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UNIVERSITÀ
DI SIENA
1240

Allegato A

Factsheet - no. 1 Technologist (pursuant to art. 24-bis law no. 240/2010) at DEPARTMENT OF LIFE SCIENCES (DSV)

Profile: Technologist

Places available: 1

Area/Assignment Sector: Equivalent to economic position D3, Officers and Higher Qualifications Area (ex Cat. D)

Duration of the contract: 24 months – full time

Workplace: Centro SANTA CHIARA LAB – Siena

Job description: Selection and validation of species/varieties with physiological and agronomic characteristics suitable for reducing energy requirements in controlled-environment cultivation systems (advanced greenhouses, phytotrons, vertical farming), with the aim of increasing sustainability while maintaining or improving productivity and yield stability, including under conditions of climate variability.

Operational management and maintenance of laboratories and experimental infrastructures, including: ensuring the proper functioning of equipment and systems; setting up and monitoring experimental conditions; managing materials and consumables; implementing safety procedures; and providing technical support for experimental activities and measurement campaigns.

Specific functions to be performed:

A) Selection and varietal validation in controlled environments

- Select and characterize species/varieties with physiological and agronomic traits consistent with the objective of reducing energy requirements.
- Design and conduct experimental trials in controlled environments, ensuring reproducibility, control of experimental variables, and data traceability.
- Collect, organize, and validate data related to growth, yield, production stability, and sustainability indicators.
- Contribute to the preparation of technical reports and summary documents presenting the results.

B) Operational management and maintenance of laboratories and experimental infrastructures

- Ensure the proper functioning of equipment, facilities, and environmental control systems, including monitoring, calibration, and functional checks.
- Set up and monitor experimental conditions, including environmental settings, system configurations, operational records, and logs.
- Manage materials, consumables, and supplies, including storage and traceability procedures.
- Implement and ensure compliance with safety procedures and good laboratory practices.
- Provide technical support for experimental activities, measurement campaigns, and the preparation of operational documentation.



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Application requirements: Second cycle degree (Laurea magistrale LM) (under M.D. 270/04) or Laurea specialistica (LS) (under M.D. 509/99) or Diploma di laurea (DL, prior to M.D. 509/99) equivalent.

Agribusiness / Agri-food

- LM-56 – Agricultural Economics
- LM-69 – Agribusiness / Agribusiness Management / Agricultural Sciences and Technologies
- LM-70 – Food Science and Technology
- LM-77 – Economics and Management of Agri-food Systems / Agri-food Supply Chain Economics

Chemistry

- LM-54 – Chemistry / Industrial Chemistry

Environmental Sciences

- LM-73 – Forestry and Environmental Sciences
- LM-75 – Environmental and Land Sciences and Technologies

Life Sciences

- LM-6 – Biology
- LM-7 – Agricultural Biotechnology
- LM-8 – Industrial Biotechnology
- LM-61 – Human Nutrition Sciences

Professional knowledge and skills:

Knowledge of the principles and technologies of Controlled Environment Agriculture (CEA), with particular reference to aeroponics and vertical farming, as well as their differences from hydroponic systems, including rhizosphere management, oxygenation, misting, and resource-use efficiency.

Expertise in aeroponic systems, including system architectures and components (root chambers, nozzles/misters, pumps, filters, and reservoirs); operating principles (misting cycles, pressure/flow rate, and droplet size); prevention of clogging and biofilm formation; and management of sanitation and biosecurity procedures.

Expertise in nutrient solution and fertigation management in CEA, including nutrient formulation and balancing, EC/pH control, water quality management, recirculation and treatment strategies, monitoring and corrective actions, as well as sampling and data-recording protocols.

Ability to control and monitor key environmental parameters in vertical farming systems and phytotrons, including temperature, humidity, VPD, CO₂, and ventilation, with knowledge of sensors, data logging, calibration procedures, and data interpretation to ensure experimental reproducibility.

Foreign languages: advanced english

The **written exam** consists of short essay.

The maximum score is 30 points, and the minimum score required to pass the exam is 21/30.

Written exam topics: please refer to the “Professional knowledge and skills” section.

The **oral exam** consists of an interview, conducted partially in English, aimed at assessing the knowledge and skills specified above, as well as verifying the candidate's technical-professional abilities, maturity of thought, cultural knowledge, and theoretical-practical aptitudes relevant to performing the duties of the position open for competition.

For non-native Italian speaking candidates, proficiency in the Italian language will be assessed.

Knowledge of the most common IT applications will also be verified.

The maximum score is 30 points; the minimum score required to pass the exam is 21/30.

Oral exam topics: please refer to the “Professional knowledge and skills” section.

Assessable qualifications (max. 18 points):

- Academic qualifications (PhD, research fellowships, scholarships, etc.);
- Professional experience relevant to the research project, gained in laboratories, research projects, and/or universities;
- Participation in training courses, conferences, congresses, seminars, and related activities;
- Language knowledge and skills, supported by relevant certifications.