Hybrid Professional Master's Degree

Artificial Intelligence and Knowledge Engineering

tech technological university

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Hybrid Professional Master's Degree
Artificial Intelligence and Knowledge Engineering

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/hybrid-professional-master-degree/hybrid-professional-master-degree-artificial-intelligence-knowledge-engineering

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Introduction

Although Artificial Engineering is still at a very early stage, the fact is that its multiple applications, as well as the wide margin of evolution available to it in terms of the speed at which new digitalization technologies are developing, promise a revolution comparable to that generated by the Internet at the time. That is why having a specialized qualification in this field, as well as in Knowledge Engineering, is a safe bet for any computer engineer who wants to know in detail the ins and outs of this science, as well as master the tools and software that make it possible. To this end, TECH has developed this comprehensive program, which combines theory and practice in 12 months of highly intensive education and designed for the graduate to finish the course as an expert in this field.

Enroll in this Hybrid Professional Master's Degree and learn thoroughly for the Artificial Intelligence and Knowledge Engineering revolution, mastering its tools from now on"

For decades, the interest of human beings in transmitting their knowledge and skills to technological systems has been the precursor of complex systems such as those that make up Artificial Intelligence and Knowledge Engineering. Although this is a field with an exponential growth margin, it is already possible to find devices that think or act like people, automating activities such as decision making, problem solving or learning. An example of this, which is quite widespread, is the face recognition of cell phones or virtual voice assistants such as Siri or Alexa.

Its multiple uses, as well as the possibilities that arise from the development of this science make it the essential technology of the coming decades. As a result, and with the purpose of allowing graduates to specialize in an autonomous and intensive way in this expanding field, TECH has developed this very complete Hybrid Professional Master's Degree It is a program developed by experts in Computer Engineering that includes the most innovative aspects of this sector, delving into each of the sections that the computer specialist must learn to successfully manage the direction of projects in computing, machine learning, intelligent systems or advanced design of algorithms.

All this, through 1,500 hours of 100% online theoretical learning that includes not only the most comprehensive and dynamic syllabus of the sector, but also additional high quality material in different formats, so that you can delve into each section that you consider most important and relevant. That's not all, since, after passing this period, the graduate will have the possibility of a three-week internship in a prestigious center where you can actively participate in the activities that are being developed at that time, as well as work and learn from real professionals in Artificial Engineering with a wide and extensive career in this field.

This **Hybrid Professional Master's Degree in Artificial Intelligence and Knowledge Engineering** contains the most complete and up-to-date program on the market. The most important features include:

- Development of more than 100 cases presented by IT professionals who are experts in project management, analysis and design of multi-agent systems
- Its graphic, schematic and eminently practical contents, with which they are conceived, gather scientific and assistance information on those computing disciplines that are indispensable for professional practice
- In-depth knowledge of Artificial Intelligence and its multiple applications based on genetic algorithms
- Development of intelligent systems based on the language for ontology using the main software and tools currently available
- All of this will be complemented by 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
- Furthermore, you will be able to carry out an internship in one of the best Companies on the international scene

A qualification with which, in just 12 months, you will have mastered the theory and practice of Artificial Engineering"

TECH works every year with tens of thousands of students who, after completing programs like this one, have managed to find the path that has led them to professional success. Do you want to succeed too?"

A program with which you will acquire the most exhaustive knowledge about algorithms, mastering trees, Heaps, Graphs and Greedy despite their complexity.

The theoretical qualification period will take place 100% online, so you can organize yourself and set your own schedule.

This Hybrid Professional Master's Degree program, of a professional nature and hybrid learning modality, is designed to update Computer Engineer professionals who develop their functions in the engineering sector specialized in Artificial Intelligence and Knowledge Engineering, and who require a high level of qualification. The contents are based on the latest evidence of the sector, and oriented in an educational way to integrate the theoretical knowledge in the IT practice, and the theoretical-practical elements will facilitate the updating of knowledge and will allow decision making in the management and direction of projects.

Thanks to their multimedia content developed with the latest educational technology, they will allow the specialist to enjoy situated and contextual learning, which means a simulated environment that will provide immersive training programmed to learn about 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 students will be assisted by an innovative interactive video system created by renowned and experienced experts.

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Why Study this Hybrid Professional Master's Degree?

Artificial Intelligence is in full development, and therefore, it is necessary to have professionals with solid theoretical knowledge, which, without doubt, must be deployed in practice for the creation of intelligent systems. Therefore, in this field it is as important to know the latest techniques as the programming languages used for their direct application. For this reason, TECH has created this pioneering program, which combines the most recent updates in areas such as algorithm design, multi-agent systems and bio-inspired computing with an internship in a prestigious company in this sector.

TECH brings you a unique Hybrid Professional Master's Degree in the academic panorama, which gives you the possibility to grow professionally in the field of Artificial Intelligence with the help of the best specialists"

1. Updating from the Latest Technology Available

New technologies have certainly changed in recent years the area of Artificial Intelligence and Knowledge Engineering, providing them with algorithm programming software, which have boosted their development. For this reason, TECH has created this Hybrid Professional Master's Degree, which brings students to the most advanced technology in this field.

2. Delve into the experience of the best professionals

This Hybrid Professional Master's Degree has an excellent expert teaching staff, who will guide all students during the theoretical phase, so that they can achieve their goals successfully. An objective that is also kept in the practical phase, and is that, during this process, the graduate will be taught by real specialists in Artificial Intelligence and Knowledge Engineering.

3. Entering first-class environments

In order to fulfill its mission of offering students a quality education, TECH carries out a meticulous process of selection of both the faculty and the companies where the internships are carried out. This guarantees students access to a high-level university qualification, where they will be surrounded by the best experts in Artificial Intelligence and Knowledge Engineering.

4. Combining the Best Theory with State-of-the-Art Practice

This Hybrid Professional Master's Degree has been designed to bring students closer to the most current and relevant knowledge, moving away from long hours of study and focusing on the key concepts for their professional development. Therefore, TECH offers with this program a new learning model, focused on showing students the methods, techniques and tools used by specialists in the creation of Artificial Intelligence and Knowledge Engineering systems.

5. Expanding the Boundaries of Knowledge

TECH offers the possibility of doing this Internship Program, not only in national, but also in international centers. In this way, students will be able to open up a range of options that will allow them to grow professionally in an emerging sector and, in addition, to work side by side with real specialists in this field.

"You will have full practical immersion at the center of your choice"

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Objectives

The future possibilities that arise around Artificial Intelligence and Knowledge Engineering, as well as the lack of comprehensive and intensive qualifications that adapt, not only to the demand of the labor market, but also to the needs of students, is what has motivated TECH and its team to develop this program. Therefore, the purpose of the program is to provide graduates with all the information they need to master each section of this science. In this way, and through intensive knowledge of its details and active practice, they will be able to face, with total guarantee of success, any project related to this field and its multiple applications.

If you are sure you want to specialize in Artificial Intelligence, this Hybrid Professional Master's Degree will prepare you to be able to achieve even your most ambitious and demanding professional goals"

General Objective

- The general purpose of this program is to provide the graduate with scientific and technological skills for the practice of Computer Engineering through the acquisition of a broad knowledge of the field of computing and the structure of computers. In addition, its purpose is also to allow the specialist to acquire the skills of a software expert, as well as the mathematical, statistical and physical competences essential to master this subject

Allow yourself to be led by a center where tens of thousands of students have found the answer to all their questions thanks to the specialty of its qualifications"

Specific Objectives

Module 1. Programming Fundamentals

- Understand the basic structure of a computer, software and general purpose programming languages
- Learn to design and interpret algorithms, which are the necessary basis for developing computer programs
- Understand the essential elements of a computer program, such as the different types of data, operators, expressions, statements, I/O and control statements
- Understand the different data structures available in general purpose programming languages, both static and dynamic, and to acquire the essential knowledge for file handling
- Know the different testing techniques in computer programs and the importance of generating good documentation together with good source code
- Learn the basic concepts of the C++ programming language, one of the most widely used languages in the world

Module 2. Data Structure

- Learn the basics of programming in the C++ language, including classes, variables, conditional expressions and objects
- Understand abstract data types, linear data structure types, simple and complex hierarchical data structures, as well as their implementation in C++
- Understand the operation of advanced data structures other than the usual ones
- Know the theory and practice related to the use of priority heaps and queues
- Learn how Hash tables work as abstract data types and functions
- Understand Graph theory, as well as advanced Graph algorithms and concepts

Module 3. Algorithm and Complexity

- Learn the main strategies for algorithm design, as well as the different methods and measures for algorithm computation
- Know the main sorting algorithms used in software development
- Understand the operation of the different algorithms with trees, heaps and graphs
- Understand the operation of Greedy algorithms, their strategy and examples of their use in the main known problems. Learn the use of Greedy algorithms on graphs
- Learn the main strategies of shortest path search, with the approach of essential problems of the field and algorithms for their resolution
- Understand the Backtracking technique and its main uses, as well as other alternative techniques

