization. Basics of the Trade Agreements (GATT, ITO, WTO). EU customs policy. Customs legislation. Customs Tariffs (TARIC). Commodity classification and customs value of goods. Origin of goods. Single Administrative Document (SAD). Basics of the quality of goods. Standardization and CE marking.

SYLLABUS

Hrs	Frontal teaching
5	TECHNOLOGY OF PRODUCTION CYCLES: MEANING, METHODS AND PURPOSES: Commodities and the Technology of Production Cycles. Appropriate technologies and clean technologies in production processes. The production process and the input and output ratio. The automation of industrial production. The current automation system. Technical aspects of automation. The automation of control processes. The automation of parts production. Rigid, programmable and flexible automation. The main apparatuses for flexible automation. Numerical control machine tools. Industrial robots. Handling and storage systems. Flexible manufacturing systems. Computer-assisted technologies. Design and engineering area. Production process planning. Automated management of production systems. Area of production planning and control systems. The company system, the industrial company and its establishment. The company system and its operational functions. The industrial company and its components. Production system planning. The main options. The priority of product identification and the criteria for its design. The choice of the production process. The choice of machinery. The choice of layout. The selection of buildings and areas. Plant siting. Basics of supply chain design, planning, and monitoring.
3	THE ENVIRONMENTAL PROBLEM: Sustainable development; Basics of different types of soil, air, water, and electromagnetic pollution; Life Cycle Assessment; Eco-balance; Basics of environmental management systems (EMS); Basics of environmental accounting tools for businesses; environmental communication; Environmental Balance; Environmental relationship; Benchmarking; Cleaner Production and eco-efficiency; Waste; Single model of environmental statement (MUD); Recycling, re-use, re-purposing; packaging management.