Postgraduate Certificate
Water Chemistry

tech global university

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Postgraduate Certificate
Water Chemistry

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/water-chemistry**

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01

Introduction

Improve your knowledge in Water Chemistry and train yourself for professional success. We give you the opportunity to train with this very complete course and acquire the necessary skills to develop your profession in the field of water engineering, following the highest quality standards.

Learn about all the characteristics of water, from its composition to its purification process, with this very comprehensive course"

Chemistry is the science that studies the composition, properties and changes that matter undergoes or, in other words, it is the discipline that analyzes and understands how substances are composed and how they are transformed, based on the scientific method to achieve its objectives.

In this course we will apply this science to water, to acquire the knowledge of the importance of its existence from various points of view. Therefore, this course focuses on its properties, both physical and chemical, its structure and types of bonds, addressing the chemical reactions in which it plays an essential role in the life cycle.

In addition, the course goes into the different water purification processes, as well as the components that can influence the composition and quality of drinking water.

Upon completion of this course, the student will have acquired the necessary knowledge to understand, from a chemical point of view, the morphology, structure and properties of this molecule, as well as its importance in many essential chemical reactions from the life cycle to the most modern industrial applications. You will also gain knowledge about the composition of water that determines water quality and about the most important purification processes.

It should be noted that as this is a 100% online course, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate certificate in Water Chemistry** contains the most complete and up to date educational program on the market. The most important features of the program include:

- The development of case studies presented by Water Chemistry experts.
- The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice.
- Practical exercises where the self-assessment process can be carried out to improve learning
- Special emphasis on innovative methodologies in water chemistry.
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Access to content from any fixed or portable device with an Internet connection.

Do not miss the opportunity to take this course in Water Chemistry with us. It's the perfect opportunity to advance your career"

This course is the best investment you can make in selecting a refresher program to update your knowledge in Water Chemistry"

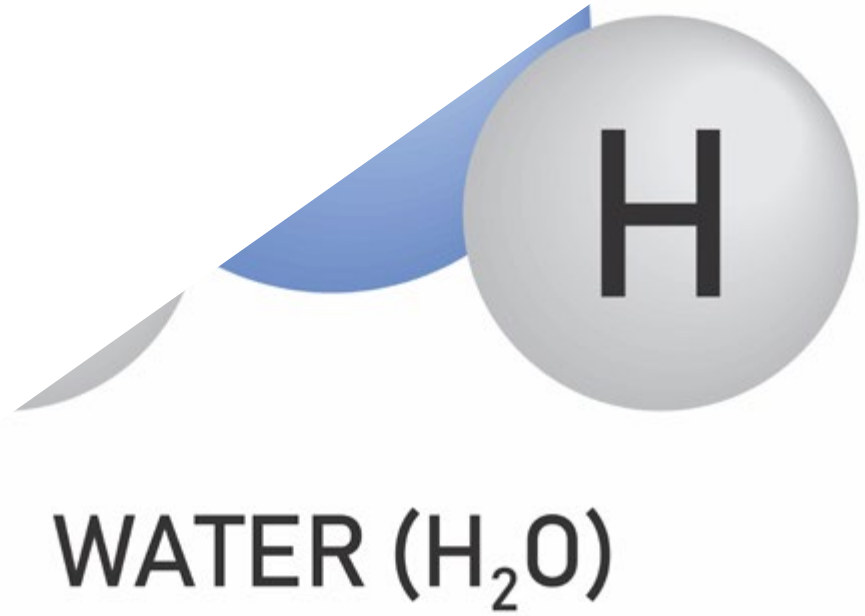
This training is provided with the best didactic material, which will allow for contextual study to facilitate your learning.

This 100% online course will allow you to combine your studies with your professional work. You choose where and when to train.

Its teaching staff includes professionals belonging to the field of water engineering, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system developed by renowned and experienced water chemistry experts.



02

Objectives

The Course in Water Chemistry is oriented towards facilitating the professional's performance so that he/she can acquire and know the main advances in this field.

Our goal is to make you the best professional in your sector. And for this we have the best methodology and content"

General Objectives

» Acquire the knowledge of chemistry related to its function, composition, structure and reactivity, in order to understand its importance in the life cycle and in other fields related to it.