Module 4. Advanced Algorithms Design

- Delve into advanced algorithm design, analyzing recursive and divide-and-conquer algorithms, as well as performing amortized analysis
- Understand dynamic programming concepts and algorithms for NP problems
- Understand the operation of combinatorial optimization, as well as the different randomization algorithms and parallel algorithms
- Know and understand the operation of the different local and candidate search methods
- Learn the mechanisms of formal verification of programs and iterative programs, including first-order logic and Hoare's formal system
- Learn the operation of some of the main numerical methods such as the bisection method, the Newton Raphson method and the secant method

Module 5. Logic in Computer Science

- Learn the fundamentals of computational logic, what it is used for and its justification of use
- Know the different strategies of formalization and deduction in propositional logic, including natural reasoning, axiomatic and natural deduction, as well as the primitive rules of propositional calculus
- Acquire advanced knowledge in propositional logic, delving into its semantics and the main applications of this logic, such as logic circuits
- Understand predicate logic both for the calculation of natural deduction of predicates and for the formalization and deduction strategies for predicate logic
- Understand the basics of natural language and its deductive mechanism
- Introduce the computer specialist to logic programming using the PROLOG language

Module 6. Artificial Intelligence and Knowledge Engineering

- Lay the foundations of Artificial Intelligence and Knowledge Engineering, making a brief overview of the history of Artificial Intelligence up to the present day
- Understand the essential concepts of search in Artificial Intelligence, both informed and uninformed search
- Understand how Artificial Intelligence works in games
- Learn the fundamental concepts of neural networks and the use of genetic algorithms
- Acquire the appropriate mechanisms to represent knowledge, especially taking into account the semantic web
- Understand the functioning of expert systems and decision support systems

Module 7. Intelligent Systems

- Learn all the concepts related to agent theory and agent architecture and its reasoning process
- Assimilate the theory and practice behind the concepts of information and knowledge, as well as the different ways of representing knowledge
- Understand the theory related to ontologies, as well as learn ontology languages and software for ontology creation
- Learn different models of knowledge representation, such as vocabularies, taxonomies, thesauri and mind maps, among others
- Understand the functioning of semantic reasoners, knowledge-based systems and expert systems
- Know how the semantic web works, its current and future state, as well as semantic web-based applications

Module 8. Machine Learning and Data Mining

- Introduce knowledge discovery processes and basic concepts of machine learning
- Learn data exploration and pre-processing methods, as well as different algorithms based on decision trees
- Understand the operation of Bayesian methods and regression and continuous response methods
- Understand the different classification rules and the evaluation of classifiers by learning how to use confusion matrices and numerical evaluation, the Kappa statistic and the ROC curve
- Acquire essential knowledge related to text mining and natural language processing (NLP) and clustering
- Expand your knowledge of neural networks, from simple neural networks to recursive neural networks

Module 9. Multiagent Systems and Computational Perception

- Understand the basic and advanced concepts related to agents and multi-agent systems
- Study the FIPA agent standard, considering agent communication, agent management and architecture, among other issues
- Delve into the learning of the JADE (Java Agent Development Framework) platform by learning to program in it both basic and advanced concepts, including topics of communication and agent discovery
- Lay the foundations of natural language processing, such as automatic speech recognition and computational linguistics
- Gain an in-depth understanding of computer vision, digital image analysis, transformation and segmentation of digital images

Module 10. Bio-Inspired Computing

- Introduce the concept of bio-inspired computing, as well as to understand the functioning of the different types of social adaptation algorithms and genetic algorithms
- Study of the different models of evolutionary computation, knowing their strategies, programming, algorithms and models based on estimation of distributions
- Understand the main space exploration-exploitation strategies for genetic algorithms
- Understand the operation of evolutionary programming applied to learning problems and multi-objective problems
- Learn the essential concepts related to neural networks and understand the operation of real use cases applied to fields as diverse as medical research, economics and artificial vision

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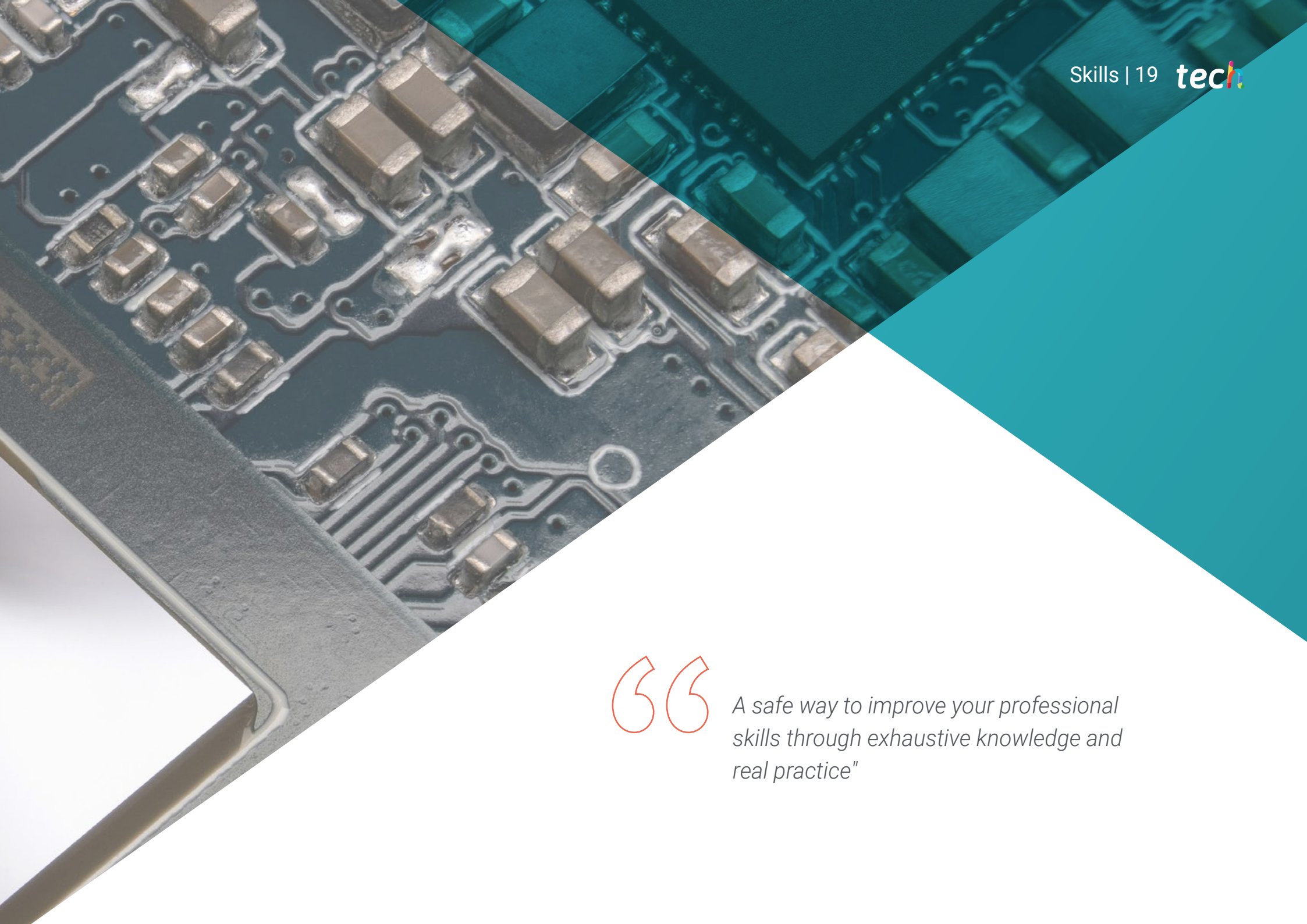
Skills

After completing this Hybrid Professional Master's Degree, the graduate will be able to demonstrate that they have the skills of a true professional specialized in Artificial Intelligence and Knowledge Engineering. During the 1,620 hours of theoretical and practical education, they will work actively to perfectly manage each area of this science, improving their skills and abilities in an exhaustive way and based on the current demand of the labor market.



A safe way to improve your professional skills through exhaustive knowledge and real practice"

General Skills

- Acquire the necessary skills for the professional practice of computer engineering with the knowledge of all the necessary factors to carry it out it with quality and solvency
- Learn the main tools for managing and creating projects related to Artificial Intelligence and Knowledge Engineering

This Hybrid Professional Master's Degree will lead you to boost your skills in the design of advanced algorithms oriented to the creation of Artificial Intelligence"

Specific Skills

- Develop programming in the field of artificial intelligence taking into account all the factors of artificial intelligence development
- Know the data structure in C++ programming
- Design basic and advanced algorithms
- Understand computational logic and apply it in the design of projects
- Know about Artificial Intelligence, its uses and its developments and how to implement in your own projects
- Know what they are, how they work and how to work with intelligent systems
- Master the basic concepts of machine learning
- Knowledge of JADE, FIPA, computer vision and other multi-agent systems
- Knowledge of bio-inspired computing algorithms and utilization strategies

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Educational Plan

With the purpose of always offering the most complete qualifications, TECH has elaborated the syllabus of this Hybrid Professional Master's Degree taking into account the criteria of a team of experts in Computer Engineering. In this way, it has been possible to create a syllabus based on the immediate current situation of this sector, which also includes hours of additional material of high quality and presented in different formats. These are detailed videos, research articles, dynamic summaries, simulation of real cases and complementary readings with which the graduate will be able to delve into each aspect that they consider most relevant or interesting for their professional development.

