

# Advanced Master's Degree Information Systems Management (Chief Information Officer)

A M D I S M





## Advanced Master's Degree Information Systems Management (Chief Information Officer)

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/school-of-business/advanced-master-degree/advanced-master-degree-information-systems-management-chief-information-officer](http://www.techtitute.com/us/school-of-business/advanced-master-degree/advanced-master-degree-information-systems-management-chief-information-officer)

# Index

01

Welcome

---

*p. 4*

02

Why Study at TECH?

---

*p. 6*

03

Why Our Program?

---

*p. 10*

04

Objectives

---

*p. 14*

05

Skills

---

*p. 20*

06

Structure and Content

---

*p. 26*

07

Methodology

---

*p. 44*

08

Our Students' Profiles

---

*p. 52*

09

Impact on Your Career

---

*p. 56*

10

Benefits for Your Company

---

*p. 60*

11

Certificate

---

*p. 64*

# 01

# Welcome

New technologies have been introduced in the field of business to improve production processes, decision-making, communication, and advertising... In short, to improve work and achieve a competitive advantage over other companies. However, in addition to having the appropriate infrastructure and software, it is necessary to have qualified professionals who are capable of managing and leading projects based on the information systems that best suit the company's objectives. At this point, the figure of the director of this area plays a fundamental role, since he/she will be the person in charge of designing and planning the actions based on information technologies that must be implemented. Business professionals, on the other hand, are increasingly interested in specializing in this field, as it is an area that is acquiring great importance in companies, making their advanced training in this field indispensable.



**Advanced Master's Degree in Information Systems Management (Chief Information Officer).  
TECH Technological University**



*Learn firsthand the importance of new technologies applied to the company and become a successful CIO"*

02

# Why Study at TECH?

TECH is the world's largest 100% online business school. It is an elite business school, with a model based on the highest academic standards. A world-class centre for intensive managerial skills training.



“

*TECH is a university at the forefront of technology, and puts all its resources at the student's disposal to help them achieve entrepreneurial success"*

## At TECH Technological University



### Innovation

The university offers an online learning model that combines the latest educational technology with the most rigorous teaching methods. A unique method with the highest international recognition that will provide students with the keys to develop in a rapidly-evolving world, where innovation must be every entrepreneur's focus.

"Microsoft Europe Success Story", for integrating the innovative, interactive multi-video system.



### The Highest Standards

Admissions criteria at TECH are not economic. Students don't need to make a large investment to study at this university. However, in order to obtain a qualification from TECH, the student's intelligence and ability will be tested to their limits. The institution's academic standards are exceptionally high...

**95%** | of TECH students successfully complete their studies



### Networking

Professionals from countries all over the world attend TECH, allowing students to establish a large network of contacts that may prove useful to them in the future.

**100,000+**  
executives trained each year

**200+**  
different nationalities



### Empowerment

Students will grow hand in hand with the best companies and highly regarded and influential professionals. TECH has developed strategic partnerships and a valuable network of contacts with major economic players in 7 continents.

**500+** | collaborative agreements with leading companies



### Talent

This program is a unique initiative to allow students to showcase their talent in the business world. An opportunity that will allow them to voice their concerns and share their business vision.

After completing this program, TECH helps students show the world their talent.



### Multicultural Context

While studying at TECH, students will enjoy a unique experience. Study in a multicultural context. In a program with a global vision, through which students can learn about the operating methods in different parts of the world, and gather the latest information that best adapts to their business idea.

TECH students represent more than 200 different nationalities.



TECH strives for excellence and, to this end, boasts a series of characteristics that make this university unique:



### Analysis

---

TECH explores the student's critical side, their ability to question things, their problem-solving skills, as well as their interpersonal skills.



### Academic Excellence

---

TECH offers students the best online learning methodology. The university combines the Relearning method (a postgraduate learning methodology with the highest international rating) with the Case Study. A complex balance between tradition and state-of-the-art, within the context of the most demanding academic itinerary.



### Economy of Scale

---

TECH is the world's largest online university. It currently boasts a portfolio of more than 10,000 university postgraduate programs. And in today's new economy, **volume + technology = a groundbreaking price**. This way, TECH ensures that studying is not as expensive for students as it would be at another university.



### Learn with the best

---

In the classroom, TECH's teaching staff discuss how they have achieved success in their companies, working in a real, lively, and dynamic context. Teachers who are fully committed to offering a quality specialization that will allow students to advance in their career and stand out in the business world.

Teachers representing 20 different nationalities.



*At TECH, you will have access to the most rigorous and up-to-date case studies in the academic community"*

03

# Why Our Program?

Studying this TECH program means increasing the chances of achieving professional success in senior business management.

It is a challenge that demands effort and dedication, but it opens the door to a promising future. Students will learn from the best teaching staff and with the most flexible and innovative educational methodology.



“

*We have highly qualified teachers and the most complete syllabus on the market, which allows us to offer you training of the highest academic level"*

This program will provide students with a multitude of professional and personal advantages, particularly the following:

**01**

### A significant career boost

---

By studying at TECH, students will be able to take control of their future and develop their full potential. By completing this program, students will acquire the skills required to make a positive change in their career in a short period of time.

*70% of participants achieve positive career development in less than 2 years.*

**02**

### Develop a strategic and global vision of companies

---

TECH offers an in-depth overview of general management to understand how each decision affects each of the company's different functional areas.

*Our global vision of companies will improve your strategic vision.*

**03**

### Consolidate the student's senior management skills

---

Studying at TECH means opening the doors to a wide range of professional opportunities for students to position themselves as senior executives, with a broad vision of the international environment.

*You will work on more than 100 real senior management cases.*

**04**

### Take on new responsibilities

---

The program will cover the latest trends, advances and strategies, so that students can carry out their professional work in a changing environment.