Take the step to get up to date on the latest developments in Water Chemistry"

Specific Objectives

- Discuss in detail the water molecule, structure, states of aggregation, chemical bonds, and physical and chemical properties.
- Study the reactivity of the water molecule in organic and inorganic reactions
- Addressing the great importance of this molecule as a universal solvent in the life cycle, dealing also with the main thermodynamic laws
- Learn more about the different water purification processes and the components that determine its quality as drinking water.

03

Course Management

In our university we have professionals specialized in each area of knowledge, who bring their work experience to our training courses.

In our university work the best professionals in all areas who share their knowledge to help you"

International Guest Director

Considered as a true reference in the field of Waste Management for his sustainable initiatives, Frederick Jeske - Schoenhoven is a prestigious Environmental Engineer. In this sense, his philosophy has focused on the optimization of recycling processes, minimization of waste generation and promotion of environmentally friendly practices.

In this way, he has developed his professional work in recognized organizations such as the Treasury Department or the French Ministry of Economy, Finance and Industry, as well as the American World Bank. There, he has been in charge of multiple functions ranging from active portfolio management to the digital transformation of institutions. This has enabled companies to handle innovative technological tools such as Artificial Intelligence, Big Data and even the Internet of Things. As such, institutions have managed to set up advanced automation solutions to optimize their strategic processes considerably. In addition, it has created multiple online platforms that have facilitated the exchange and reuse of materials, thereby fostering a circular economy model.

On the other hand, he has balanced this facet with his work as a researcher. In this regard, he has published numerous articles in specialized journals on topics such as new recycling technologies, the most innovative techniques to improve the efficiency of waste management systems or cutting-edge strategies to ensure a sustainable approach in the industrial production chain. As a result, he has contributed to an increase in recycling rates in several communities.

In addition, he is a strong advocate for education and awareness of the treatment of waste from manufacturing activities. As such, he has spoken at numerous conferences globally to share his solid understanding of this field.

Mr. Jeske-Schoenhoven, Frederick

- Director of Strategy and Sustainability at SUEZ in Paris, France
- Strategy and Marketing Director of Dormakaba in Zurich, Switzerland.
- Vice President of Strategy and Business Development at Siemens in Berlin, Germany
- Director of Communications, Siemens Healthineers, Germany
- Executive Director of the World Bank in Washington, United States
- Head of Management at the General Directorate of the Treasury, Government of France
- Advisory Counselor at the International Monetary Fund in Washington, United States
- Financial Consultant at the French Ministry of Economy, Finance and Industry of France
- Master's Degree in Administration and State Policy, École Nationale d'Administration, France
- Master's Degree in Management Sciences, HEC Paris
- Master's Degree in Political Science from Sciences Po
- Degree in Environmental Engineering from IEP Paris

Thanks to TECH, you will be able to learn with the best professionals in the world"

Management

Mr. David Nieto-Sandoval González-Nicolás.

- Industrial Technical Engineer by the E.U.P. of Málaga.
- Industrial Engineer by E.T.S.I.I.
- Master's Degree in Integral Management of Quality, Environment and Health and Safety at Work from the University of the Balearic Islands
- Working for more than 11 years as a consultant in engineering, project management, energy saving and circularity in organizations, he has been working both for companies and on his own account for clients in the private agri-food industry and the institutional sector for more than 11 years.
- Professor certified by the EOI in the areas of Industry, Entrepreneurship, Human Resources, Energy, New Technologies, and Technological Innovation.
- Trainer of the European INDUCE project
- Trainer in institutions such as COGITI and COIIM.

