PostgraduateCertificate

Room Acoustics

tech technological university

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Postgraduate Certificate
Room Acoustics

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/room-acoustics**

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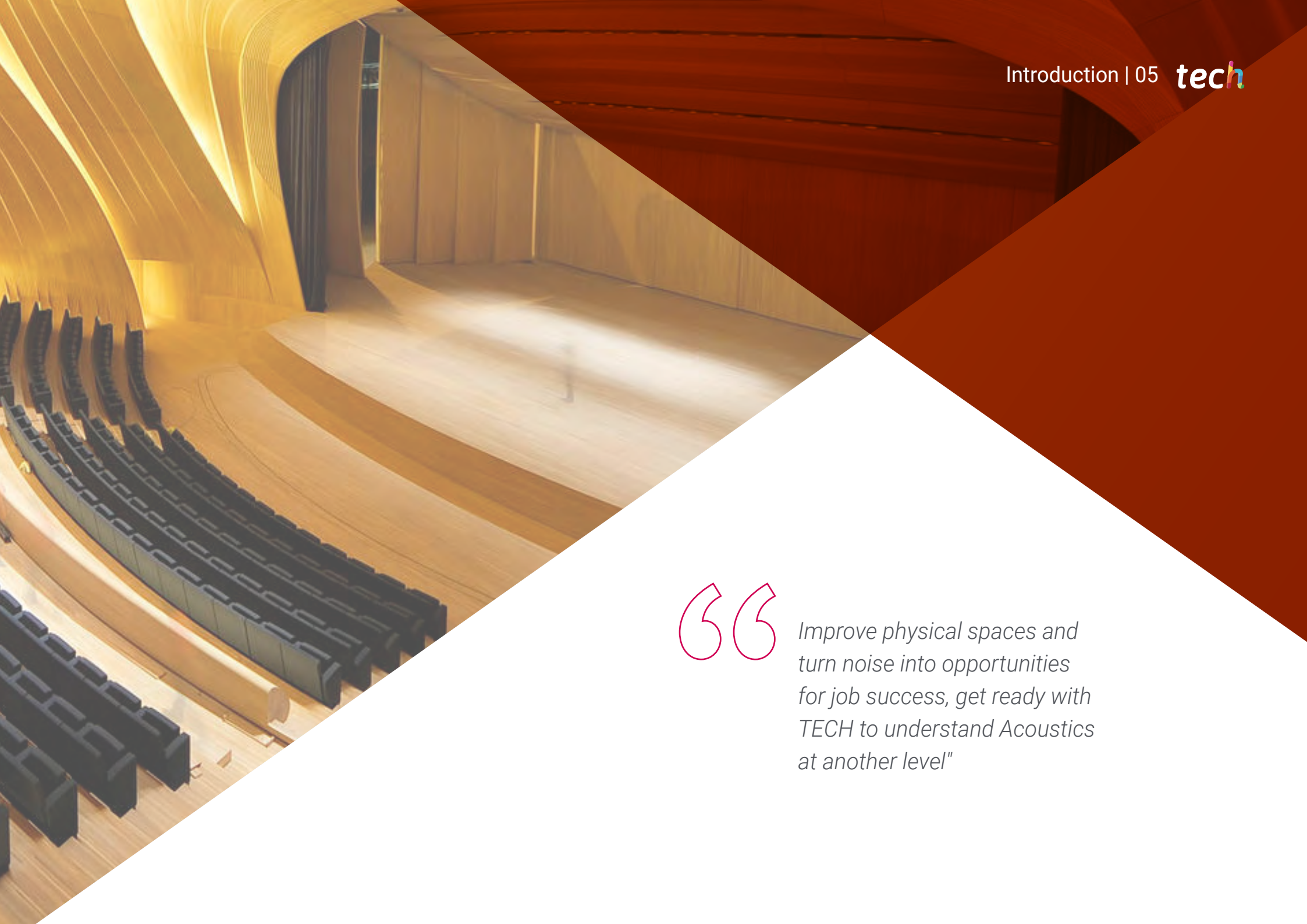
01

Introduction

Today, architectural acoustics is facing a growing problem in an increasingly urbanized world. The need to design and build living and working spaces that provide a quiet and comfortable environment has become essential. Noise pollution is an omnipresent reality, and professionals in the field of engineering must be prepared to address new challenges, such as continued urbanization in densely populated areas. In this context, the storytelling technique is used in a specific academic syllabus to train students to understand and apply the fundamentals of acoustics in the creation of living spaces and rooms, fostering the development of critical and reflective skills in online training.