*45% of graduates are promoted internally.*

05

### Access to a powerful network of contacts

TECH connects its students to maximize opportunities. Students with the same concerns and desire to grow. Therefore, partnerships, customers or suppliers can be shared.

*You will find a network of contacts that will be instrumental for professional development.*

06

### Thoroughly develop business projects

Students will acquire a deep strategic vision that will help them develop their own project, taking into account the different areas in companies.

*20% of our students develop their own business idea.*

07

### Improve soft skills and management skills

TECH helps students apply and develop the knowledge they have acquired, while improving their interpersonal skills in order to become leaders who make a difference.

*Improve your communication and leadership skills and enhance your career.*

08

### Be part of an exclusive community

Students will be part of a community of elite executives, large companies, renowned institutions, and qualified professors from the most prestigious universities in the world: the TECH Technological University community.

*We give you the opportunity to train with a team of world renowned teachers.*

# 04 Objectives

This Advanced Master's Degree in Information Systems Management (Chief Information Officer) has been designed with the need for business professionals to specialize in this field in mind. Thus, students will find a multitude of theoretical and practical resources that will be essential to develop the necessary skills with which to act more safely and effectively in their daily practice. Undoubtedly, a program that will mark a before and after in your career and that will be the ideal complement to your basic training.



“

*A unique program with which you will be able to develop your skills to successfully manage information systems management”*

Your goals are our goals.

We work together to help you achieve them.

The **Advanced Master's Degree in Information Systems Management (Chief Information Officer)** will enable students to:

01

Develop strategies to carry out decision-making in a complex and unstable environment

04

Design innovative strategies and policies to improve management and business efficiency

02

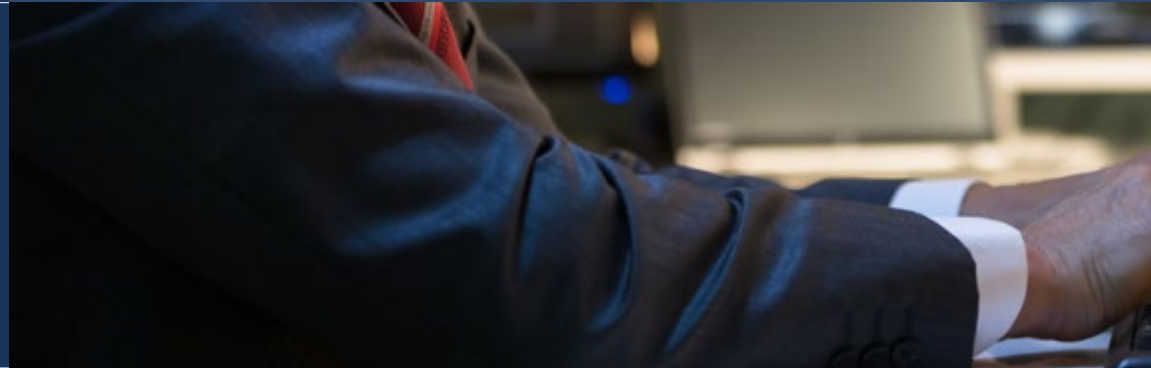
Create corporate strategies that set the script for the company to follow in order to be more competitive and achieve its own objectives

03

To develop the skills required to manage business activities strategically

05

Understand the best way to manage the company's human resources, getting greater performance from employees that, in turn, increases the company's profits





06

Acquire the communication skills that a business leader needs in order to ensure that their message is heard and understood by the members of their community

08

Be able to manage the company's economic and financial plan



09

Understand the logistical operations that are necessary in the business environment, so as to manage them appropriately

07

Understand the economic environment in which the company operates and develop appropriate strategies to anticipate changes

10

Be able to apply information and communication technologies to the different areas within a company

11

Learn the concepts related to energy, its types, measurements, conservation and units

14

Learn about the interface and implementation of operating systems, understanding the concepts of files, file systems, directory structure and their implementation, as well as the methods of allocation and management of free space

12

Know the history of computers, as well as the main types of existing organizations and architectures



13

Understand the operation of the memory hierarchy, the different types of storage and input/output issues

15

Deepen the knowledge of operating systems, their functions, process management, memory, directories and files, as well as the keys to their security and design objectives

16

Know the main free tools available in different areas such as operating systems, business management, content management systems and multimedia content creation, among others

18

Knowledge of the different mobile technologies and services currently available in the market



19

Understand the fundamentals of symmetric cryptography and asymmetric cryptography, as well as their main algorithms

17

Know the different network security mechanisms, as well as the different Internet security protocols

20

Acquire the essential concepts related to information systems in the enterprise, as well as identify the opportunities and needs of information systems in the enterprise

# 05 Skills

Business professionals are people with multidisciplinary training, especially in the case of managers, as they usually have advanced knowledge in different areas such as finance, communication and logistics. However, with the advance of new technologies, it is increasingly important that they specialize in information systems, so that they are able to manage them properly. This Advanced Master's Degree is designed to help you develop the necessary skills in this field so that you can work as efficiently and safely as possible.





