Postgraduate Diploma
Advanced Limb Rigging

tech global university

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Postgraduate Diploma
Advanced Limb Rigging

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/videogames-design/postgraduate-diploma/postgraduate-diploma-advanced-limb-rigging**

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01
Introduction

It is a fact that people tend to idealize childhood and youth, and consequently, the cartoons of that time. Any adult would say that the old ones were better than the new ones. And it is possible that they are right, but in no case from a graphic point of view. Advances in the field of animation have undoubtedly improved the movements of the characters. It should be pointed out that the aim is not to make them resemble the movements of a real person, but to make them plausible with the type of cartoon in question. In this regard, TECH offers an ambitious program with the latest techniques in the field of Limb Riggingand the appropriate applications depending on the context. All of this, condensed in a qualification that stands out not only for the quality of its contents, but also for its 100% online of its contents, study format.

The limbs are one of the points where the viewer's attention is focused. Learn how to build them in a credible way thanks to this Postgraduate Diploma"

The presence of the Rigger profile in the entertainment industry is increasing exponentially. And it is expected to continue to do so, to the extent that content viewing platforms or video game sagas, among other sectors, do. It is therefore essential to learn limb movement techniques as a fundamental part of the rigger's role.

The Postgraduate Diploma in Advanced Limb Rigging allows you to identify the possibilities offered by the FK and IK systems when animating. We will go deeper into how to create a Rig from the combination of both, so that the animator can activate one or the other according to the convenience of the character's action. In addition, to develop it in an ideal way, the creation and addition of custom attributes and parameters in the Control Rig elements will be discussed in depth.

On occasion, the animator may also require that the torso and head rig system be configured to perform certain movements that a basic rig does not provide. Therefore, it is necessary to know its limitations and the problems it can cause to the animator in his work. Consequently, we will propose an advanced and professional control system that will provide automatisms and a great freedom of movements to our character, avoiding these limitations and making easier the work of animating.

The final module, on the other hand, will address certain special needs. For example, flexing the limbs as if they were made of rubber to emphasize the style of the work. This will be done through the Stretch & Squash, Bendy and Twist systems. Also, a topic has also been reserved for the optimization of the models with Proxy, which allow the animator to work more fluently.

This training will be carried out in a 100% online mode, without timetables and with all modules available from day one. In this way, the student can work according to his or her own schedule and ensures an adequate conciliation with the personal and work environment.

This **Postgraduate Diploma in Advanced Limb Rigging** contains the most complete and up-to-date program on the market. The most important features include:

- The development of case studies presented by experts in Body Rigging
- 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
- Practical exercises where the self-assessment 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

Do you know the Stretch & Squash, Bendy and Twist systems? The program of this qualification has reserved a specific topic in which all its keys are explained"

"
The market requires Riggers who adapt their work to the needs of the animator. With TECH, you will learn the most appropriate ways to do it"
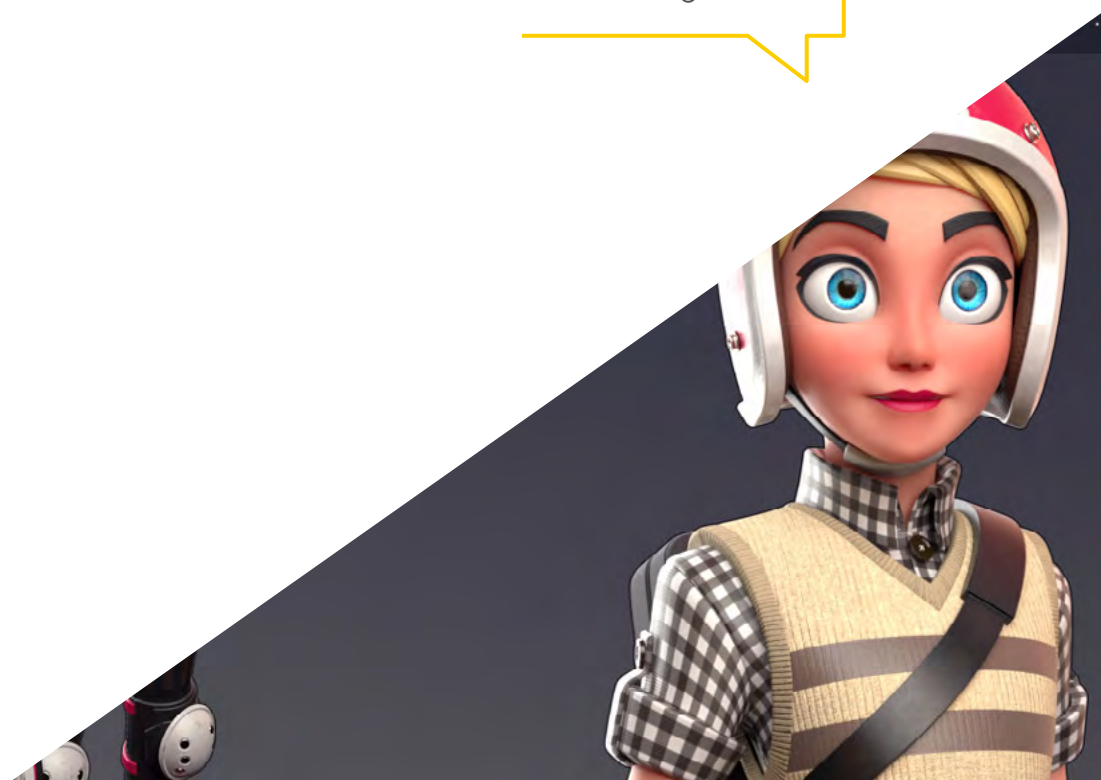
Thanks to TECH, you will be able to apply low performance proxy systems to your projects and work more smoothly.