A program that adapts to you, your needs, your interests and your requirements. This Hybrid Professional Master's Degree that will certainly mark a before and an after in your professional career"

Module 1. Programming Fundamentals

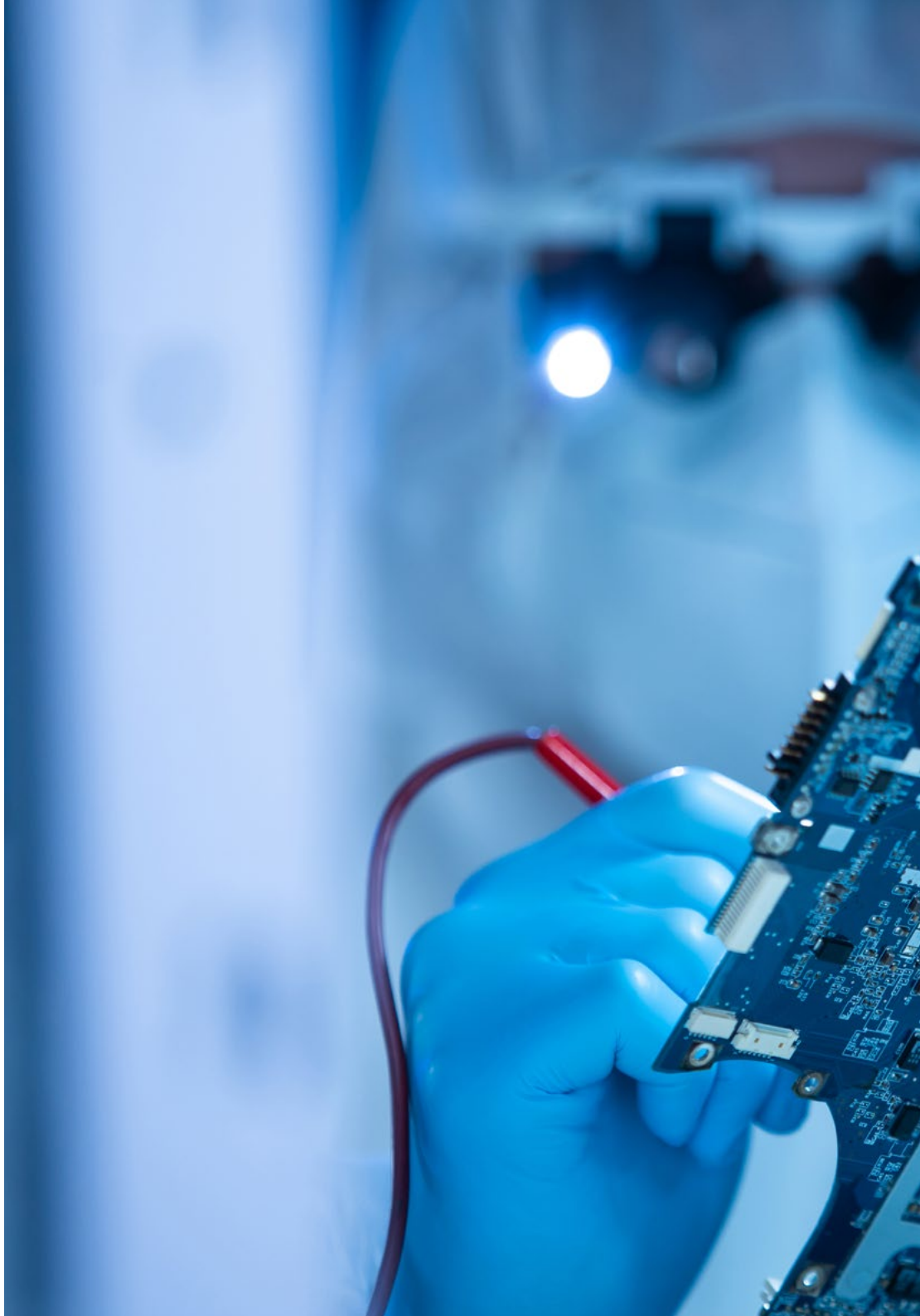
1.1. Introduction to Programming
- 1.1.1. Basic Structure of a Computer
- 1.1.2. Software
- 1.1.3. Programming Languages
- 1.1.4. Life Cycle of a Software Application

1.2. Algorithm Design
- 1.2.1. Problem Solving
- 1.2.2. Descriptive Techniques
- 1.2.3. Algorithm Elements and Structure

1.3. Elements of a Program
- 1.3.1. C++ Origin and Features
- 1.3.2. Development Environment
- 1.3.3. Concept of Program
- 1.3.4. Types of Fundamental Data
- 1.3.5. Operators
- 1.3.6. Expressions
- 1.3.7. Statements
- 1.3.8. Data Input and Output

1.4. Control Sentences
- 1.4.1. Statements
- 1.4.2. Branches
- 1.4.3. Loops

1.5. Abstraction and Modularity: Functions
- 1.5.1. Modular Design
- 1.5.2. Concept of Function and Utility
- 1.5.3. Definition of a Function
- 1.5.4. Execution Flow in a Function Call
- 1.5.5. Function Prototypes
- 1.5.6. Results Return
- 1.5.7. Calling a Function: Parameters
- 1.5.8. Passing Parameters by Reference and by Value
- 1.5.9. Scope Identifier



1.6. Static Data Structures
- 1.6.1. Arrays
- 1.6.2. Matrices. Polyhedra
- 1.6.3. Searching and Sorting
- 1.6.4. Chaining: I/O Functions for Chains
- 1.6.5. Structures. Unions
- 1.6.6. New Types of Data

1.7. Dynamic Data Structures: Pointers
- 1.7.1. Concept. Definition of Pointer
- 1.7.2. Pointer Operators and Operations
- 1.7.3. Pointer Arrays
- 1.7.4. Pointers and Arrays
- 1.7.5. Chain Pointers
- 1.7.6. Structure Pointers
- 1.7.7. Multiple Indirection
- 1.7.8. Function Pointers
- 1.7.9. Function, Structure and Array Passing as Function Parameters

1.8. Files
- 1.8.1. Basic Concepts
- 1.8.2. File Operations
- 1.8.3. Types of Files
- 1.8.4. File Organization
- 1.8.5. Introduction to C++ Files
- 1.8.6. Managing Files

1.9. Recursion
- 1.9.1. Definition of Recursion
- 1.9.2. Types of Recursion
- 1.9.3. Advantages and Disadvantages
- 1.9.4. Considerations
- 1.9.5. Recursive-Iterative Conversion
- 1.9.6. Recursion Stack

1.10. Testing and Documentation
- 1.10.1. Program Testing
- 1.10.2. White Box Testing
- 1.10.3. Black Box Testing
- 1.10.4. Testing Tools
- 1.10.5. Program Documentation

Module 2. Data Structure

2.1. Introduction to C ++ Programming
- 2.1.1. Classes, Constructors, Methods and Attributes
- 2.1.2. Variables
- 2.1.3. Conditional Expressions and Loops
- 2.1.4. Objects

2.2. Abstract Data Types (ADT)
- 2.2.1. Types of Data
- 2.2.2. Basic Structures and TADs
- 2.2.3. Vectors and Arrays

2.3. Linear data Structures
- 2.3.1. TAD List. Definition
- 2.3.2. Linked and Doubly Linked Lists
- 2.3.3. Sorted Lists
- 2.3.4. Lists in C++
- 2.3.5. TAD Stack
- 2.3.6. TAD Queue
- 2.3.7. Stack and Queue in C++

2.4. Hierarchical Data Structures
- 2.4.1. TAD Tree
- 2.4.2. Paths
- 2.4.3. N-Ary Trees
- 2.4.4. Binary Trees
- 2.4.5. Binary Search Trees

2.5. Hierarchical Data Structures: Complex Trees
- 2.5.1. Perfectly Balanced or Minimum Height Trees
- 2.5.2. Multipath Trees
- 2.5.3. Bibliographical References

2.6. Priority Mounds and Queue
- 2.6.1. TAD Mounds
- 2.6.2. TAD Priority Queue

2.7. Hash Tables
- 2.7.1. Hash Table ADT
- 2.7.2. Hash Functions
- 2.7.3. Hash Function in Hash Tables
- 2.7.4. Redispersion
- 2.7.5. Open Hash Tables

2.8. Graphs
- 2.8.1. TAD Graph
- 2.8.2. Types of Graphs
- 2.8.3. Graphical Representation and Basic Operations
- 2.8.4. Graph Design

2.9. Algorithms and Advanced Graph Concepts
- 2.9.1. Problems about Graphs
- 2.9.2. Path Algorithms
- 2.9.3. Search or Path Algorithms
- 2.9.4. Other Algorithms

2.10. Other Data Structures
- 2.10.1. Sets
- 2.10.2. Parallel Arrays
- 2.10.3. Symbol Tables
- 2.10.4. Tries

Module 3. Algorithm and Complexity

3.1. Introduction to Algorithm Design Strategies
- 3.1.1. Recursion
- 3.1.2. Divide and Conquer
- 3.1.3. Other Strategies