“

*This program will allow you to develop the necessary skills to correctly manage your company's information systems"*

01

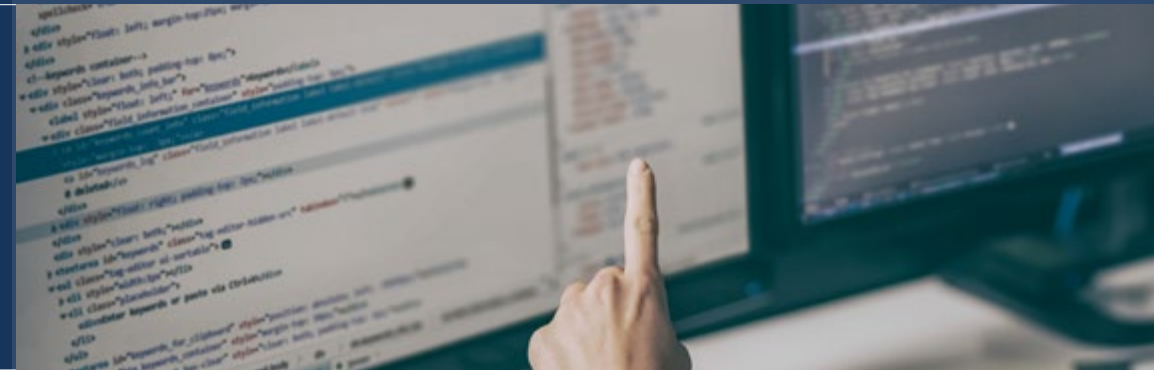
Correctly manage teams to improve productivity and, therefore, the company's profits

04

Delve into the new business models associated with information systems

02

Carry out the economic and financial control of the company



03

Control the company's logistics processes, as well as purchasing and procurement

05

Apply the most appropriate strategies to support e-commerce of the company's products

06

Develop and lead marketing plans

08

Lead the different projects in a company



09

Master the concepts of fields, waves and electromagnetism, electric circuit theory, electronic circuits, physical principle of semiconductors and logic families, among others, to solve possible problems related to these areas

07

Focus on innovation in all processes and areas of the company

10

Know, understand and evaluate the structure and architecture of computers

11

Know the structure, organization, operation and interconnection of computer systems

12

Perform programming of computers, operating systems, databases and software

13

Understanding operating systems and designing applications for their services

14

Know and understand the main characteristics of free software





15

Know the characteristics of computer networks and perform applications associated with them

16

Use tools to store, process and access information systems

17

Knowledge of possible network attacks and security systems to prevent them

18

Know the information systems in the company



06

# Structure and Content

This Advanced Master's Degree from TECH is a completely new program, as it includes, in the same syllabus, the most relevant aspects of business management and computer systems. In this way, students will be able to acquire a higher qualification that will be fundamental for their professional development. And They will achieve this thanks to the quality of the syllabus and the multitude of theoretical and practical resources that will make their learning much easier.



“

*Thanks to this complete syllabus you will be able to carry out a contextual study of the latest concepts in Information Systems Management"*

## Syllabus

The Advanced Master's Degree in Information Systems Management (Chief Information Officer) at TECH Technological University is an intensive program that prepares students to face business challenges and decisions both nationally and internationally. Its content is designed to promote the development of managerial skills that enable more rigorous decision-making in uncertain environments.

Throughout 3,000 hours of study, students will analyze a multitude of practical cases through individual work, achieving high quality learning that can be applied to their daily practice. It is, therefore, an authentic immersion in real business situations.

This program deals in depth with the main areas of the company and is designed for managers to understand the management of information systems from a strategic, international and innovative perspective.

A plan designed for students, focused on their professional improvement and that prepares them to achieve excellence in the field of Information Systems Management. A program that understands your needs and those of your company through innovative content based on the latest trends, and supported by the best educational methodology and an exceptional faculty, which will provide you with the competencies to solve critical situations in a creative and efficient way.

This program is developed over 2 years and is divided into 18 modules:

<b>Module 1</b>	Leadership, Ethics, and CSR
<b>Module 2</b>	Strategic Management and Executive Management
<b>Module 3</b>	People and Talent Management
<b>Module 4</b>	Economic and Financial Management
<b>Module 5</b>	Operations and Logistics Management
<b>Module 6</b>	Information Systems Management
<b>Module 7</b>	Commercial Management, Marketing, and Corporate Communication
<b>Module 8</b>	Innovation and Project Management
<b>Module 9</b>	Physical Fundamentals of Computing
<b>Module 10</b>	Computer Technology
<b>Module 11</b>	The Structure of Computers
<b>Module 12</b>	Operating Systems
<b>Module 13</b>	Advanced Operating System
<b>Module 14</b>	Free Software and Open Knowledge
<b>Module 15</b>	Computer Networks
<b>Module 16</b>	Emerging Technologies
<b>Module 17</b>	Information Systems Security
<b>Module 18</b>	Systems Integration



### Where, When and How is it Taught?

TECH Offers the Student the possibility of developing this program in a totally online way. Over the 2 years of training, you will be able to access all the contents of this program at any time, which will allow you to self-manage your study time.

*A unique, key, and decisive educational experience to boost your professional development and make the definitive leap.*

**Module 1. Leadership, Ethics, and CSR.**

**1.1. Globalization and Governance**

- 1.1.1. Globalization and Trends: Internationalization of Markets
- 1.1.2. Economic Environment and Corporate Governance
- 1.1.3. Accountability

**1.2. Leadership**

- 1.2.1. Intercultural Environment
- 1.2.2. Leadership and Business Management
- 1.2.3. Management Roles and Responsibilities

**1.3. Business ethics**

- 1.3.1. Ethics and Integrity
- 1.3.2. Ethical Behavior in Companies
- 1.3.3. Deontology, Codes of Ethics and Codes of Conduct
- 1.3.4. Fraud and Corruption Prevention

**1.4. Sustainability**

- 1.4.1. Business and Sustainable Development
- 1.4.2. Social, Environmental, and Economic Impact
- 1.4.3. Agenda 2030 and SDGs

**1.5. Corporate Social Responsibility**

- 1.5.1. Corporate Social Responsibility
- 1.5.2. Roles and Responsibilities
- 1.5.3. Implementing Corporate Social Responsibility