Improve physical spaces and turn noise into opportunities for job success, get ready with TECH to understand Acoustics at another level"

Constant noise in modern society affects people's quality of life and work performance, causing stress and concentration difficulties. This, in turn, leads to significant economic and health consequences. In this context, the need for people to acquire knowledge in sound engineering becomes evident, since the quality of the listening environment affects comfort and efficiency in a variety of contexts, from auditoriums and theaters to offices and homes.

From that perspective, sound engineering, with its focus on planning spaces that maintain an optimal balance of sound, has become an essential component to the well-being and functionality of efficiently built environments. Students of this exclusive academic program will learn to distinguish between sound isolation and sound treatment, using advanced virtual tools such as videos and forums. In this way, this Postgraduate Certificate in Room Acoustics represents a valuable training opportunity in a field that is becoming increasingly relevant today.

Additionally, the *Relearning* methodology in TECH, places special emphasis on the reiteration of knowledge, guided by experts in the area. This allows that, upon completion of the academic process, graduates are properly prepared to contribute to the design and construction of architectural environments that rigorously comply with acoustic insulation standards. Likewise, being a syllabus that is taught exclusively online, it will provide students with a highly adaptable and flexible learning experience that allows them to acquire fundamental skills from any geographic location.

This **Postgraduate Certificate in Room Acoustics** contains the most complete and up-to-date program on the market. The most important features include:

- Development of case studies presented by experts in Acoustics engineering
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- The practical exercises where the self-evaluation process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Choose to be the professional of the future and adapt spaces for listening comfort"

Relearning methodology is the formula for your knowledge to become successful and be one step ahead in the acoustics field"

Discover how to generate ideas to improve acoustics in the architectural field.

Boost your knowledge and become a professional expert in Room Acoustics. Train with the best at TECH!

The program includes in its teaching staff professionals of the field who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

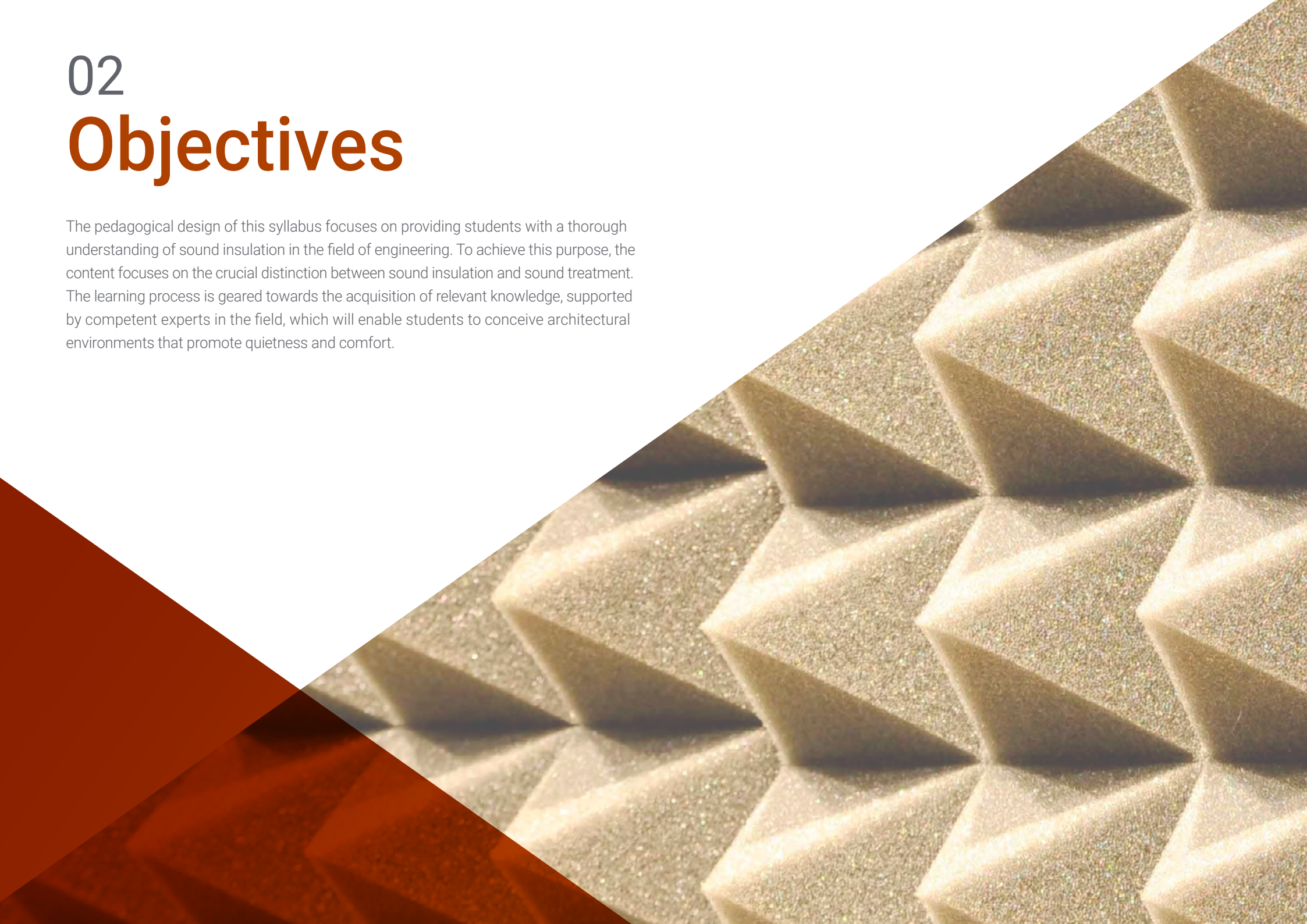
Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