3.2. Efficiency and Analysis of Algorithms
- 3.2.1. Efficiency Measures
- 3.2.2. Measuring the Size of the Input
- 3.2.3. Measuring Execution Time
- 3.2.4. Worst, Best and Average Case
- 3.2.5. Asymptotic Notation
- 3.2.6. Mathematical Analysis Criteria for Non-Recursive Algorithms
- 3.2.7. Mathematical Analysis of Recursive Algorithms
- 3.2.8. Empirical Analysis of Algorithms

3.3. Sorting Algorithms
- 3.3.1. Concept of Sorting
- 3.3.2. Bubble Sorting
- 3.3.3. Sorting by Selection
- 3.3.4. Sorting by Insertion
- 3.3.5. Mixed Sorting (merge_sort)
- 3.3.6. QuickSort (quick_sort)

3.4. Algorithms with Trees
- 3.4.1. Tree Concept
- 3.4.2. Binary Trees
- 3.4.3. Tree Paths
- 3.4.4. Representing Expressions
- 3.4.5. Ordered Binary Trees
- 3.4.6. Balanced Binary Trees

3.5. Algorithms Using Heaps
- 3.5.1. Heaps
- 3.5.2. The Heapsort Algorithm
- 3.5.3. Priority Queues

3.6. Graph Algorithms
- 3.6.1. Representation
- 3.6.2. Traversal in Width
- 3.6.3. Depth Travel
- 3.6.4. Topological Sorting

3.7. Greedy Algorithms
- 3.7.1. Greedy Strategy
- 3.7.2. Greedy Strategy Elements
- 3.7.3. Currency Exchange
- 3.7.4. Traveler's Problem
- 3.7.5. Backpack Problem

3.8. Minimal Path Finding
- 3.8.1. The Minimum Path Problem
- 3.8.2. Negative Arcs and Cycles
- 3.8.3. Dijkstra's Algorithm

3.9. Greedy Algorithms on Graphs
- 3.9.1. The Minimum Covering Tree
- 3.9.2. Prim's Algorithm
- 3.9.3. Kruskal's Algorithm
- 3.9.4. Complexity Analysis

3.10. Backtracking
- 3.10.1. Backtracking
- 3.10.2. Alternative Techniques

Module 4. Advanced Algorithms Design

4.1. Analysis of Recursive and Divide and Conquer Algorithms
- 4.1.1. Posing and Solving Homogeneous and Non-Homogeneous Recurrence Equations
- 4.1.2. General Description of the Divide and Conquer Strategy

4.2. Amortized Analysis
- 4.2.1. Aggregate Analysis
- 4.2.2. The Accounting Method
- 4.2.3. The Potential Method

4.3. Dynamic Programming and Algorithms for NP Problems
- 4.3.1. Characteristics of Dynamic Programming
- 4.3.2. Backtracking
- 4.3.3. Branching and Pruning

4.4. Combinatorial Optimization
- 4.4.1. Representation
- 4.4.2. 1D Optimization

4.5. Randomization Algorithms
- 4.5.1. Examples of Randomization Algorithms
- 4.5.2. The Buffon Theorem
- 4.5.3. Monte Carlo Algorithm
- 4.5.4. Las Vegas Algorithm

4.6. Local and Candidate Search
- 4.6.1. Gradient Ascent
- 4.6.2. Hill Climbing
- 4.6.3. Simulated Annealing
- 4.6.4. Taboo Search
- 4.6.5. Candidate Search

4.7. Formal Verification of Programs
- 4.7.1. Specification of Functional Abstractions
- 4.7.2. The Language of First-Order Logic
- 4.7.3. Hoare's Formal System

4.8. Verification of Iterative Programs
- 4.8.1. Rules of Hoare's Formal System
- 4.8.2. Concept of Invariant Iterations

4.9. Numeric Methods
- 4.9.1. The Bisection Method
- 4.9.2. Newton Raphson's Method
- 4.9.3. The Secant Method

4.10. Parallel Algorithms
- 4.10.1. Parallel Binary Operations
- 4.10.2. Parallel Operations with Networks
- 4.10.3. Parallelism in Divide and Conquer
- 4.10.4. Parallelism in Dynamic Programming

Module 5. Logic in Computer Science

5.1. Justification of the Logic
- 5.1.1. Object of Logic Study
- 5.1.2. What Is Logic for?
- 5.1.3. Components and Types of Reasoning
- 5.1.4. Components of a Logic Calculation
- 5.1.5. Semantics
- 5.1.6. Justification of the Existence of a Logic
- 5.1.7. How to Check that a Logic is Adequate

5.2. Calculation of Natural Deduction from Statements
- 5.2.1. Formal Language
- 5.2.2. Deductive Mechanism

5.3. Formalization and Deduction Strategies for Propositional Logic
- 5.3.1. Formalization Strategies
- 5.3.2. Natural Reasoning
- 5.3.3. Laws and Rules
- 5.3.4. Axiomatic Deduction and Natural Deduction
- 5.3.5. Calculating Natural Deduction
- 5.3.6. Primitive Rules of Propositional Calculus

5.4. Semantics of Propositional Logic
- 5.4.1. Truth Tables
- 5.4.2. Equivalence
- 5.4.3. Tautologies and Contradictions
- 5.4.4. Validation of Propositional Sentences
- 5.4.5. Validation by Means of Truth Tables
- 5.4.6. Validation Using Semantic Trees
- 5.4.7. Validation by Refutation

5.5. Applications of Propositional Logic: Logic Circuits
- 5.5.1. Basic Gates
- 5.5.2. Circuits
- 5.5.3. Mathematical Models of the Circuits
- 5.5.4. Minimization
- 5.5.5. The Second Canonical Form and the Minimum Form in Product of Additions
- 5.5.6. Other Gates

5.6. Natural Predicate Deduction Calculus
- 5.6.1. Formal Language
- 5.6.2. Deductive Mechanism

5.7. Formalization Strategies for Predicate Logic
- 5.7.1. Introduction to Formalization in Predicate Logic
- 5.7.2. Formalization Strategies with Quantifiers

5.8. Deduction Strategies for Predicate Logic
- 5.8.1. Reason for Omission
- 5.8.2. Presentation of the New Rules
- 5.8.3. Predicate Logic as a Natural Deduction Calculus

5.9. Applications of Predicate Logic: Introduction to Logic Programming
- 5.9.1. Informal Presentation
- 5.9.2. Prolog Elements
- 5.9.3. Re-Evaluation and Cut-Off

5.10. Set Theory, Predicate Logic and Its Semantics
- 5.10.1. Intuitive Set Theory
- 5.10.2. Introduction to Predicate Semantics

Module 6. Artificial Intelligence and Knowledge Engineering

6.1. Introduction to Artificial Intelligence and Knowledge Engineering
- 6.1.1. Brief History of Artificial Intelligence
- 6.1.2. Artificial Intelligence Today
- 6.1.3. Knowledge Engineering

6.2. Searching
- 6.2.1. Common Search Concepts
- 6.2.2. Uninformed Search
- 6.2.3. Informed Search

6.3. Boolean Satisfiability, Constraint Satisfiability and Automatic Planning
- 6.3.1. Boolean Satisfiability
- 6.3.2. Constraint Satisfiability Problems
- 6.3.3. Automatic Planning and PDDL
- 6.3.4. Planning as Heuristic Search
- 6.3.5. Planning with SAT

6.4. Artificial Intelligence in Games
- 6.4.1. Game Theory
- 6.4.2. Minimax and Alpha-Beta Pruning
- 6.4.3. Simulation: Monte Carlo

6.5. Supervised and Unsupervised Learning
- 6.5.1. Introduction to Machine Learning
- 6.5.2. Classification
- 6.5.3. Regression
- 6.5.4. Validation of Results
- 6.5.5. Clustering

6.6. Neural Networks
- 6.6.1. Biological Fundamentals
- 6.6.2. Computational Model
- 6.6.3. Supervised and Unsupervised Neuron Networks
- 6.6.4. Simple Perceptron
- 6.6.5. Multilayer Perceptron

6.7. Genetic Algorithms
- 6.7.1. History
- 6.7.2. Biological Basis
- 6.7.3. Problem Coding
- 6.7.4. Generation of the Initial Population
- 6.7.5. Main Algorithm and Genetic Operators
- 6.7.6. Evaluation of Individuals: Fitness

6.8. Thesauri, Vocabularies, Taxonomies
- 6.8.1. Vocabulary
- 6.8.2. Taxonomy
- 6.8.3. Thesauri
- 6.8.4. Ontologies

6.9. Knowledge Representation Semantic Web
- 6.9.1. Semantic Web
- 6.9.2. Specifications RDF, RDFS and OWL
- 6.9.3. Inference/ Reasoning
- 6.9.4. Linked Data

6.10. Expert systems and DSS
- 6.10.1. Expert Systems
- 6.10.2. Decision Support Systems

Module 7. Intelligent Systems

7.1. Agents Theory
- 7.1.1. Concept History
- 7.1.2. Agent Definition
- 7.1.3. Agents in Artificial Intelligence
- 7.1.4. Agents in Software Engineering