**Module 2. Strategic Management and Executive Management**

**2.1. Organizational Analysis and Design**

- 2.1.1. Organizational Culture
- 2.1.2. Organisational analysis
- 2.1.3. Designing the Organizational Structure

**2.2. Corporate Strategy**

- 2.2.1. Corporate Level Strategy
- 2.2.2. Types of Corporate Level Strategies
- 2.2.3. Determining the Corporate Strategy
- 2.2.4. Corporate Strategy and Reputational Image

**2.3. Strategic Planning and Formulation**

- 2.3.1. Strategic Thinking
- 2.3.2. Strategic Planning and Formulation
- 2.3.3. Sustainability and Corporate Strategy

**2.4. Strategic Models and Patterns**

- 2.4.1. Wealth, Value, and Return on Investments
- 2.4.2. Corporate Strategy: Methodologies
- 2.4.3. Growing and Consolidating the Corporate Strategy

**2.5. Strategic Management**

- 2.5.1. Strategic Mission, Vision, and Values
- 2.5.2. Balanced Scorecard
- 2.5.3. Analyzing, Monitoring, and Evaluating the Corporate Strategy
- 2.5.4. Strategic Management and Reporting

**2.6. Implementing and Executing Strategy**

- 2.6.1. Strategic implementation: objectives, actions and impacts
- 2.6.2. Strategic Alignment and Supervision
- 2.6.3. Continuous Improvement Approach

**2.7. Executive Management**

- 2.7.1. Integrating Functional Strategies into the Global Business Strategies
- 2.7.2. Management Policy and Processes
- 2.7.3. Knowledge Management

**2.8. Analyzing and Solving Cases/ Problems**

- 2.8.1. Problem Solving Methodology
- 2.8.2. Case Method
- 2.8.3. Positioning and Decision-Making

**Module 3. People and Talent Management**
**3.1. Organizational Behavior**

- 3.1.1. Organizational Theory
- 3.1.2. Key Factors for Change in Organizations
- 3.1.3. Corporate Strategies, Types, and Knowledge Management

**3.2. Strategic People Management**

- 3.2.1. Job Design, Recruitment, and Selection
- 3.2.2. Human Resources Strategic Plan: Design and Implementation
- 3.2.3. Job Analysis: Design and Selection of People
- 3.2.4. Training and Professional Development

**3.3. Management and Leadership Development**

- 3.3.1. Management Skills: 21st Century Competencies and Abilities
- 3.3.2. Non-Managerial Skills
- 3.3.3. Map of Skills and Abilities
- 3.3.4. Leadership and People Management

**3.4. Change Management**

- 3.4.1. Performance Analysis
- 3.4.2. Strategic Approach
- 3.4.3. Change Management: Key Factors, Process Design and Management
- 3.4.4. Continuous Improvement Approach

**3.5. Negotiation and Conflict Management**

- 3.5.1. Negotiation Objectives Differentiating Elements
- 3.5.2. Effective Negotiation Techniques
- 3.5.3. Conflicts: Factors and Types
- 3.5.4. Efficient Conflict Management: Negotiation and Communication

**3.6. Executive Communication**

- 3.6.1. Performance Analysis
- 3.6.2. Leading Change. Resistance to Change
- 3.6.3. Managing Change Processes
- 3.6.4. Managing Multicultural Teams

**3.7. Team Management and People Performance**

- 3.7.1. Multicultural and Multidisciplinary Environment
- 3.7.2. Team and People Management
- 3.7.3. Coaching and People Performance
- 3.7.4. Management Meetings: Planning and Time Management

**3.8. Knowledge and Talent Management**

- 3.8.1. Identifying Knowledge and Talent in Organizations
- 3.8.2. Corporate Knowledge and Talent Management Models
- 3.8.3. Creativity and Innovation

**Module 4. Economic and Financial Management**
**4.1. Economic Environment**

- 4.1.1. Organizational Theory
- 4.1.2. Key Factors for Change in Organizations
- 4.1.3. Corporate Strategies, Types, and Knowledge Management

**4.2. Executive Accounting**

- 4.2.1. International Accounting Framework
- 4.2.2. Introduction to the Accounting Cycle
- 4.2.3. Company Financial Statements
- 4.2.4. Analysis of Financial Statements: Decision-Making

**4.3. Budget and Management Control**

- 4.3.1. Budgetary Planning
- 4.3.2. Management Control: Design and Objectives
- 4.3.3. Supervision and *Reporting*

**4.4. Corporate Tax Responsibility**

- 4.4.1. Corporate Tax Responsibility
- 4.4.2. Tax Procedure: A Country-case Approach

**4.5. Corporate Control Systems**

- 4.5.1. Types of Control
- 4.5.2. Legal/Regulatory *Compliance*
- 4.5.3. Internal Auditing
- 4.5.4. External Auditing

**4.6. Financial Management**

- 4.6.1. Introduction to Financial Management
- 4.6.2. Financial Management and Corporate Strategy
- 4.6.3. Chief Financial Officer (CFO): Managerial Skills

**4.7. Financial Planning**

- 4.7.1. Business Models and Financing Needs
- 4.7.2. Financial Analysis Tools
- 4.7.3. Short-Term Financial Planning
- 4.7.4. Long-Term Financial Planning

**4.8. Corporate Financial Strategy**

- 4.8.1. Corporate Financial Investments
- 4.8.2. Strategic Growth: Types

**4.9. Macroeconomic Context**

- 4.9.1. Macroeconomic Analysis
- 4.9.2. Economic Indicators
- 4.9.3. Economic Cycle

**4.10. Strategic Financing**

- 4.10.1. Banking Business: Current Environment
- 4.10.2. Risk Analysis and Management

**4.11. Money and Capital Markets**

- 4.11.1. Fixed Income Market
- 4.11.2. Equity Market
- 4.11.3. Valuation of Companies