Professors

Castillejo de Tena, Nerea

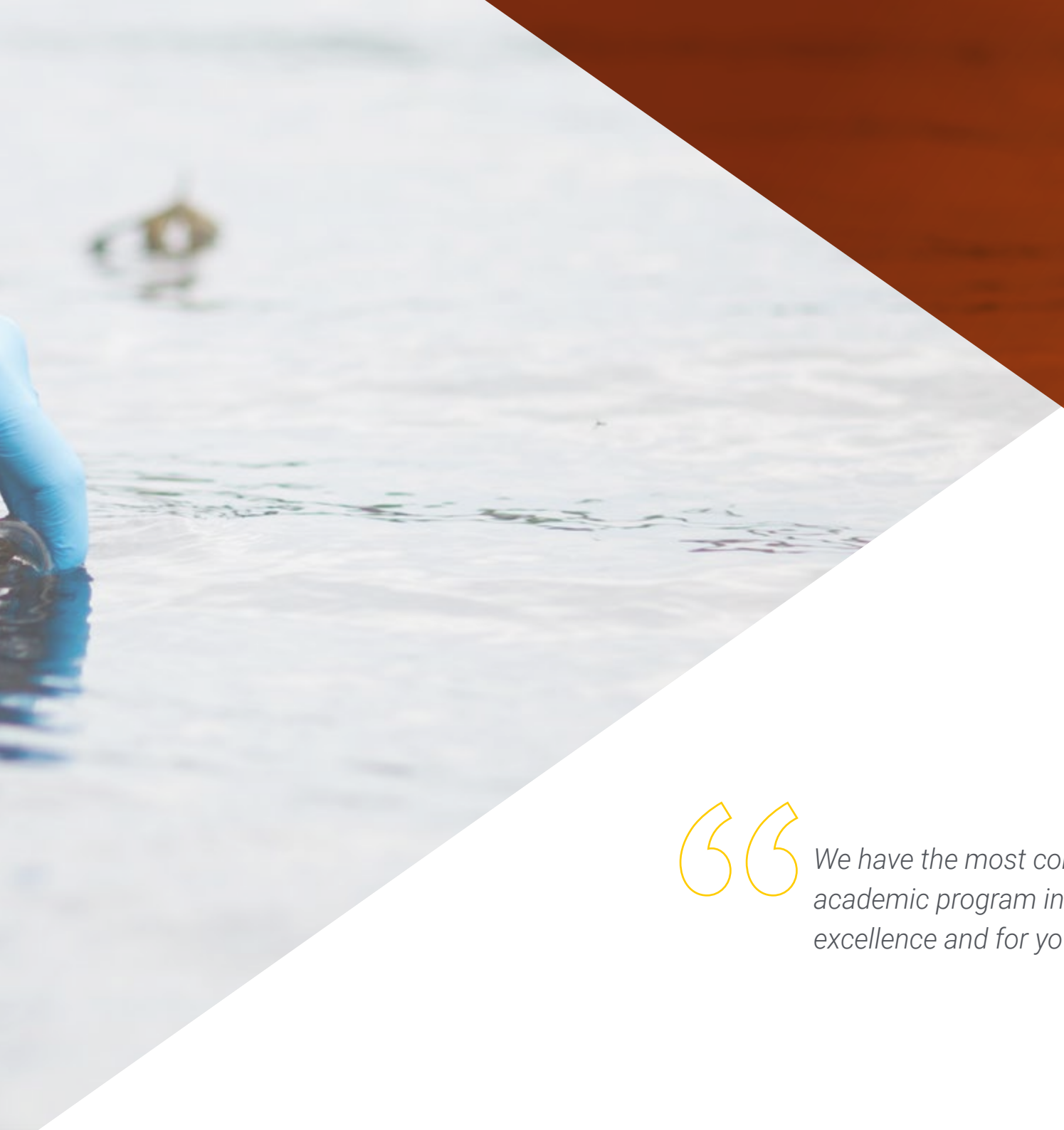
- Graduate in Chemical Engineering from the University of Castilla-La Mancha.
- Master's Degree in Environmental Engineering and Management at the Institute of Chemical and Environmental Technology of the University of Castilla - La Mancha.
- Author of projects such as "Hysys Simulation, Optimization and Energy Analysis in the Waste Water Treatment Unit of the Urea Plant (PAR)" at Fertiberia Puertollano.
- Co-author of "Methodology for calculating energy efficiency in waste-to-energy facilities"
- Member of ACMIQ


pH
PHENOL RED
8.2
7.8
7.6
7.2
7.0
6.8
DPD mg/l
Cl
3.0
2.0
1.0
0.6
0.3
0.1

04

Structure and Content

The structure of the contents has been designed by the best professionals of the water engineering water engineering sector, with extensive experience and recognized prestige in the profession.