Enroll and learn how to generate realistic cinematics applicable to movies, series or video games.

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

Theultimerdia 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 education programmed to learn 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 throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

To bend a knee or an elbow requires the assimilation of a large number of concepts and tools. Graduates of this Postgraduate Diploma will learn, for example, how to set up a hybrid FK and IK system for a character, how to use the Node Editor tool and even how to create custom tools with Python. The objective: to internalize all the rigging processes necessary to give movement to the different parts of the body.

"

TECH has dedicated a specific topic to Maya's Ik Spline Handle tool. With which you will learn, among other things, how to create an elastic spine"

General Objectives

- To build with verisimilitude the different parts of the body and their movement
- Learn the possibilities of the FK and IK systems
- Deepen in advanced tools of Autodesk Maya
- Represent complex body movements
- Add elements such as clothing or weapons to body movements
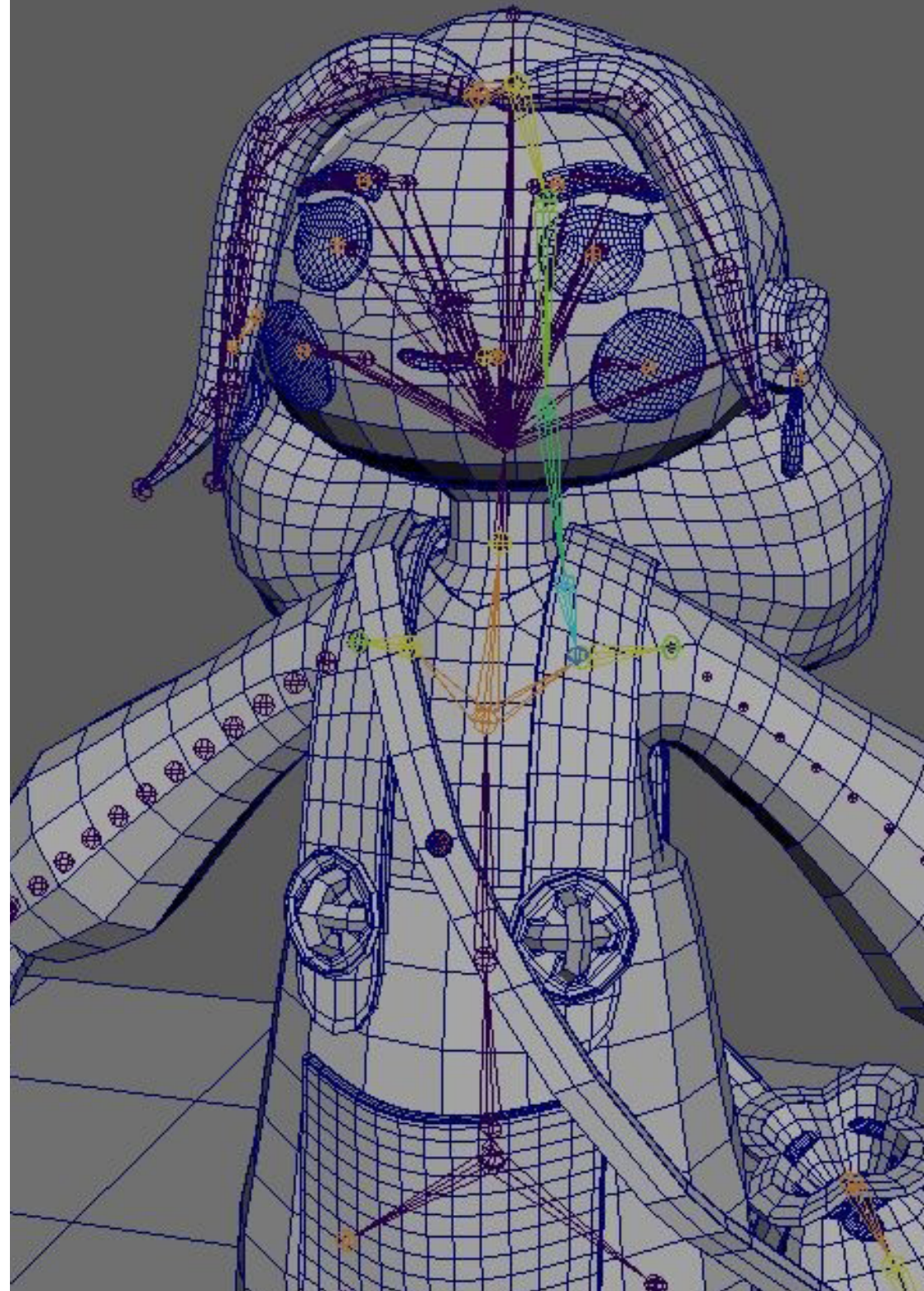
Specific Objectives