**4.12. Analyzing and Solving Cases/ Problems**

- 4.12.1. Problem Solving Methodology
- 4.12.2. Case Method

**Module 5. Operations and Logistics Management**

**5.1. Operations Management**

- 5.1.1. Define the Operations Strategy
- 5.1.2. Supply Chain Planning and Control
- 5.1.3. Indicator Systems

**5.2. Purchasing Management**

- 5.2.1. Stocks Management
- 5.2.2. Warehouse Management
- 5.2.3. Purchasing and Procurement Management

**5.3. Supply Chain Management (1)**

- 5.3.1. Costs and Efficiency of the Operations Chain
- 5.3.2. Change in Demand Patterns
- 5.3.3. Change in Operations Strategy

**5.4. Supply Chain Management (2). Implementation**

- 5.4.1. Lean Manufacturing/Lean Thinking
- 5.4.2. Logistics Management
- 5.4.3. Purchasing

**5.5. Logistical Processes**

- 5.5.1. Organization and Management by Processes
- 5.5.2. Procurement, Production, Distribution
- 5.5.3. Quality, Quality Costs, and Tools
- 5.5.4. After-Sales Service

**5.6. Logistics and Customers**

- 5.6.1. Demand Analysis and Forecasting
- 5.6.2. Sales Forecasting and Planning
- 5.6.3. Collaborative Planning, Forecasting, and Replacement

**5.7. International Logistics**

- 5.7.1. Customs, Export and Import processes
- 5.7.2. Methods and Means of International Payment
- 5.7.3. International Logistics Platforms

**5.8. Competing through Operations**

- 5.8.1. Innovation in Operations as a Competitive Advantage in the Company
- 5.8.2. Emerging Technologies and Sciences
- 5.8.3. Information Systems in Operations

**Module 6. Information Systems Management**

**6.1. Information Systems Management**

- 6.1.1. Business Information Systems
- 6.1.2. Strategic Decisions
- 6.1.3. The Role of the CIO

**6.2. Information Technology and Business Strategy**

- 6.2.1. Company and Industry Sector Analysis
- 6.2.2. Online Business Models
- 6.2.3. The Value of IT in a Company

**6.3. IS Strategic Planning**

- 6.3.1. The Process of Strategic Planning
- 6.3.2. Formulating the IS Strategy
- 6.3.3. Strategy Implementation Plan

**6.4. Information Systems and Business Intelligence**

- 6.4.1. CRM and Business Intelligence
- 6.4.2. Business Intelligence Project Management
- 6.4.3. Business Intelligence Architecture

**6.5. New ICT-Based Business Models**

- 5.5.1. Technology-Based Business Models
- 5.5.2. Innovation Abilities
- 5.5.3. Redesigning the Value Chain Processes

**6.6. E-Commerce**

- 6.6.1. E-Commerce Strategic Plan
- 6.6.2. Logistics Management and Customer Service in E-Commerce
- 6.6.3. E-Commerce as an Opportunity for Internationalization

**6.7. E-Business Strategies**

- 6.7.1. Social Media Strategies
- 6.7.2. Optimizing Service Channels and Customer Support
- 6.7.3. Digital Regulation

**6.8. Digital Business**

- 6.8.1. Mobile E-Commerce
- 6.8.2. Design and Usability
- 6.8.3. E-Commerce Operations



**Module 7. Commercial Management, Marketing, and Corporate Communications****7.1. Commercial Management**

- 7.1.1. Sales Management
- 7.1.2. Commercial Strategy
- 7.1.3. Sales and Negotiation Techniques
- 7.1.4. Management of Sales Teams

**7.2. Marketing**

- 7.2.1. Marketing and the Impact on the Company
- 7.2.2. Basic Marketing Variables
- 7.2.3. Marketing Plan

**7.3. Strategic Marketing Management**

- 7.3.1. Sources of Innovation
- 7.3.2. Current Trends in Marketing
- 7.3.3. Marketing Tools
- 7.3.4. Marketing Strategy and Communication with Customers

**7.4. Digital Marketing Strategy**

- 7.4.1. Approach to Digital Marketing
- 7.4.2. Digital Marketing Tools
- 7.4.3. Inbound Marketing and the Evolution of Digital Marketing

**7.5. Sales and Communication Strategy**

- 7.5.1. Positioning and Promotion
- 7.5.2. Public Relations
- 7.5.3. Sales and Communication Strategy

**7.6. Corporate Communication**

- 7.6.1. Internal and External Communication
- 7.6.2. Communication Departments
- 7.6.3. Communication Managers: Managerial Skills and Responsibilities

**7.7. Corporate Communication Strategy**

- 7.7.1. Corporate Communication Strategy
- 7.7.2. Communication Plan
- 7.7.3. Press Release/Clipping/Publicity Writing

**Module 8. Innovation and Project Management****8.1. Innovation**

- 8.1.1. Macro Concept of Innovation
- 8.1.2. Types of Innovation
- 8.1.3. Continuous and Discontinuous Innovation
- 8.1.4. Training and Innovation

**8.2. Innovation Strategy**

- 8.2.1. Innovation and Corporate Strategy
- 8.2.2. Global Innovation Project: Design and Management
- 8.2.3. Innovation Workshops

**8.3. Business Model Design and Validation**

- 8.3.1. The Lean Start-up Methodology
- 8.3.2. Innovative Business Initiative: Stages
- 8.3.3. Financing Arrangements
- 8.3.4. Model Tools: Empathy Map, Canvas Model, and Metrics
- 8.3.5. Growth and Loyalty

**8.4. Project Management**

- 8.4.1. Innovation Opportunities
- 8.4.2. Feasibility Study and Proposal Specification
- 8.4.3. Project Definition and Design
- 8.4.4. Project Execution
- 8.4.5. Project Closure