We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"

Module 1. Water Chemistry

1.1. Water Chemistry
- 1.1.1. Alchemy
- 1.1.2. Evolution of Chemistry

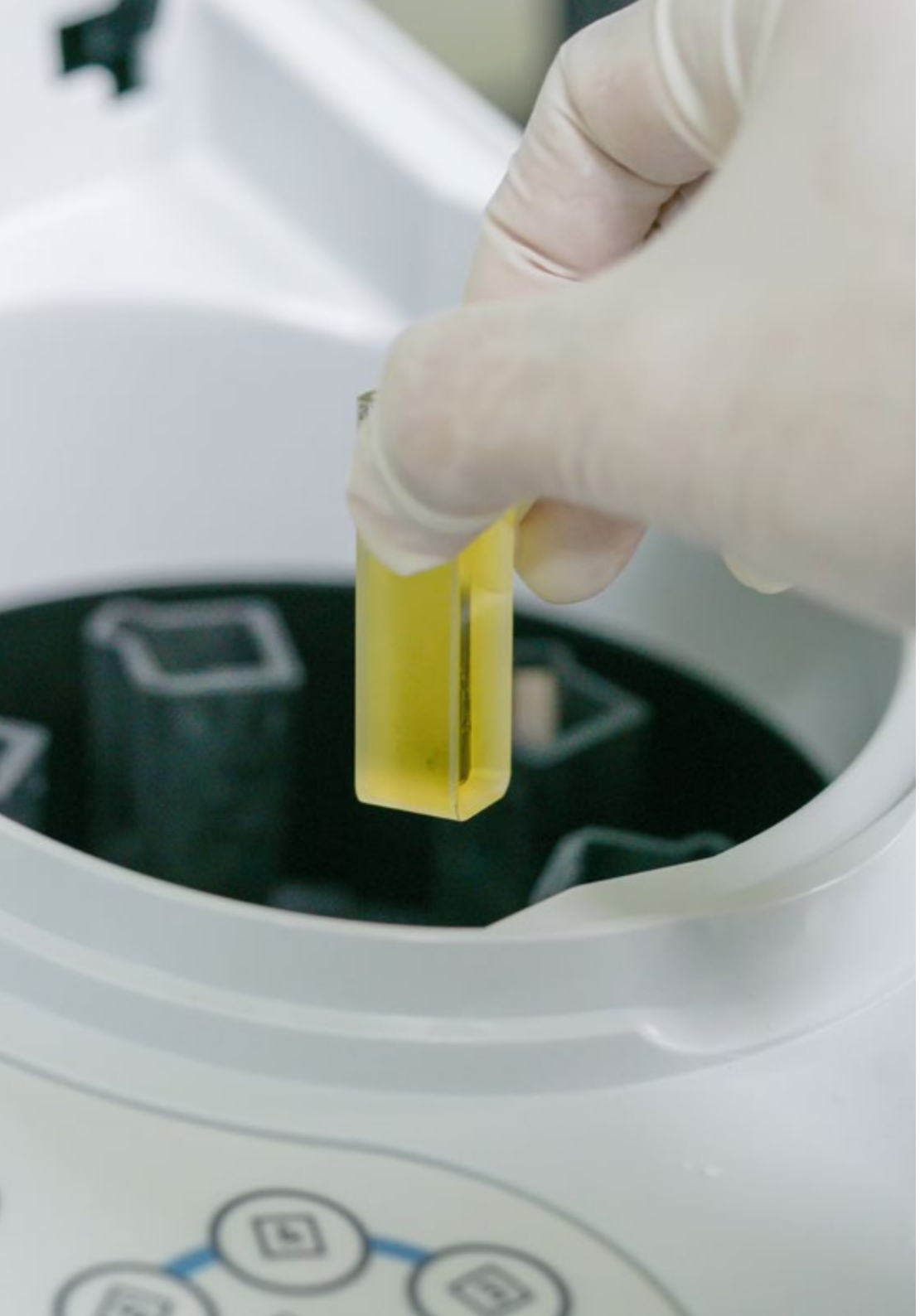
1.2. The Water Molecule
- 1.2.1. Crystallography
- 1.2.2. Crystalline Structure of Water
- 1.2.3. Aggregation States
- 1.2.4. Links and Properties

1.3. Physical and Chemical Properties of Water
- 1.3.1. Physical Properties of Water
- 1.3.2. Chemical Properties of Water