Module 1. Advanced Limb Rigging

- Professionally create direct kinematic chains
- Professionally create inverse kinematics chains
- Create a hybrid FK and IK system for a character
- Create custom attributes on Rig elements in a specialized way
- Connecting parameters and values through the Node Editor tool
- Instantiate attributes in Node Shapes
- Analyze the behavior of human body joints
- Create automations and systems for character's feet and hands
- Create custom tool for the use of FK/IK with Python
- Analyze and develop the behavior of quadruped limbs

Module 2. Advanced Torso, Neck and Head Rigging

- Conceive the limitations of basic rigging and the needs of the animator
- Come up with a versatile and advanced system for the torso, neck and head of the character
- Master the use of the Spline IK Handle tool for torso system development
- Master the use of cluster elements
- Editing and limiting transformations of Rig components
- Engineer a character head locking system through the Node Editor
- Build a proper hierarchy of all the elements of a Rig

Module 3. Advanced Deformation Systems, Rigging of Props and Clothing

- Develop a Twist-type torsion system
- Develop a Stretch & Squash type limb stretching and shrinking system
- Develop a Bendy-like flexible limb system for cartoons
- Conceive software optimization constraints with computationally heavy Rigs
- Specialized approach to a low-performance proxy system
- Professionally design a Rig system for the character's clothing and apparel
- Propose a Rig system for the character's weapon mechanics

Nowadays, standing out in any field of work is a challenge. However, almost all of the students of this Postgraduate Diploma have made a place for themselves in the sector"

Course Management

This Postgraduate Diploma is approached from a theoretical point of view, in order to subsequently put the knowledge into practice with real cases. the latest techniques and tools will be acquired to keep the learning process up to date and at the height of the in the industry. In addition, the management of the qualification will provide keys and tips that will allow the student to stand out among the rest of the professionals.

Nowadays, standing out in any field of work is a challenge. However, practically all of the students of this Postgraduate Diploma have made a name for themselves in the industry. have carved out a niche for themselves in the sector"

International Guest Director

Jessica Bzonek is a leading **designer** and **creator** of **3D characters**, with more than ten years of experience in the **video game** industry that have established her as an influential professional in the international scene. In fact, her career has been characterized by her commitment to **innovation** and **collaboration**, fundamental aspects in her work, where **technology** and **art** are creatively intertwined. She has contributed to the realization of important **animation projects**, including **"Avatar: Frontiers of Pandora"** and **"The Division 2: Year 4",** which has consolidated her reputation as an expert in the creation of **pipelines** and **rigging**.

She has also held the position of **Associate Technical Director of Cinematics** at **Ubisoft Toronto**, where she has been essential in the production of high-quality **cinematic sequences**. Here, she has been particularly noted for her participation as a **co-presenter** at the 2**024 Ubisoft Developers Conference**, a testament to her leadership in the industry. She has also played a crucial role at **Stellar Creative La**b, where she co-developed a **custom automated system** for **character rigs**. In this regard, her ability to manage the communication of issues and solutions between departments has been instrumental in optimizing workflows.