02

Objectives

The pedagogical design of this syllabus focuses on providing students with a thorough understanding of sound insulation in the field of engineering. To achieve this purpose, the content focuses on the crucial distinction between sound insulation and sound treatment. The learning process is geared towards the acquisition of relevant knowledge, supported by competent experts in the field, which will enable students to conceive architectural environments that promote quietness and comfort.



If you want to prepare yourself in the field of Acoustics, our commitment is to help you achieve your goals. Don't hesitate any longer, join TECH!"

General Objectives

- Design acoustic Insulation for the building and civil engineering sectors
- Solve acoustic problems of lack of acoustic insulation
- Analyze the main constructive solutions to solve acoustic insulation problems
- Evaluate the impact of an acoustic solution based on the acoustic insulation parameters used in building and industry

Specific Objectives

- Deepen in the typology of noise and its different treatments
- Analyze and evaluate the transmission noise of machinery and equipment of installations
- Adapt the insulation calculation models to the different noise typologies
- Calculate the acoustic reduction index of a wall or building element

Learn about sound absorption in enclosed spaces and develop solutions by being guided by the best professionals at TECH"

03

Course Management

This academic course stands out for providing a deep immersion in the field of acoustic insulation, under the supervision of a faculty composed of distinguished experts in this discipline. They address various aspects related to sound treatment and the multiple modalities of noise transmission. Therefore, their extensive experience allows the student to achieve a better understanding of the topics. Additionally, it should be noted that they are a team of masters in their professional areas, as well as in the online teaching methodology. This allows the maximum use of TECH's tools in favor of the graduates at the moment of putting this academic syllabus into practice.

Only at TECH can you learn from the hand of true experts in the world of acoustics and develop as a professional in this field"

Management

D. Espinosa Corbellini, Daniel

- Expert Consultant in Audio Equipment and Room Acoustics
- Professor at the School of Engineering of Puerto Real from the University of Cadiz
- Design Engineer at Coelan Electrical Installations Company
- Audio Technician in Sales and Installations in the Daniel Sonido company
- Industrial Technical Engineer in Industrial Electronics at the University of Cadiz
- Industrial Engineer in Industrial Organization by the University of Cadiz
- Official Master's Degree in Evaluation and Management of Noise Pollution by the University of Cadiz
- Official Master's Degree in Acoustic Engineering from the University of Cadiz and the University of Granada
- Diploma of Advanced Studies by the University of Cadiz