1.4. Water as a Solvent
- 1.4.1. Ion Solubility
- 1.4.2. Solubility of Neutral Molecules
- 1.4.3. Hydrophilic and Hydrophobic Interactions

1.5. Organic Water Chemistry
- 1.5.1. The Water Molecule in Organic Reactions
- 1.5.2. Hydration Reactions
- 1.5.3. Hydrolysis Reactions
- 1.5.4. Hydrolysis of Amides and Esters
- 1.5.5. Other Water Reactions. Enzymatic Hydrolysis

This training will allow you to advance in your career comfortably"



1.6. Inorganic Water Chemistry
- 1.6.1. Hydrogen Reactions
- 1.6.2. Oxygen Reactions
- 1.6.3. Reactions to Obtain Hydroxides
- 1.6.4. Reactions to Obtain Acids
- 1.6.5. Reactions to Obtain Salts

1.7. Analytical Chemistry of Water
- 1.7.1. Analytical Techniques
- 1.7.2. Water Analysis

1.8. Thermodynamics of Water Phases
- 1.8.1. Laws of Thermodynamics
- 1.8.2. Phase Diagram. Phase Equilibrium
- 1.8.3. Water Triple Point

1.9. Water Quality
- 1.9.1. Organoleptic Characters
- 1.9.2. Physical-chemical Characters
- 1.9.3. Anions and Cations
- 1.9.4. Undesirable Components
- 1.9.5. Toxic Components
- 1.9.6. Radioactivity

1.10. Chemical Water Purification Processes
- 1.10.1. Water Demineralization
- 1.10.2. Reverse Osmosis
- 1.10.3. Decalcification
- 1.10.4. Distillation
- 1.10.5. Ozone and UV Disinfection
- 1.10.6. Filtration

05

Methodology

This training provides you with a different way of learning. Our methodology is developed through a cyclical learning mode: ***Re-learning.***

This system of teaching is used in the most prestigious medical schools in the world and has been considered one of the most effective by leading publications such as the ***New England Journal of Medicine.***

Discover Re-learning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

Our program offers you a revolutionary approach to developing your skills and knowledge. Our goal is to strengthen your skills in a changing, competitive, and highly demanding environment.

With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world"

We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.

The student will learn, through collaborative activities and real cases, how to solve complex situations in real business environments.

A learning method that is different and innovative.

This Hazardous Waste course is an intensive program that prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard case studies, with which we have a strategic agreement that allows us to offer you material from the best university in the world.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method has been the most widely used learning system among the world's leading business schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

In a given situation, what would you do? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, you will be presented with multiple real cases. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.