Jessica Bzonek's career has also included significant work at **DHX Media**, where she has worked closely with supervisors and other **pipeline** workers to solve problems and test new tools, organizing learning sessions that have promoted team cohesion. At **Rainmaker Entertainment Inc.** he has developed **character and element rigs**, using a **modular rigging system** that has improved the functionality of the production process. Finally, her work as a **Junior Rigging Artist**, at **Bardel Entertainment**, has allowed her to develop **scripts** to optimize the **workflow**.

Ms. Bzonek, Jessica

- Associate Technical Director of Cinematics at Ubisoft, Toronto, Canada
- Technical Director of Pipeline / Rigging at Stellar Creative Lab
- Pipeline Technical Director at DHX Media
- Character Pipeline Technical Director at DHX Media
- Creature Pipeline Technical Director at Rainmaker Entertainment Inc.
- Junior Rigging Artist at Bardel Entertainment
- Course in 3D Animation and Visual Effects at the Vancouver Film School
- Course in Advanced Character Rigging by Gnomon
- Course in Introduction to Python by UBC - Continuing Education
- B.A. in Multimedia and History from McMaster University

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

Management

Mr. Guerrero Cobos, Alberto

- Rigger and animator Video Games videogame Vestigion Lovem Games
- Master of Art and Production in Animation by the University of South Wales
- Master in 3D Character Modeling at ANIMUM
- Master in 3D Character Animation for Film and Video Games by ANIMUM
- Degree in Multimedia and Graphic Design at the University School of Design and Technology (ESNE)

04
Structure and Content

This program will allow students to develop characters with realistic body movements Including specific topics for arm, leg, neck, torso, foot, hand or head movement All thanks to the most widely used techniques in the industry, such as FK/IK hybrid systems, Snap FK/IK scripts with Python or the Spline IK Handle tool. In addition, space has been reserved in the last module for the Stretch & Squash, Bendy and Twist systems.
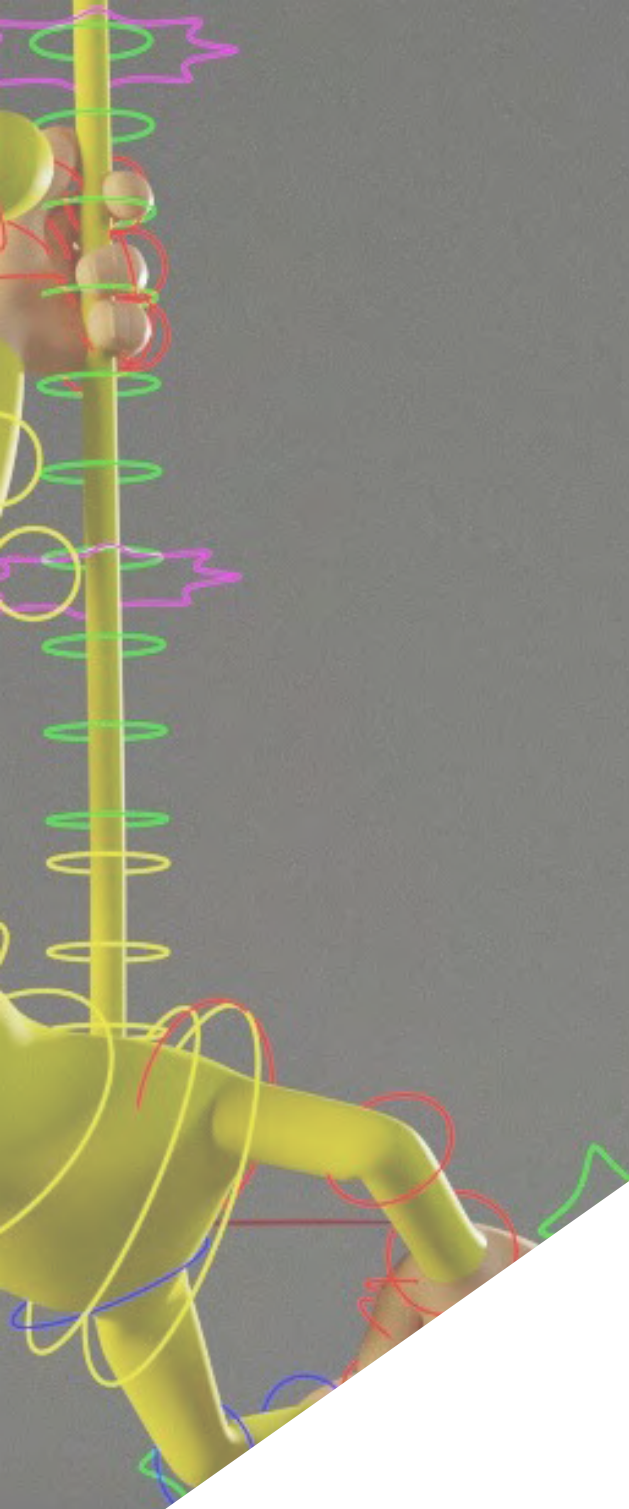
A complete program with the most widely used advanced system deformation tools on the market"