7.2. Agent Architectures
- 7.2.1. The Reasoning Process of an Agent
- 7.2.2. Reactive Agents
- 7.2.3. Deductive Agents
- 7.2.4. Hybrid Agents
- 7.2.5. Comparison

7.3. Information and Knowledge
- 7.3.1. Difference between Data, Information and Knowledge
- 7.3.2. Data Quality Assessment
- 7.3.3. Data Collection Methods
- 7.3.4. Information Acquisition Methods
- 7.3.5. Knowledge Acquisition Methods

7.4. Knowledge Representation
- 7.4.1. The Importance of Knowledge Representation
- 7.4.2. Definition of Knowledge Representation According to Roles
- 7.4.3. Knowledge Representation Features

7.5. Ontologies
- 7.5.1. Introduction to Metadata
- 7.5.2. Philosophical Concept of Ontology
- 7.5.3. Computing Concept of Ontology
- 7.5.4. Domain Ontologies and Higher-Level Ontologies
- 7.5.5. Building an Ontology

7.6. Ontology Languages and Ontology Creation Software
- 7.6.1. Triple RDF, Turtle and N3
- 7.6.2. RDF Schema
- 7.6.3. OWL
- 7.6.4. SPARQL
- 7.6.5. Introduction to Ontology Creation Tools
- 7.6.6. Installing and Using Protégé

7.7. Semantic Web
- 7.7.1. Current and Future Status of the Semantic Web
- 7.7.2. Semantic Web Applications

7.8. Other Knowledge Representation Models
- 7.8.1. Vocabulary
- 7.8.2. Global Vision
- 7.8.3. Taxonomy
- 7.8.4. Thesauri
- 7.8.5. Folksonomy
- 7.8.6. Comparison
- 7.8.7. Mind Maps

7.9. Knowledge Representation Assessment and Integration
- 7.9.1. Zero-Order Logic
- 7.9.2. First-Order Logic
- 7.9.3. Descriptive Logic
- 7.9.4. Relationship between Different Types of Logic
- 7.9.5. Prolog: Programming Based on First-Order Logic

7.10. Semantic Reasoners, Knowledge-Based Systems and Expert Systems
- 7.10.1. Concept of Reasoner
- 7.10.2. Reasoner Applications
- 7.10.3. Knowledge-Based Systems
- 7.10.4. MYCIN: History of Expert Systems
- 7.10.5. Expert Systems Elements and Architecture
- 7.10.6. Creating Expert Systems

Module 8. Machine Learning and Data Mining

8.1. Introduction to Knowledge Discovery Processes and Basic Concepts of Machine Learning
- 8.1.1. Key Concepts of Knowledge Discovery Processes
- 8.1.2. Historical Perspective of Knowledge Discovery Processes
- 8.1.3. Stages of the Knowledge Discovery Processes
- 8.1.4. Techniques Used in Knowledge Discovery Processes
- 8.1.5. Characteristics of Good Machine Learning Models
- 8.1.6. Types of Machine Learning Information
- 8.1.7. Basic Learning Concepts
- 8.1.8. Basic Concepts of Unsupervised Learning

8.2. Data Exploration and Pre-processing
- 8.2.1. Data Processing
- 8.2.2. Data Processing in the Data Analysis Flow
- 8.2.3. Types of Data
- 8.2.4. Data Transformations
- 8.2.5. Visualization and Exploration of Continuous Variables
- 8.2.6. Visualization and Exploration of Categorical Variables
- 8.2.7. Correlation Measures
- 8.2.8. Most Common Graphic Representations
- 8.2.9. Introduction to Multivariate Analysis and Dimensionality Reduction

8.3. Decision Trees
- 8.3.1. ID3 Algorithm
- 8.3.2. C4.5 Algorithm
- 8.3.3. Overtraining and Pruning
- 8.3.4. Analysis of Results

8.4. Evaluation of Classifiers
- 8.4.1. Confusion Matrixes
- 8.4.2. Numerical Evaluation Matrixes
- 8.4.3. Kappa Statistic
- 8.4.4. ROC Curves

8.5. Classification Rules
- 8.5.1. Rule Evaluation Measures
- 8.5.2. Introduction to Graphic Representation
- 8.5.3. Sequential Overlay Algorithm

8.6. Neural Networks
- 8.6.1. Basic Concepts
- 8.6.2. Simple Neural Networks
- 8.6.3. Backpropagation Algorithm
- 8.6.4. Introduction to Recurrent Neural Networks

8.7. Bayesian Methods
- 8.7.1. Basic Probability Concepts
- 8.7.2. Bayes' Theorem
- 8.7.3. Naive Bayes
- 8.7.4. Introduction to Bayesian Networks

8.8. Regression and Continuous Response Models
- 8.8.1. Simple Linear Regression
- 8.8.2. Multiple Linear Regression
- 8.8.3. Logistic Regression
- 8.8.4. Regression Trees
- 8.8.5. Introduction to Support Vector Machines (SVM)
- 8.8.6. Goodness-of-Fit Measures

8.9. Clustering
- 8.9.1. Basic Concepts
- 8.9.2. Hierarchical Clustering
- 8.9.3. Probabilistic Methods
- 8.9.4. EM Algorithm
- 8.9.5. B-Cubed Method
- 8.9.6. Implicit Methods

8.10. Text Mining and Natural Language Processing (NLP)
- 8.10.1. Basic Concepts
- 8.10.2. Corpus Creation
- 8.10.3. Descriptive Analysis
- 8.10.4. Introduction to Feelings Analysis

Module 9. Multiagent Systems and Computational Perception

9.1. Agents and Multiagent Systems
- 9.1.1. Concept of Agent
- 9.1.2. Architecture
- 9.1.3. Communication and Coordination
- 9.1.4. Programming Languages and Tools
- 9.1.5. Applications of the Agents
- 9.1.6. The FIPA

9.2. The Standard for Agents: FIPA
- 9.2.1. Communication between Agents
- 9.2.2. Agent Management
- 9.2.3. Abstract Architecture
- 9.2.4. Other Specifications

9.3. The JADE Platform
- 9.3.1. Software Agents According to JADE
- 9.3.2. Architecture
- 9.3.3. Installation and Execution
- 9.3.4. JADE Packages

9.4. Basic Programming with JADE
- 9.4.1. The Management Console
- 9.4.2. Basic Creation of Agents

9.5. Advanced Programming with JADE
- 9.5.1. Advanced Creation of Agents
- 9.5.2. Communication between Agents
- 9.5.3. Discovering Agents

9.6. Computer Vision
- 9.6.1. Processing and Digital Analysis of Images
- 9.6.2. Image Analysis and Artificial Vision
- 9.6.3. Image Processing and Human Vision
- 9.6.4. Image Capturing System
- 9.6.5. Image Formation and Perception

9.7. Digital Image Analysis
- 9.7.1. Stages of the Image Analysis Process
- 9.7.2. Pre-Processing
- 9.7.3. Basic Operations
- 9.7.4. Spatial Filtering

9.8. Digital Image Transformation and Image Segmentation
- 9.8.1. Fourier Transform
- 9.8.2. Frequency Filtering
- 9.8.3. Basic Concepts
- 9.8.4. Thresholding
- 9.8.5. Contour Detection