Re-learning Methodology

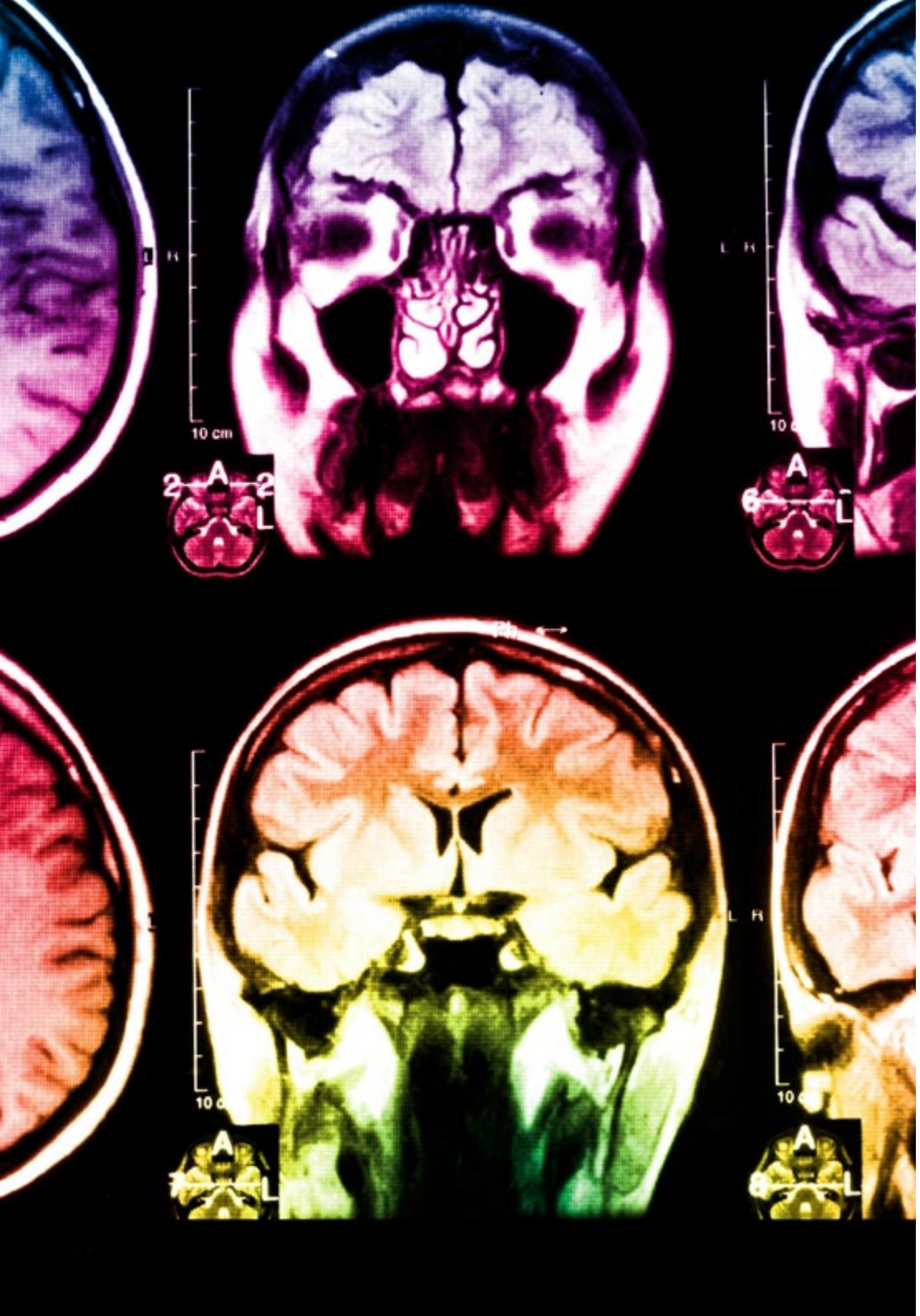
Our University is the first in the world to combine Harvard University case studies with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance Harvard case studies with the best 100% online teaching method: Re-learning.

In 2019 we obtained the best learning results of all Spanish-language online universities in the world.

At TECH you will learn with an innovative methodology designed to train the managers of the future. This method, at the forefront of international teaching, is called Re-learning.

Our University is the only one in Spanish-speaking countries licensed to incorporate this successful method. In 2019 we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best Spanish online university indicators.



In our program, learning is not a linear process, but rather a spiral (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. With this methodology we have trained more than 650,000 university graduates with unprecedented success. In fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

Based on the latest evidence in neuroscience, not only do we know how to organize information, ideas, images, memories, but we also know that the place and context where we have learned something is crucial for us to be able to remember it and store it in the hippocampus, and retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

In this program you will have access to the best educational material, prepared with you in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is really specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Classes

There is scientific evidence on the usefulness of third-party expert observation.