Module 1. Advanced Limb Rigging

1.1.   Hybrid Systems

   1.1.1.   FK and IK

   1.1.2.   Limitations of the Rig in the Animation Process

   1.1.3.   Hybrid Systems

1.2.   First Steps in the Creation of FK/IK Hybrid Systems

   1.2.1.   System Approach

   1.2.2.   Joints Chain Creation Necessary

   1.2.3.   FK Controls and Nomenclature

1.3.   IK Systems

   1.3.1.   IK Handle Tool

   1.3.2.   IK Orientation with Pole Vector

   1.3.3.   IK Controls and Nomenclature

1.4.   Unification of FK and IK Systems to Main Chain

   1.4.1.   Approach

   1.4.2.   Parent Constrain to Two Conductive Elements

   1.4.3.   Hand Orientation with IK Chain

1.5.   Attribute FKIK Switch

   1.5.1.   Attribute FK/IK

   1.5.2.   Node Editor and Reverse node

   1.5.3.   Instantiate Attributes in Node Shapes

1.6.   Finalizing the FK/IK System

   1.6.1.   FK and IK Control Visibility Settings

   1.6.2.   FK/IK Systems on Legs and Arms

   1.6.3.   Hierarchies and Nomenclature

1.7.   Advanced Foot Rigging

   1.7.1.   Foot Movements

   1.7.2.   System Development

   1.7.3.   Attribute Creation

Module 2. Advanced Torso, Neck and Head Rigging

Module 3. Advanced Deformation Systems, Rigging of Props and Clothing

3.1.   Twist System
 3.1.1.   Anatomical study of limb twisting
 3.1.2.   Twist System
 3.1.3.   Approach
3.2.   Twist System Steps
 3.2.1.   Creation of Joints Twist
 3.2.2.   Twist Chain Orientation
 3.2.3.   Torsion Configuration
3.3.   Twist System Finalization
 3.3.1.   Parts of the Extremities
 3.3.2.   Twist Connection with FK and IK chains
 3.3.3.   Adding Twist Influences to Rig Deformation
3.4.   BendSystem
 3.4.1.   BendSystem
 3.4.2.   System Approach
 3.4.3.   Wire Deformer
3.5.   Immune System Development
 3.5.1.   Creation of Curves and Clusters
 3.5.2.   Bend System Influence Painting
 3.5.3.   Implementation to General Control
3.6.   Stretch and Squash Systems
 3.6.1.   Stretch System
 3.6.2.   Stretch and Squash System Approach
 3.6.3.   System Development with RemapValue Node

3.7.   Proxys
 3.7.1.   Proxys
 3.7.2.   Model Splitting
 3.7.3.   Connecting Proxies to Joints chain
3.8.   Rigging of Clothing
 3.8.1.   Approach
 3.8.2.   Scene Preparation
 3.8.3.   Projection of Influences
3.9.   Rigging the Props
 3.9.1.   Props
 3.9.2.   Approach
 3.9.3.   System Development
3.10. Arc Rigging
 3.10.1. Deformation Study of an Arch
 3.10.2. Approach
 3.10.3. Development

" With TECH, you will learn the techniques used in the most successful cartoon series on television"

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.

A learning method that is different and innovative

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 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.

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. Over the course of 4 years, you will be presented with multiple practical case studies. You will have to combine all your knowledge, and research, argue, and defend your 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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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 we live in.

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.

20%

25%

4%

3%

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 Diploma in Advanced Limb Rigging guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Advanced Limb Rigging** 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 Diploma in Advanced Limb Rigging**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**

tech global university

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

Postgraduate Diploma in Advanced Limb Rigging

This is a program of 450 hours of duration equivalent to 18 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

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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