9.9. Shape Recognition
- 9.9.1. Feature Extraction
- 9.9.2. Classification Algorithms

9.10. Natural Language Processing
- 9.10.1. Automatic Speech Recognition
- 9.10.2. Computational Linguistics

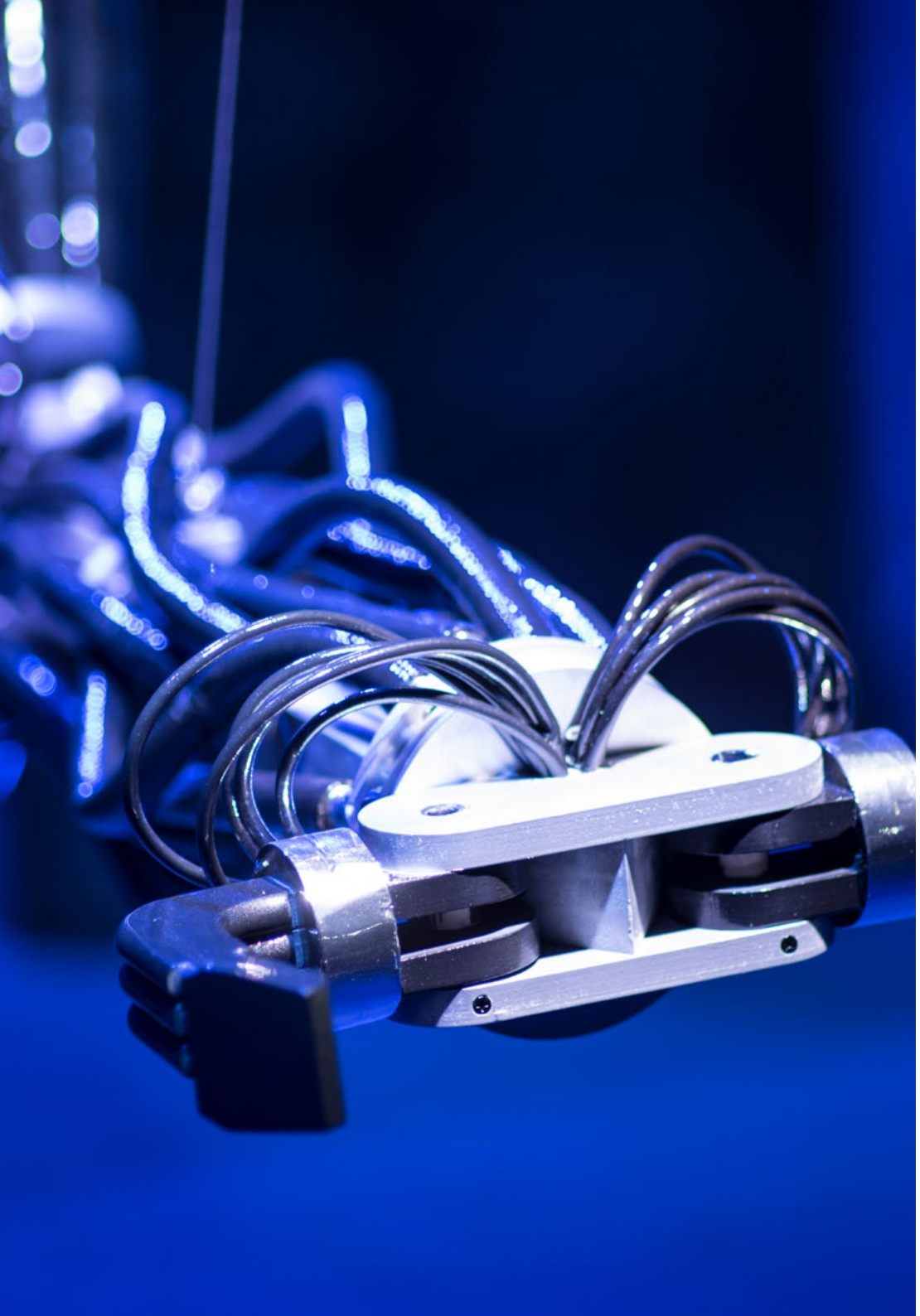
Module 10. Bio-Inspired Computing

10.1. Introduction to Bio-Inspired Computing
- 10.1.1. Introduction to Bio-Inspired Computing

10.2. Social Adaptation Algorithms
- 10.2.1. Bio-Inspired Computation Based on Ant Colonies
- 10.2.2. Variants of Ant Colony Algorithms
- 10.2.3. Particle Cloud Computing

10.3. Genetic Algorithms
- 10.3.1. General Structure
- 10.3.2. Implementations of the Major Operators

10.4. Space Exploration-Exploitation Strategies for Genetic Algorithms
- 10.4.1. CHC Algorithm
- 10.4.2. Multimodal Problems



10.5. Evolutionary Computing Models I
- 10.5.1. Evolutionary Strategies
- 10.5.2. Evolutionary Programming
- 10.5.3. Algorithms Based on Differential Evolution

10.6. Evolutionary Computation Models II
- 10.6.1. Evolutionary Models Based on Estimation of Distributions (EDA)
- 10.6.2. Genetic Programming

10.7. Evolutionary Programming Applied to Learning Problems
- 10.7.1. Rules-Based Learning
- 10.7.2. Evolutionary Methods in Instance Selection Problems

10.8. Multi-Objective Problems
- 10.8.1. Concept of Dominance
- 10.8.2. Application of Evolutionary Algorithms to Multi-Objective Problems

10.9. Neural Networks I
- 10.9.1. Introduction to Neural Networks
- 10.9.2. Practical Example with Neural Networks

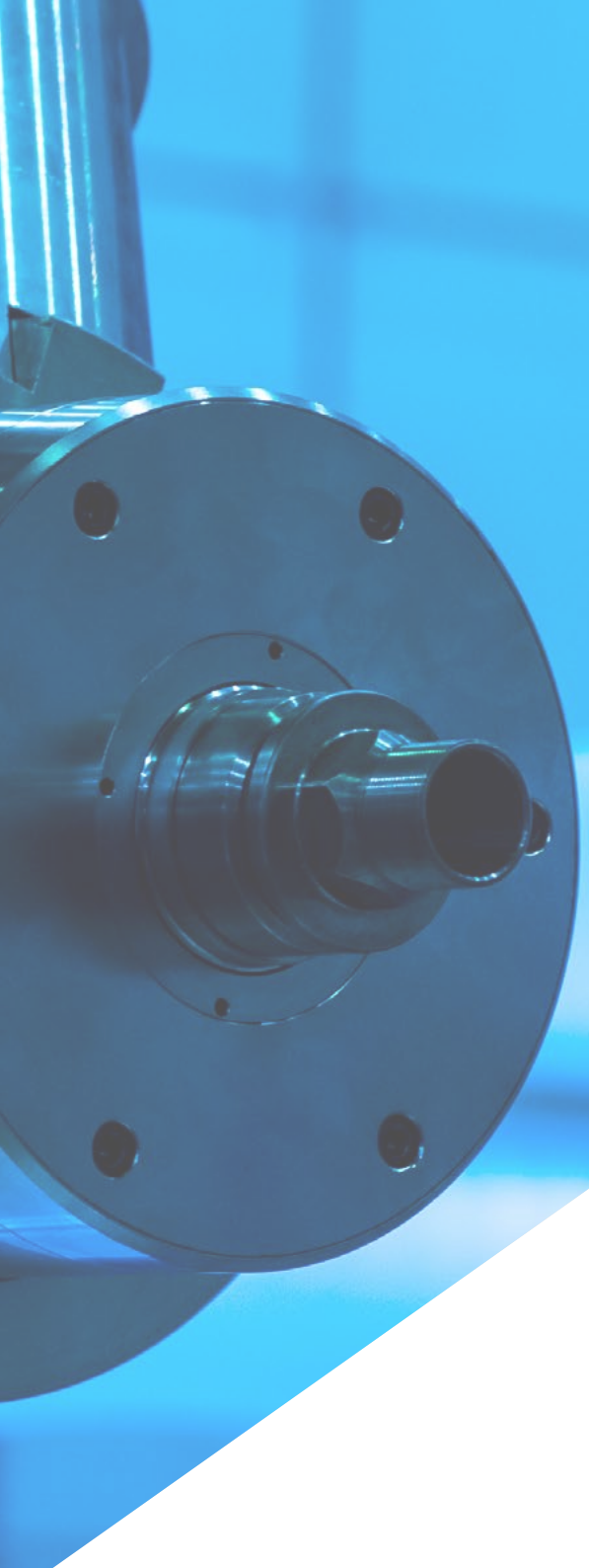
10.10. Neural Networks II
- 10.10.1. Use Cases of Neural Networks in Medical Research
- 10.10.2. Use Cases of Neural Networks in Economics
- 10.10.3. Use Cases of Neural Networks in Artificial Vision

Delve into Boolean and constraint satisfiability through automatic planning and PDDL as a heuristic or SAT search"

06

Internship

Although the theoretical education period will be a dynamic and highly rewarding experience for the development of the graduate's knowledge, the strong point of this Hybrid Professional Master's Degree is undoubtedly the practical experience of 3 weeks in a center of excellence in the IT sector. The best way to consolidate what has been learned is through autonomous work in a large company where, in addition, the student will have the opportunity to work with experts and learn from their strategies, and obtain work experience that can be included in their resume in a remarkable way.



It consists of 120 hours of practical experience in which you will be able to handle the most sophisticated computer tools of the current Artificial Engineering environment"

When TECH and its team of experts decide to undertake this program, they do so thinking of providing the graduate with another opportunity to continue growing professionally, while expanding their future possibilities. To this end, they have decided to create an eminently practical experience in a prestigious center, developed over 3 weeks and distributed in 120 hours, in which the student will have to go to the company from Monday to Friday in consecutive 8-hour days.

In this program, the activities are focused on the development and improvement of the necessary competences for the provision of activities related to Artificial Intelligence and Knowledge Engineering, and which are focused on the specific endowment for the exercise of the profession, with a high professional performance.

It is, therefore, a unique and incomparable opportunity to work on improving your skills and aptitudes with a team of experts who will ensure that you acquire the broadest and most specialized knowledge possible. Therefore, you will be able to shape your professional profile and implement the most innovative, complex and effective programming and computing strategies in your praxis, adapting your qualities to the current demand of the business sector.