Professors

Dr. De La Hoz Torres , María Luisa

- Technical Architect in the Department of Works and Urbanism in the City Council of Porcuna
- Research Teaching Staff at the University of Granada
- Professor of Building Engineering at the School of Building Engineering, University of Granada
- Professor in Architecture Studies at the Superior Technical School of Architecture of the University of Granada
- Professor in Physics Degree, at University of Granada
- Professor in Chemical Engineering Degree at the School of Civil Engineering at the University of Granada
- Professor in Telecommunication Technologies Engineering Degree at the School of Civil Engineering of Roads, Canals and Ports at the University of Granada
- Andrés Lara Prize 2019 to the young acoustics researcher awarded by the Spanish Society of Acoustics
- PhD in the Civil Engineering Program at the University of Granada
- Degree in Technical Architecture from the University of Granada
- Degree in Building from the University of Granada
- Master's Degree in Management and Integral Safety in Building by the University of Granada
- Master's Degree in Acoustics Engineering from the University of Granada
- University Master's Degree in Compulsory Secondary and High School Education, Vocational Training and Language Teaching Specialization in Technology, Computer Science and Industrial Processes

04

Structure and Content

This academic process covers the distinction between acoustic retreat and acoustic treatment, the energy balance of emission and the typology of noise transmission. Additionally to understanding the mechanisms of wave propagation, reflection indicators and sound absorption in buildings. Also, the use of performance magnitudes, such as the sound reduction register and the improvement in the acoustic insulation of buildings and their elements is addressed. Additionally, TECH provides access to extensive specialized readings and virtual forums, which enriches the learning experience and encourages exploration and discovery in a state-of-the-art digital environment.

Successful learning is achieved through excellent educational content created by TECH experts“

Module 1. Room Acoustics

1.1. Distinction of Acoustic Insulation in Architecture
- 1.1.1. Distinction Between Acoustic Insulation and Acoustic Treatment. Improvement of Acoustic Comfort
- 1.1.2. Transmission Energy Balance. Incident Sound Power, Absorbed and Transmitted
- 1.1.3. Sound Insulation of Enclosures. Sound Transmission Index

1.2. Transmission of Sound
- 1.2.1. Noise Transmission Typology.Direct and Flanking Airborne and Transmission Noise
- 1.2.2. Propagation Mechanisms. Reflection, Refraction, Absorption and Diffraction
- 1.2.3. Sound Reflection and Absorption Rates
- 1.2.4. Sound Transmission Paths Between Two Contiguous Enclosures

1.3. Sound Insulation Performance Parameters of Buildings
- 1.3.1. Apparent Sound Reduction Index, R'
- 1.3.2. Standardized Difference of Level, DnT
- 1.3.3. Standardized Level difference, Dn

1.4. Parameters for Describing the Sound Insulation Performance of the Elements
- 1.4.1. Sound Reduction Index, RSound Reduction Index, R
- 1.4.2. Acoustic Reduction Improvement Index, R
- 1.4.3. Normalized Difference in the Level of an Element, Dn,e

1.5. Airborne Sound Insulation Between Enclosures
- 1.5.1. Statement of the Problem
- 1.5.2. Calculation Model
- 1.5.3. Measurement Indexes
- 1.5.4. Constructive Technical Solutions

1.6. Impact Sound Insulation Between Enclosures
- 1.6.1. Statement of the Problem
- 1.6.2. Calculation Model
- 1.6.3. Measurement Indexes
- 1.6.4. Constructive Technical Solutions

1.7. Airborne Sound Insulation Against Exterior Noise
- 1.7.1. Statement of the Problem
- 1.7.2. Calculation Model
- 1.7.3. Measurement Indexes
- 1.7.4. Constructive Technical Solutions

1.8. Analysis of Indoor to Outdoor Noise Transmission
- 1.8.1. Statement of the Problem
- 1.8.2. Calculation Model
- 1.8.3. Measurement Indexes
- 1.8.4. Constructive Technical Solutions

1.9. Analysis of Noise Levels Produced by the Equipment of Installations and Machinery
- 1.9.1. Statement of the Problem
- 1.9.2. Analysis of Sound Transmission Through the Installations
- 1.9.3. Measurement Indexes

1.10. Sound Absorption in Enclosed Spaces
- 1.10.1. Total Equivalent Absorption Area
- 1.10.2. Analysis of Spaces with Irregular Distribution of Absorption
- 1.10.3. Analysis of Irregularly Shaped Spaces