**Module 9. Physical Fundamentals of Computing**

**9.1. Fundamental Forces**

- 9.1.1. Newton's Second Law
- 9.1.2. The Fundamental Forces of Nature
- 9.1.3. Gravitational Force
- 9.1.4. The Electric Force

**9.2. Conservation Laws**

- 9.2.1. What is Mass?
- 9.2.2. The Electric Charge
- 9.2.3. The Millikan Experiment
- 9.2.4. Conservation of Linear Momentum

**9.3. Energy**

- 9.3.1. What is Energy?
- 9.3.2. Measuring Energy
- 9.3.3. Energy Types
- 9.3.4. Dependence on the Observer's Energy
- 9.3.5. Potential Energy
- 9.3.6. Derivation of Potential Energy
- 9.3.7. Energy Conservation
- 9.3.8. Energy Units

**9.4. Electric Field**

- 9.4.1. Static Electricity
- 9.4.2. Electric Field
- 9.4.3. Capacity
- 9.4.4. Potential

**9.5. Electrical Circuits**

- 9.5.1. Circulation of Electric Charge
- 9.5.2. Batteries
- 9.5.3. Alternating Current

**9.6. Magnetism**

- 9.6.1. Introduction and Magnetic Materials
- 9.6.2. Magnetic Field
- 9.6.3. Electromagnetic Introduction

**9.7. Electromagnetic Spectrum**

- 9.7.1. Maxwell's Equations
- 9.7.2. Optics and Electromagnetic Waves
- 9.7.3. The Michelson Morley Experiment

**9.8. The Atom and Subatomic Particles**

- 9.8.1. The Atom
- 9.8.2. The Atomic Nucleus
- 9.8.3. Radioactivity

**9.9. Quantum Physics**

- 9.9.1. Color and Heat
- 9.9.2. Photoelectric Effect
- 9.9.3. Matter Waves
- 9.9.4. Nature as Probability

**9.10. Relativity**

- 9.10.1. Gravity, Space and Time
- 9.10.2. Lorentz Transformations
- 9.10.3. Speed and Time
- 9.10.4. Energy, Momentum and Mass

**Module 10. Computer Technology****10.1. General Information and a Brief History of Computers**

- 10.1.1. Organization and Architecture
- 10.1.2. Brief History of Computers

**10.2. Computer Arithmetic**

- 10.2.1. The Arithmetic-Logic Unit
- 10.2.2. Numbering Systems
- 10.2.3. Integer Representation
- 10.2.4. Arithmetic with Integers
- 10.2.5. Floating Point Representation
- 10.2.6. Floating Point Arithmetic

**10.3. Classic Concepts of Logic Design**

- 10.3.1. Boolean Algebra
- 10.3.2. Logic Gates
- 10.3.3. Logical Simplification
- 10.3.4. Combinational Circuits
- 10.3.5. Sequential Circuits
- 10.3.6. Concept of Sequential Machine
- 10.3.7. Memory Element
- 10.3.8. Types of Memory Elements
- 10.3.9. Synthesis of Sequential Circuits
- 10.3.10. Synthesis of Sequential Circuits with PLA

**10.4. Basic Computer Organization and Operation**

- 10.4.1. Introduction
- 10.4.2. Components of a Computer
- 10.4.3. Operation of a Computer
- 10.4.4. Interconnection Structures
- 10.4.5. Interconnection with Buses
- 10.4.6. PCI Bus

**10.5. Internal Memory**

- 10.5.1. Introduction to Memory Systems in Computers
- 10.5.2. Semiconductor Main Memory
- 10.5.3. Correction of Errors
- 10.5.4. Advanced DRAM Memory Organization

**10.6. Input/Output**

- 10.6.1. External Devices
- 10.6.2. Input/Output Modules
- 10.6.3. Scheduled Input/Output
- 10.6.4. Input/Output via Interrupts
- 10.6.5. Direct Memory Access
- 10.6.6. Input/Output Channels and Processors

**10.7. Machine Instructions: Features and Functions**

- 10.7.1. Characteristics of Machine Instructions
- 10.7.2. Types of Operands
- 10.7.3. Types of Operations
- 10.7.4. Assembly Language
- 10.7.5. Address
- 10.7.6. Formats of Instructions

**10.8. Processor Structure and Operation**

- 10.8.1. Processor Organization
- 10.8.2. Record Organization
- 10.8.3. Training Cycle
- 10.8.4. Instruction Segmentation

**10.9. Cache and External Memory**

- 10.9.1. Basic Principles of Cache Memories
- 10.9.2. Cache Design Elements
- 10.9.3. Magnetic Disks
- 10.9.4. RAID
- 10.9.5. Optical Memory
- 10.9.6. Magnetic Tape

**10.10. Introduction to the Operation of the Control Unit**

- 10.10.1. Microoperations
- 10.10.2. Processor Control
- 10.10.3. Wired Implementation

## Module 11. The Structure of Computers

### 11.1. Fundamentals of Computer Design and Evolution

- 11.1.1. Definition of Computer Architecture
- 11.1.2. Evolution and Performance of Architectures
- 11.1.3. Parallel Architectures and Levels of Parallelism

### 11.2. Computer Performance Evaluation

- 11.2.1. Performance Measures
- 11.2.2. Test Programs (benchmarks)
- 11.2.3. Improved Performance
- 11.2.4. Costs of a Computer

### 11.3. Leveraging the Memory Hierarchy

- 11.3.1. Memory Hierarchy
- 11.3.2. Basic Concepts of the Cache
- 11.3.3. Cache Evaluation and Improvements
- 11.3.4. Virtual Memory

