Smart Irrigation Technician

AGRITECH-WATER

SECTOR

Fostering innovation and better skills match with the green and digital sectors through the integration of emerging technologies (drones, VR, AR) in VET

Co-funded by the European Union

360 DRONES

✏️Short Description

*The role of the **smart irrigation technician** is a profession that combines technical expertise in hydraulic and electrical systems with the use of advanced technologies. In fact, they specialize in the installation, management, and maintenance of smart irrigation systems that use sensors, control units, and weather data to optimize water use. It is considered a green job because it contributes to environmental sustainability by reducing water waste, limiting the impact on the ecosystem, and improving energy efficiency. This role is very versatile and finds employment opportunities in precision agriculture, urban green spaces, sports fields, greenhouses, and residential gardens.*

🎯Key Skills Required

📡 **Remote sensing** – to monitor humidity, temperature, and soil conditions remotely

🧭 **GIS and mapping** – to design irrigation systems based on geospatial maps

📊 **Data analysis** – to interpret data collected from sensors and optimize irrigation

🌿 **Environmental monitoring** – to assess environmental impact and adapt systems in a sustainable way

🤖 **Smart system programming** – to configure control units and automated systems

🛠️ **Maintenance & troubleshooting** – to ensure the efficient and continuous operation of the systems

💡Future Trends & Market Opportunities

The demand for **Smart Irrigation Technicians is constantly growing,** mainly due to the fact that scarce resources require new solutions. In this case, the global need is to optimize the use of water resources and address the challenges of climate change. This growth is supported by the adoption of advanced technologies such as the Internet of Things (IoT), artificial intelligence (AI), and automated control systems, which enable more efficient and sustainable irrigation management. With the continuous evolution of technologies and growing environmental awareness, the role of the Smart Irrigation Technician is becoming increasingly crucial to ensure responsible water management in various sectors, from precision agriculture to urban green space maintenance.

✈️Drone Applications

🔥 **Thermal imaging:** to identify areas with water stress, pipe leaks, or irrigation problems that are not visible from the ground.🌱 **NDVI mapping** (Normalized Difference Vegetation Index): to monitor plant health and plan irrigation based on actual plant needs.

💉 **Fly surveillance**: to quickly check large agricultural areas, identifying anomalies or malfunctions in the irrigation system.

Sector & Classification

🌍 Sector: Agriculture / Urban Planning / Energy, etc.

🟦 ESCO Code: Irrigation Technician – ANZSCO 362712

External Sources

🌐 Drone Based ET monitoring system Integrated with AIML.

🌐 Estimation of Bell Pepper Evapotranspiration using Two-Source Energy Balance Model

🌐 DroneCamp 2020: Sensing Crop Water Stress with Thermal Imagery

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[Effectiveness of drone-based thermal sensors in optimizing controlled environment agriculture performance under arid conditions]

[Evapotranspiration Estimation with Small UAVs in Precision Agriculture]

[UAV-enabled approaches for irrigation scheduling and water body characterization]

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