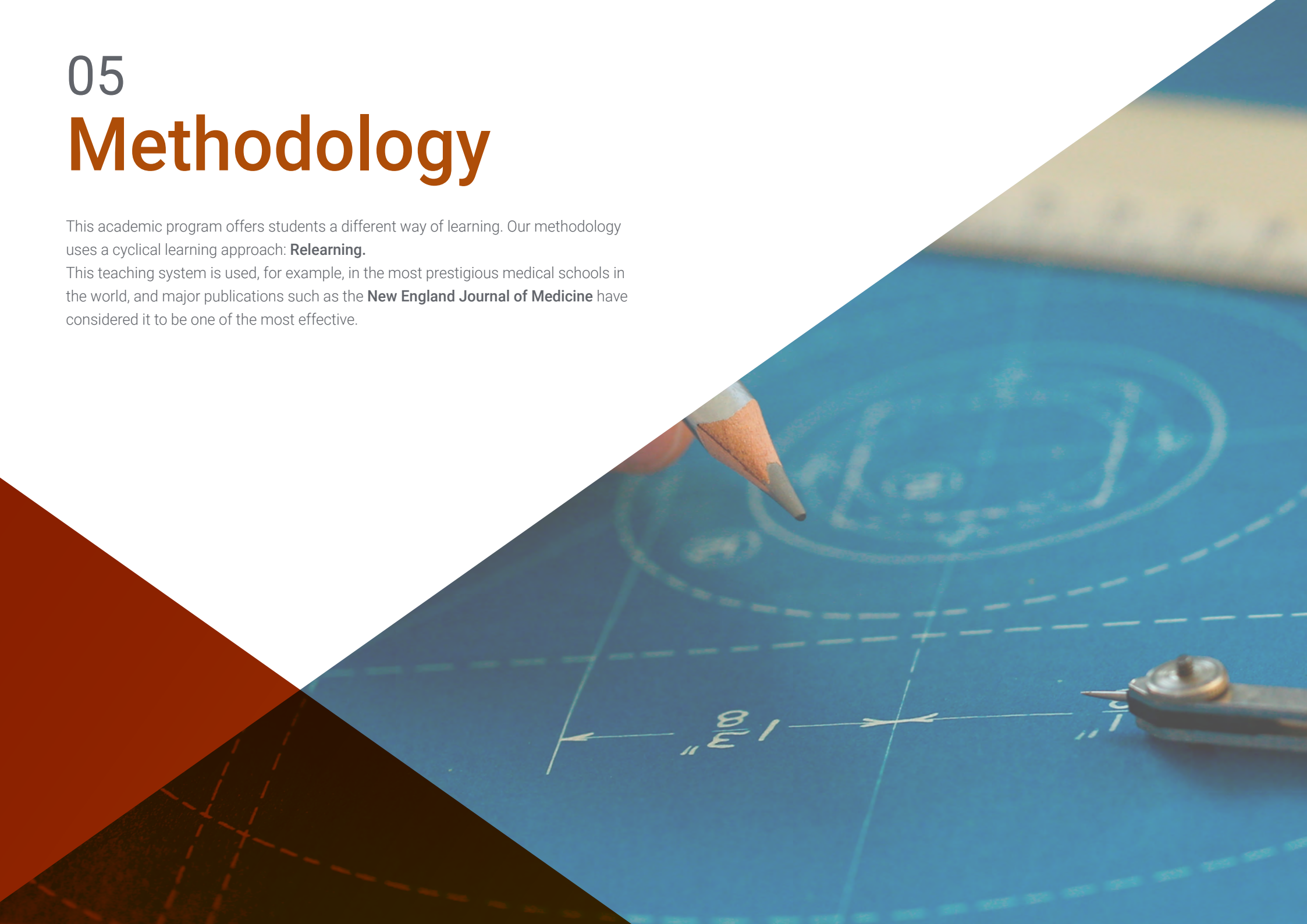
Learn by participating in the best forums and with the most specialized readings, take advantage of the best opportunity in online education. Join TECH"

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



Discover Relearning, 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"

Case Study to contextualize all content

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

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

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

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

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

The case method is the most widely used learning system in the best faculties in the world. 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.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