The practical teaching will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and support of teachers and other fellow students to facilitate teamwork and multidisciplinary integration as transversal competencies for advanced computer praxis (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

Would you like to work with machine learning and data mining systems? With this program you will learn how to perfectly handle the main exploration and preprocessing software"

Module	Practical Activity
Programming and Data Structuring	Develop algorithms of different types
	Understand both dynamic and static data structures of programming languages
	Use testing techniques in computer programs
	Implement in C++ different types of data structures
	Understand more advanced data structures
	Use Hash tables
Algorithm Design	Use Greedy algorithms in common programming problems
	Backtracking and other alternative techniques in running algorithms
	Develop specific algorithms to cover specific problems of the project performed
	Develop advanced algorithms, making use of effective analysis for this task
	Perform formal program verification
	Optimize algorithms with combinatorial techniques
Artificial Intelligence and Knowledge Engineering	Use of artificial intelligences in different contexts
	Use genetic algorithms in the creation of Artificial Intelligences
	Program Artificial Intelligences based on the required context
	Create ontologies with specific language and software in intelligent systems
	Develop an agent architecture in intelligent systems
	Use knowledge-based expert systems and semantic webs
Create machine learning, data mining and multiagent systems	Develop in the use of simple and recurrent neural networks
	Use data preprocessing with decision tree-based algorithms
	Use confusion matrices and numerical evaluation to classify and evaluate classifiers
	Run multi-agent systems according to their own architecture
	Program and develop multi-agent systems with JADE

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.

General Conditions for Practical Training

The general terms and conditions of the internship program agreement shall be as follows:

1. TUTOR: During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

07

Where Can I Do the Internship?

Every year TECH selects hundreds of international companies so that its students have the opportunity to take an internship that guarantees them not only a series of minimum activities, but also an experience that will help them to fully develop as professionals. That is why programs like this are the best opportunity to be part of large entities in which they work with the most advanced technology and the most effective strategies, being able to implement to their practice and their resume the skills of a true specialist.

The experience you will gain from this internship will serve as a distinctive asset in any personnel selection process, thanks to the prestige of the company you will be working for"

The student will be able to complete the internship part of this Hybrid Professional Master's Degree at the following centers:

Information Technology

Grupo Fórmula

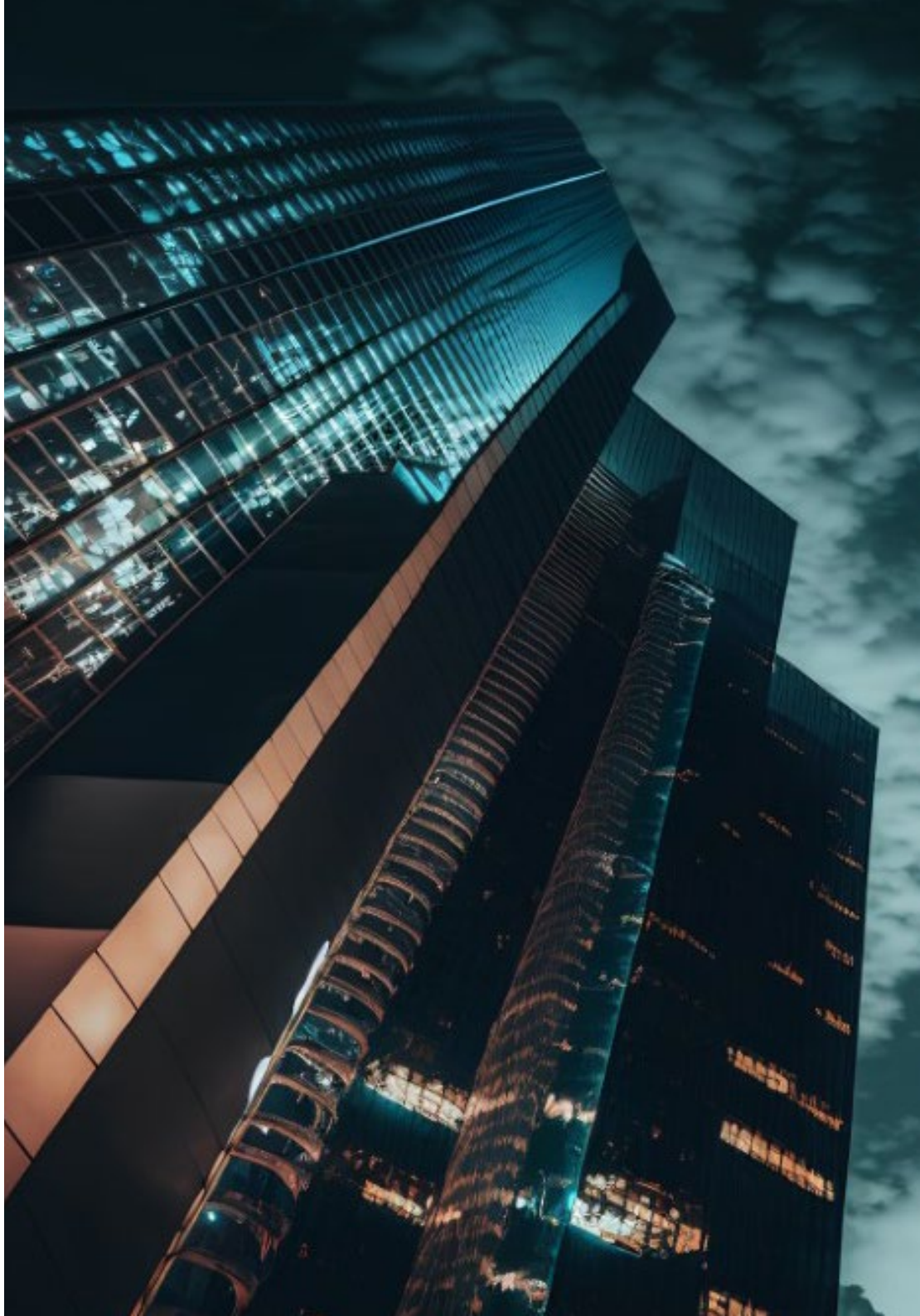
Country: Mexico

City: Mexico City

Address: Cda. San Isidro 44, Reforma Soc, Miguel Hidalgo, 11650 Ciudad de México, CDMX

Leading company in multimedia communication and content generation

Related internship programs:
Graphic Design
People Management



Enroll now and advance in your field of work with a comprehensive program that will allow you to put into practice everything you have learned"

08

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 Information Technology 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. Throughout the course, students 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

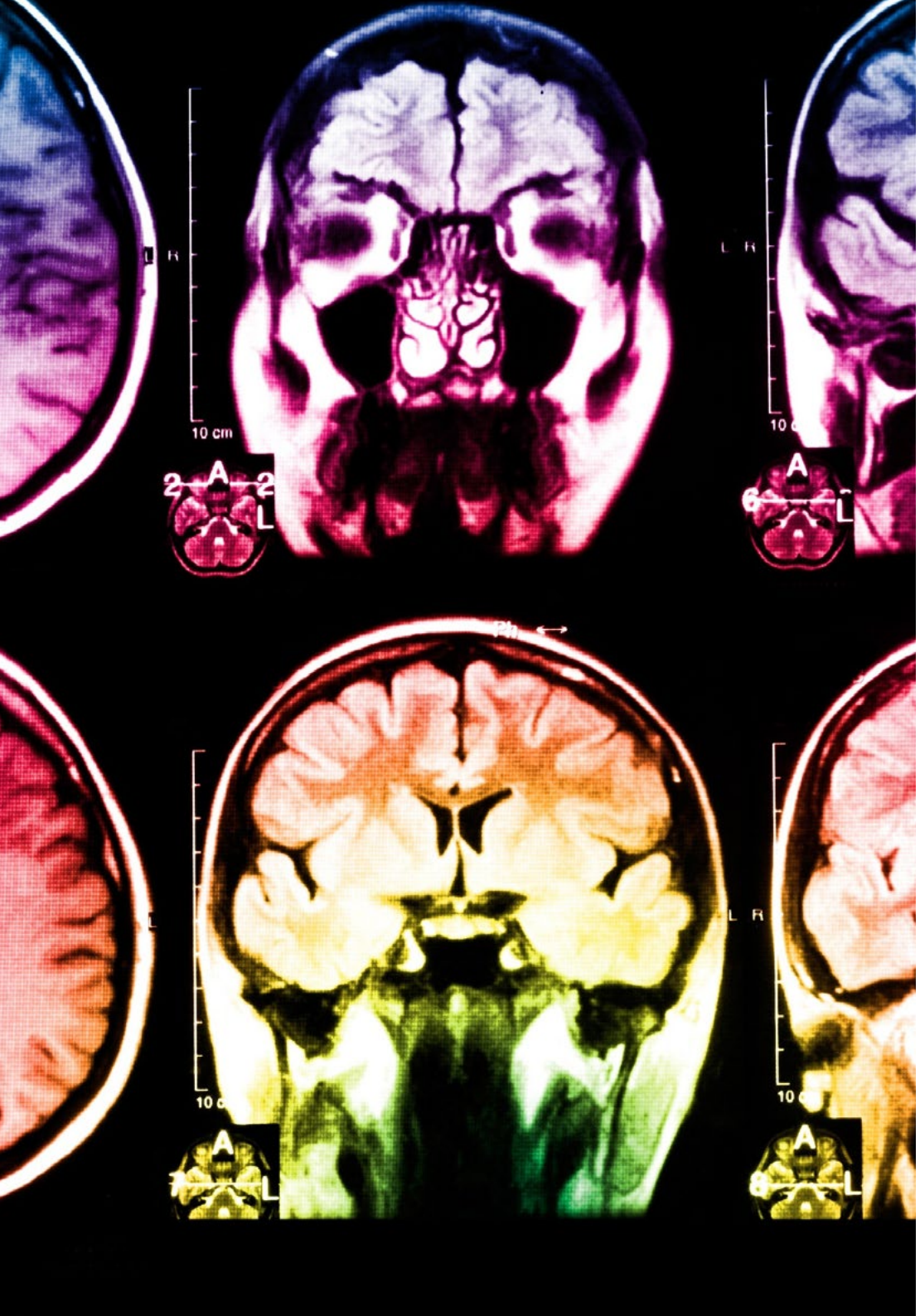
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