### 11.4. Storage and Other Input/Output Aspects

- 11.4.1. Reliability, Dependability and Availability
- 11.4.2. Disk Storage
- 11.4.3. Flash Storage
- 11.4.4. Connection and Information Transfer Systems

### 11.5. Segmented Processors

- 11.5.1. What are Segmented Processors?
- 11.5.2. Principles of Segmentation and Performance Enhancement
- 11.5.3. Segmented Processor Design
- 11.5.4. Optimization of Functional Channels
- 11.5.5. Interrupt Handling on a Segmented Processor

### 11.6. Superscalar Processors

- 11.6.1. What are Superscalar Processors?
- 11.6.2. Parallelism between Instructions and Machine Parallelism
- 11.6.3. Superscalar Instruction Processing
- 11.6.4. Jump Instruction Processing
- 11.6.5. Interrupt Handling on a Superscalar Processor

### 11.7. VLIW Processors

- 11.7.1. What are VLIW Processors?
- 11.7.2. Exploiting Parallelism in VLIW Architectures
- 11.7.3. Compiler Support Resources

### 11.8. Vector Processors

- 11.8.1. What are Vector Processors?
- 11.8.2. Vector Architecture
- 11.8.3. The Memory System in Vector Processors
- 11.8.4. Performance Measurements on Vector Processors
- 11.8.5. Vector Processing Efficiency

### 11.9. Parallel Computers

- 11.9.1. Parallel Architectures and Levels of Parallelism
- 11.9.2. Motivation to the Study of Parallel Computers
- 11.9.3. Design Space. Classification and General Structure
- 11.9.4. Performance on Parallel Computers
- 11.9.5. Classification of Communication Systems in Parallel Computers
- 11.9.6. General Structure of the Communication System in Parallel Computers
- 11.9.7. The Network Interface in Parallel Computers
- 11.9.8. The Interconnection Network in Parallel Computers
- 11.9.9. Communication System Performance on Parallel Computers

### 11.10. Interconnection Networks and Multiprocessors

- 11.10.1. Topology and Types of Interconnection Networks
- 11.10.2. Switching in Interconnection Networks
- 11.10.3. Flow Control in Interconnection Networks
- 11.10.4. Routing in Interconnection Networks
- 11.10.5. Memory System Coherence on Multiprocessors
- 11.10.6. Multiprocessor Memory Consistency
- 11.10.7. Multiprocessor Synchronization

**Module 12. Operating Systems****12.1. Introduction to Operating Systems**

- 12.1.1. Concept
- 12.1.2. Historical Recap
- 12.1.3. Fundamental Building Blocks of Operating Systems
- 12.1.4. Objectives and Functions of Operating Systems

**12.2. Structure of Operating Systems**

- 12.2.1. Operating System Services
- 12.2.2. Operating System User Interface
- 12.2.3. System Calls
- 12.2.4. Types of System Calls

**12.3. Process Planning**

- 12.3.1. Basic Concepts
- 12.3.2. Planning Criteria
- 12.3.3. Planning Algorithms

**12.4. Processes and Threads**

- 12.4.1. Process Concept
- 12.4.2. Thread Concept
- 12.4.3. Process Status
- 12.4.4. Process Control

**12.5. Concurrency, Mutual Exclusion, Synchronization, and Interlocking**

- 12.5.1. Principles of Concurrency
- 12.5.2. Mutual Exclusion
- 12.5.3. Traffic Lights
- 12.5.4. Monitors
- 12.5.5. Message Passing
- 12.5.6. Fundamentals of Interlocking
- 12.5.7. Interlock Prevention
- 12.5.8. Interlock Avoidance
- 12.5.9. Interlock Detection and Recovery

**12.6. Memory Management**

- 12.6.1. Memory Management Requirements
- 12.6.2. Process Memory Model
- 12.6.3. Contiguous Assignment Scheme
- 12.6.4. Segmentation
- 12.6.5. Pagination
- 12.6.6. Segmented Pagination

**12.7. Virtual Memory**

- 12.7.1. Virtual Memory Fundamentals
- 12.7.2. Life Cycle of a Page
- 12.7.3. Virtual Memory Management Policy
- 12.7.4. Localization Policy
- 12.7.5. Extraction Policy
- 12.7.6. Replacement Policy

**12.8. Input/Output System**

- 12.8.1. Input/Output Devices
- 12.8.2. Input/Output System Organization
- 12.8.3. Use of Buffers
- 12.8.4. Magnetic Disk

**12.9. File System Interface and Implementation**

- 12.9.1. Archiving Concept
- 12.9.2. Access Methods
- 12.9.3. Directory Structure
- 12.9.4. Structure of a File System
- 12.9.5. File System Interface and Implementation
- 12.9.6. Directories System Interface and Implementation
- 12.9.7. Allocation Methods
- 12.9.8. Management of Free Space

**12.10. Protection**

- 12.10.1. Objectives
- 12.10.2. Authentication
- 12.10.3. Authorization
- 12.10.4. Cryptography

## Module 13. Advanced Operating System

### 13.1. Concept of System Operations

- 13.1.1. Operating System Functions
- 13.1.2. Process Management
- 13.1.3. Memory Management
- 13.1.4. Directory and File Management
- 13.1.5. The Shell: Interactivity
- 13.1.6. Security/Safety
- 13.1.7. Design Objectives

### 13.2. History of Operating Systems

- 13.2.1. The First Generation
- 13.2.2. The Second Generation
- 13.2.3. Third Generation
- 13.2.4. Fourth Generation
- 13.2.5. The OS/2 Case
- 13.2.6. The History of GNU/Linux
- 13.2.7. The History of Windows