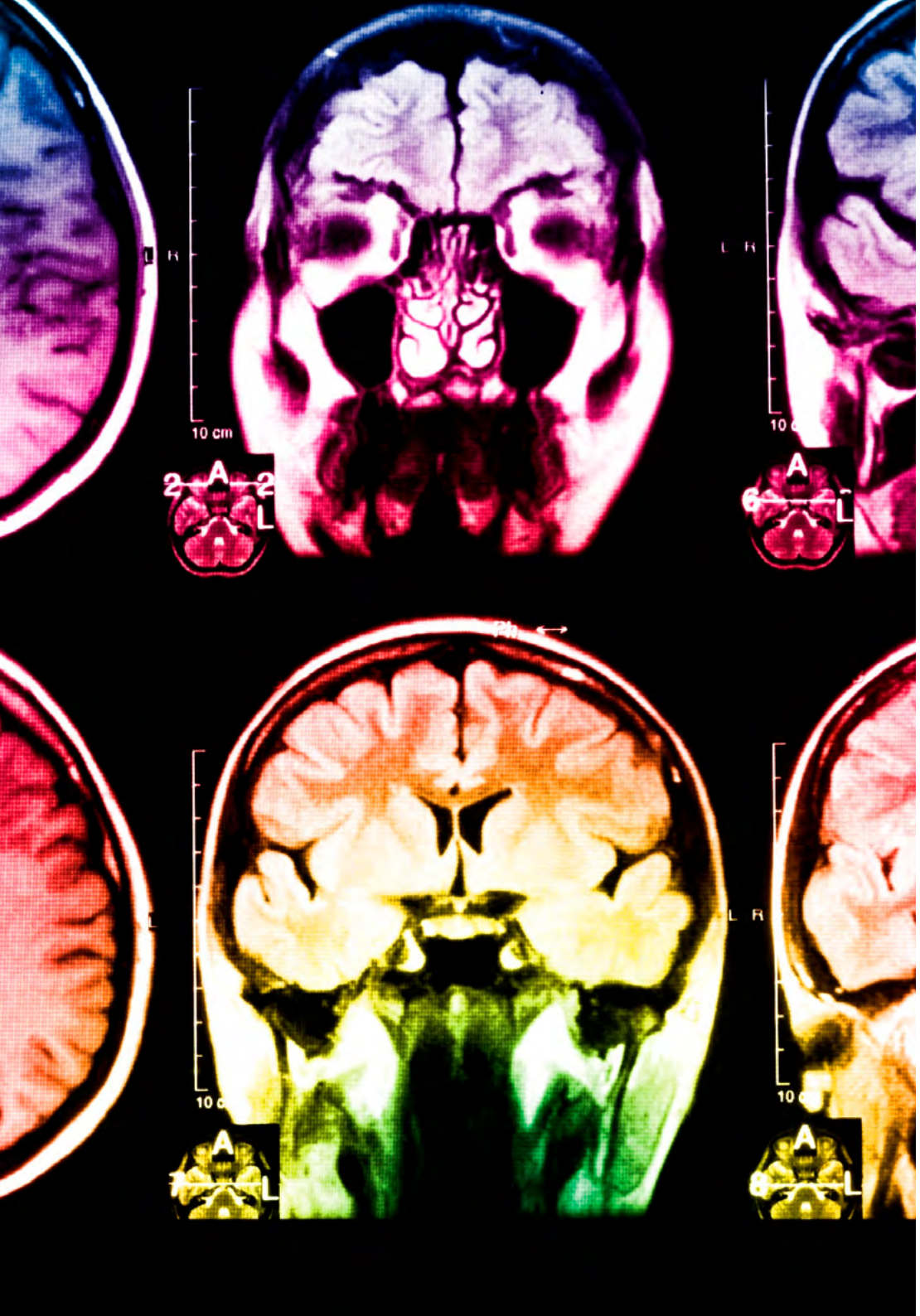
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ 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 online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has 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, and financial markets and 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.

Relearning 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 for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to 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.

This program offers the best educational material, prepared with professionals 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 highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