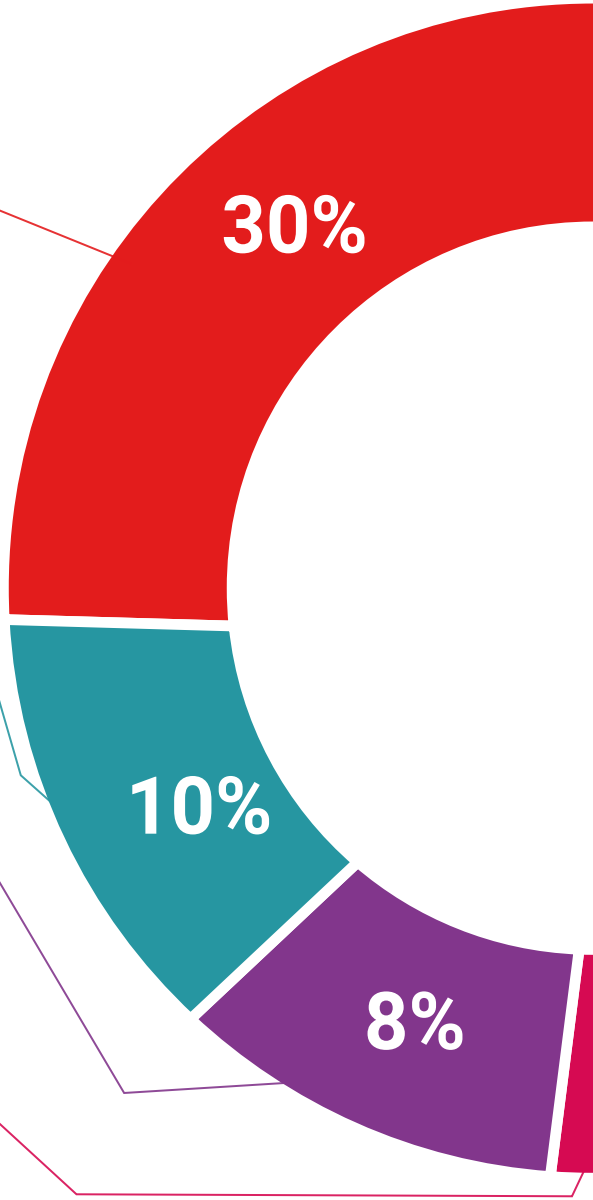
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

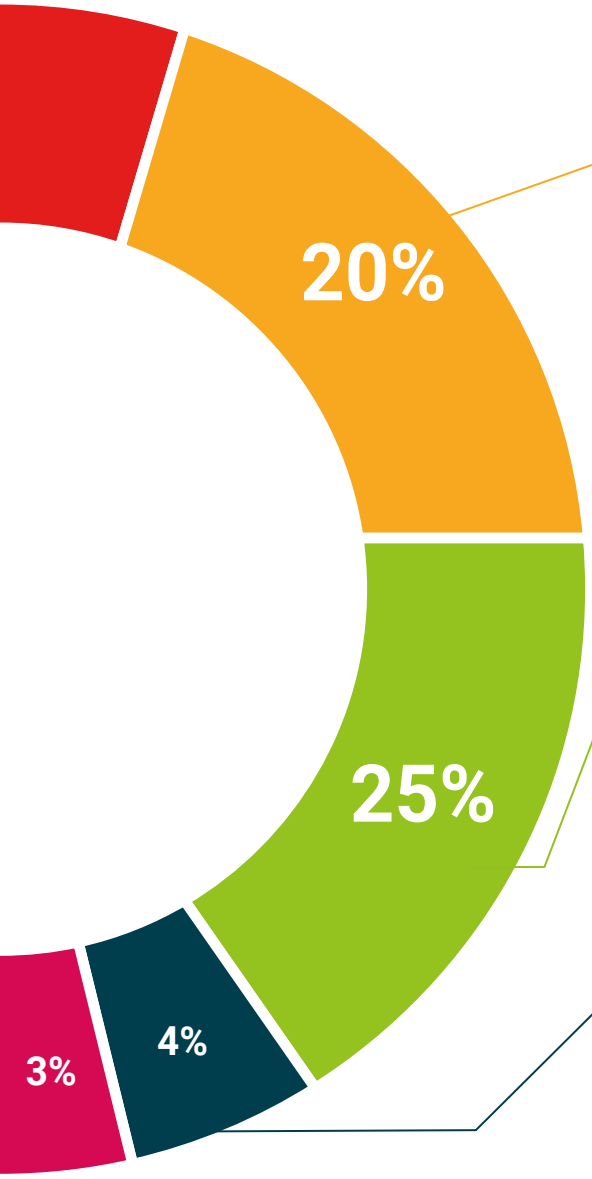
Practising Skills and Abilities

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.

09

Certificate

This Hybrid Professional Master's Degree in Artificial Intelligence and Knowledge Engineering guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree diploma issued by TECH Technological University.

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

This **Hybrid Professional Master's Degree in Artificial Intelligence and Knowledge Engineering** contains the most complete and up-to-date program on the professional and educational field.

After the student has passed the assessments, they will receive their corresponding Hybrid Professional Master's Degree diploma issued by TECH Technological University via tracked delivery*.

In addition to the diploma, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Hybrid Professional Master's Degree in Artificial Intelligence and Knowledge Engineering**

Modality: **Hybrid (Online + Internship)**

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.**


tech technological university

Awards the following

DIPLOMA

to

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

For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE

in

Artificial Intelligence and Knowledge Engineering

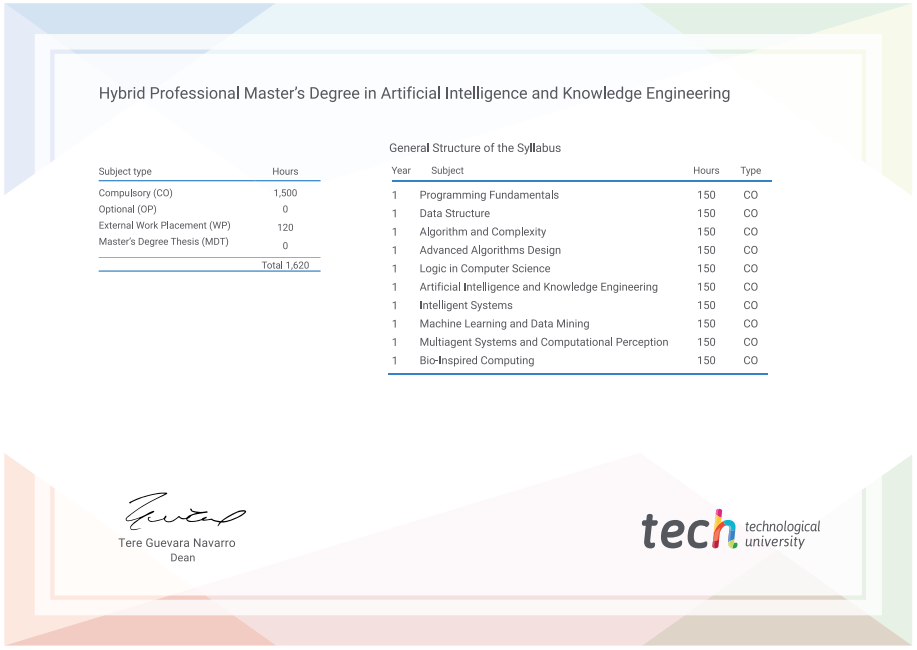
This is a qualification awarded by this University, with a duration of 1,620 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

Unique TECH Code: AFWORD23S techtitute.com/certificates


Hybrid Professional Master's Degree in Artificial Intelligence and Knowledge Engineering

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	120
Master's Degree Thesis (MDT)	0
	Total 1,620

General Structure of the Syllabus

Year	Subject	Hours	Type
1	Programming Fundamentals	150	CO
1	Data Structure	150	CO
1	Algorithm and Complexity	150	CO
1	Advanced Algorithms Design	150	CO
1	Logic in Computer Science	150	CO
1	Artificial Intelligence and Knowledge Engineering	150	CO
1	Intelligent Systems	150	CO
1	Machine Learning and Data Mining	150	CO
1	Multiagent Systems and Computational Perception	150	CO
1	Bio-Inspired Computing	150	CO

Tere Guevara Navarro
Dean

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*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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Hybrid Professional Master's Degree
Artificial Intelligence and Knowledge Engineering

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Hybrid Professional Master's Degree

Artificial Intelligence and Knowledge Engineering

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