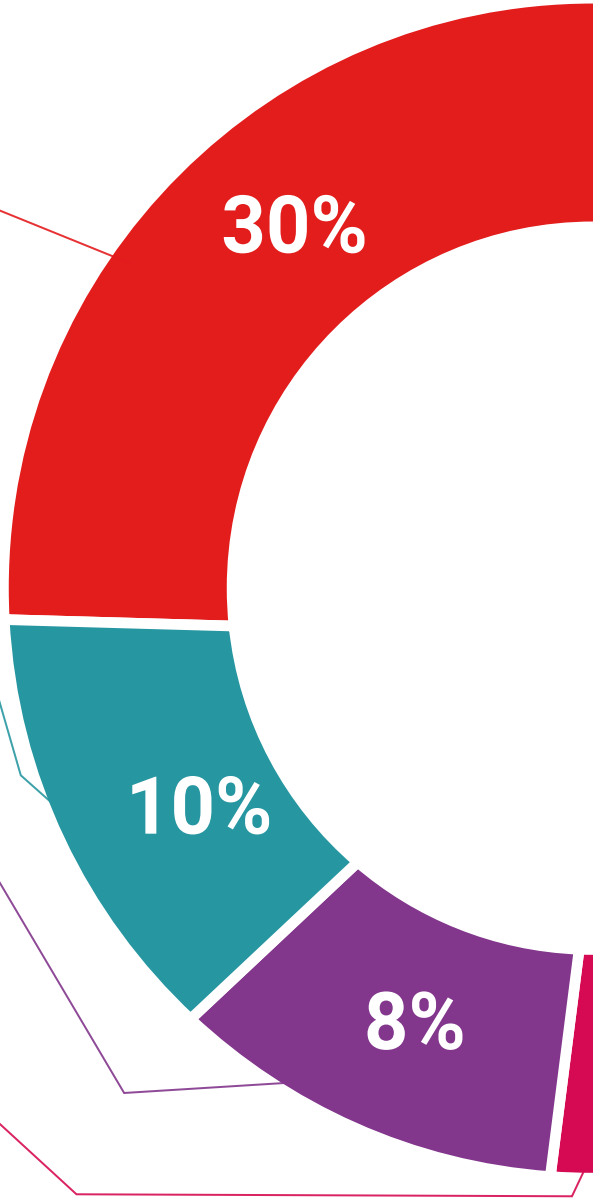
Learning from an expert strengthens knowledge and memory, and generates confidence in our difficult future decisions.

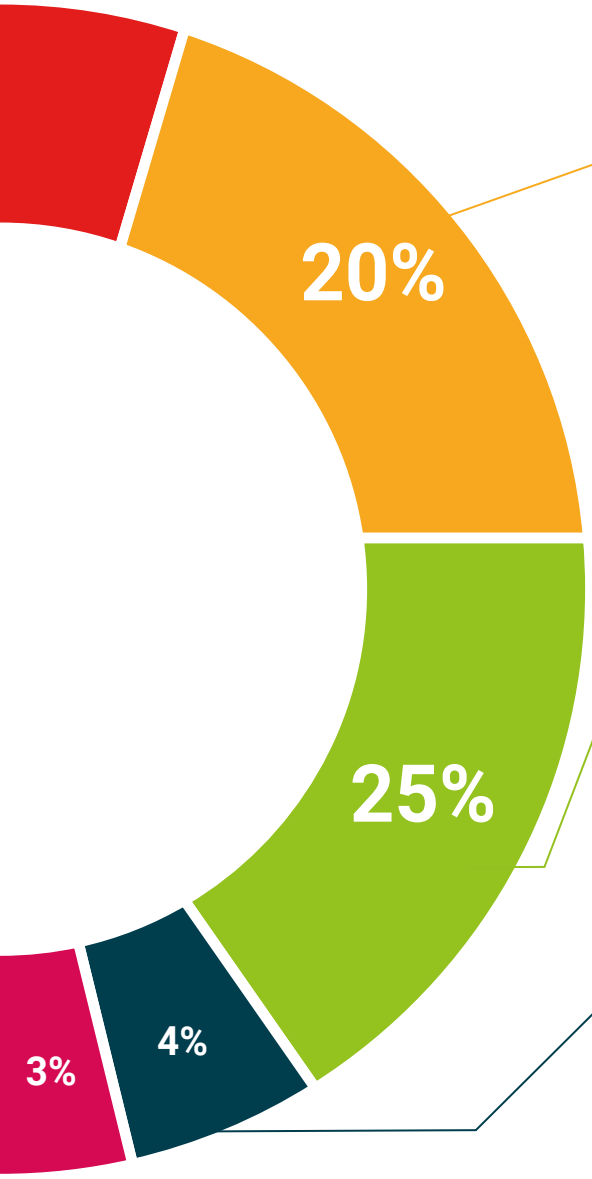
Practising Skills and Abilities

You will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.

Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





Case Studies

You will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management specialists in Latin America.

Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story"

Testing & Re-Testing

We periodically evaluate and re-evaluate your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

06

Certificate

The PPostgraduate Certificate in Water Chemistry guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

Include in your training a qualification in Water Chemistry Course a high added value qualification for any professional in this area"

This program will allow you to obtain your **Postgraduate Certificate in Water Chemistry** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Water Chemistry**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Water Chemistry

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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Water Chemistry

- Modality: **online**
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- Exams: **online**

Postgraduate Certificate
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