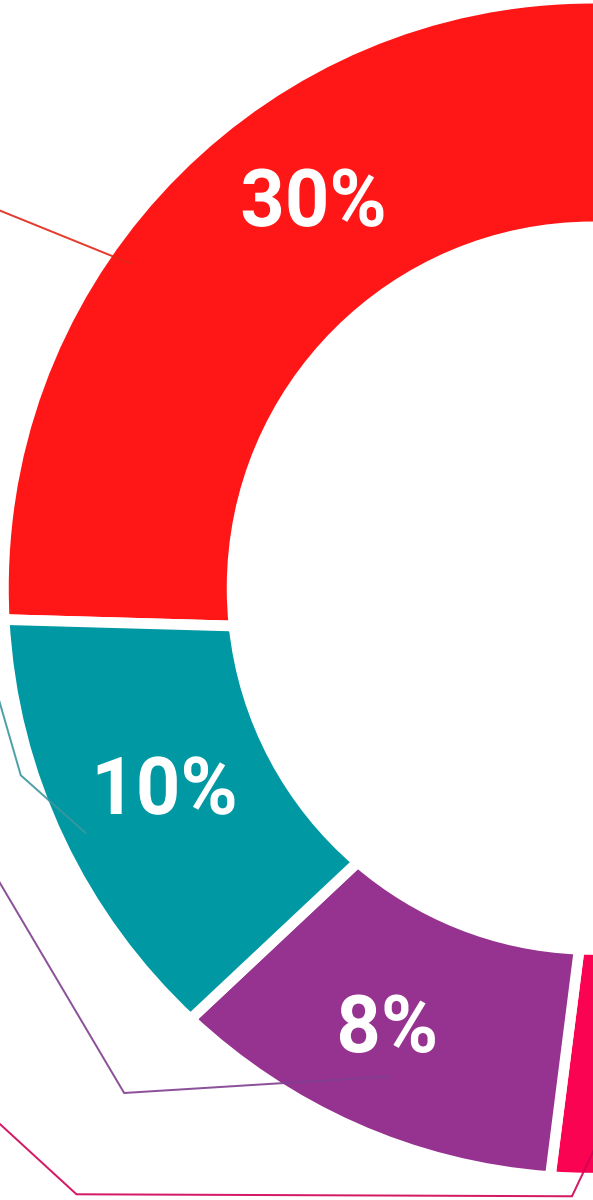
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

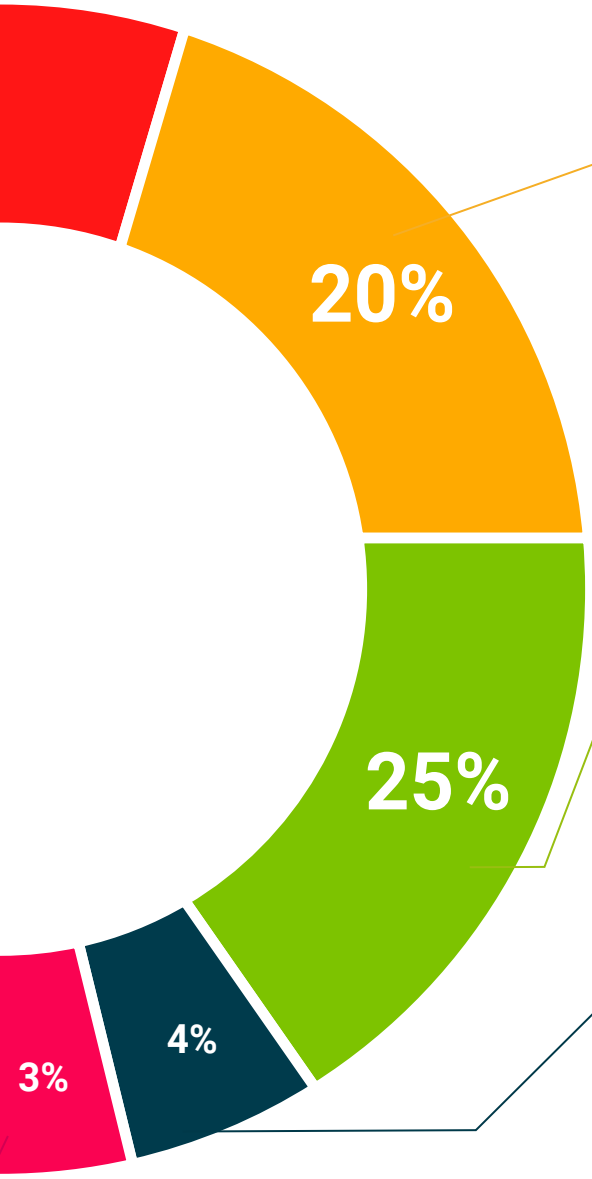
Practising Skills and Abilities

They 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 that we are experiencing.

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06

Certificate

The Postgraduate Certificate in Exit Acoustics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This **Postgraduate Certificate in Room Acoustics** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Room Acoustics**

Official Nº of Hours: **150 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Room Acoustics

This is a qualification awarded by this University, equivalent to 1 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

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 EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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