### 13.3. Structure of an Operating System

- 13.3.1. Monolithic Systems
- 13.3.2. Layered Systems
- 13.3.3. Virtualisation
- 13.3.4. Exokernel
- 13.3.5. Client-server Model
- 13.3.6. Distributed Systems

### 13.4. System Calls

- 13.4.1. System Calls. Concepts
- 13.4.2. System Calls for Process Management
- 13.4.3. System Calls for File and Directory Administration
- 13.4.4. Calls to the Communication System

### 13.5. Windows and GNU/Linux

- 13.5.1. Windows Structure
- 13.5.2. Structure of GNU/Linux

### 13.6. The GNU/Linux Shell and PowerShell

- 13.6.1. The Command Interpreter
- 13.6.2. Using the Command Interpreter
- 13.6.3. GNU/Linux Commands
- 13.6.4. Basic PowerShell Syntax
- 13.6.5. Basic PowerShell Commands

### 13.7. Shell Programming

- 13.7.1. Script Programming
- 13.7.2. Syntax

### 13.8. System Programming in GNU/Linux

- 13.8.1. C Language under UNIX
- 13.8.2. Compilation Tools
- 13.8.3. Error Handling

### 13.9. System Calls on Files

- 13.9.1. Basic Calls
- 13.9.2. Calls on Directories
- 13.9.3. Advanced Calls

### 13.10. System Calls on Processes

- 13.10.1. Basic Calls
- 13.10.2. Signals
- 13.10.3. Pipelines

**Module 14. Free Software and Open Knowledge****14.1. Introduction to Free Software**

- 14.1.1. History of Free Software
- 14.1.2. "Freedom" in Software
- 14.1.3. Licenses for the Use of Software Tools
- 14.1.4. Intellectual Property of Software
- 14.1.5. What is the Motivation for Using Free Software?
- 14.1.6. Free Software Myths
- 14.1.7. Top 500

**14.2. Open Knowledge and CC Licenses**

- 14.2.1. Basic Concepts
- 14.2.2. Creative Commons Licenses
- 14.2.3. Other Content Licenses
- 14.2.4. Wikipedia and Other Open Knowledge Projects

**14.3. Main Free Software Tools**

- 14.3.1. Operating Systems
- 14.3.2. Office Applications
- 14.3.3. Business Management Applications
- 14.3.4. Web Content Managers
- 14.3.5. Multimedia Content Creation Tools
- 14.3.6. Other Applications

**14.4. The Company: Free Software and its Costs**

- 14.4.1. Free Software: Yes or No?
- 14.4.2. Truths and Lies about Free Software
- 14.4.3. Business Software Based on Free Software
- 14.4.4. Software Costs
- 14.4.5. Free Software Models

**14.5. The GNU/Linux Operating System**

- 14.5.1. Architecture
- 14.5.2. Basic Directory Structure
- 14.5.3. File System Characteristics and Structure
- 14.5.4. Internal Representation of the Files

**14.6. The Android Mobile Operating System**

- 14.6.1. History
- 14.6.2. Architecture
- 14.6.3. Android Forks
- 14.6.4. Introduction to Android Development
- 14.6.5. Frameworks for Mobile Application Development

**14.7. Website Creation with WordPress**

- 14.7.1. WordPress Features and Structure
- 14.7.2. Creation of Sites on WordPress.com
- 14.7.3. Installation and Configuration of WordPress on your own Server
- 14.7.4. Installing Plugins and Extending WordPress
- 14.7.5. Creation of WordPress Plugins
- 14.7.6. WordPress Theme Creation

**14.8. Free Software Trends**

- 14.8.1. Cloud Environments
- 14.8.2. Monitoring Tools
- 14.8.3. Operating Systems
- 14.8.4. Big Data and Open Data 2.0
- 14.8.5. Quantum Computing

**14.9. Version Control**

- 14.9.1. Basic Concepts
- 14.9.2. Git
- 14.9.3. Cloud and Self-hosted Git Services
- 14.9.4. Other Version Control Systems

**14.10. Custom GNU/Linux Distributions**

- 14.10.1. Main Distributions
- 14.10.2. Distributions Derived from Debian
- 14.10.3. Deb Package Creation
- 14.10.4. Modification of the Distribution
- 14.10.5. ISO Image Generation

## Module 15. Computer Networks

### 15.1. Computer Networks on the Internet

- 15.1.1. Networks and Internet
- 15.1.2. Protocol Architecture

### 15.2. The Application Layer

- 15.2.1. Model and Protocols
- 15.2.2. FTP and SMTP Services
- 15.2.3. DNS Service
- 15.2.4. HTTP Operation Model
- 15.2.5. HTTP Message Formats
- 15.2.6. Interaction with Advanced Methods

### 15.3. The Transport Layer

- 15.3.1. Communication Between Processes
- 15.3.2. Connection-oriented Transportation: TCP and SCTP

### 15.4. The Network Layer

- 15.4.1. Circuit and Packet Switching
- 15.4.2. IP Protocol (v4 and v6)
- 15.4.3. Routing Algorithms

### 15.5. The Link Layer

- 15.5.1. Link Layer and Error Detection and Correction Techniques
- 15.5.2. Multiple Access Links and Protocols
- 15.5.3. Link Level Addressing

### 15.6. LAN Networks

- 15.6.1. Network Topologies
- 15.6.2. Network and Interconnection Elements

### 15.7. IP Addressing

- 15.7.1. IP Addressing and Subnetting
- 15.7.2. Overview: An HTTP Request

### 15.8. Wireless and Mobile Networks

- 15.8.1. 2G, 3G and 4G Mobile Networks and Services
- 15.8.2. 5G Networks

### 15.9. Network Security

- 15.9.1. Fundamentals of Communications Security
- 15.9.2. Access Control
- 15.9.3. System Security
- 15.9.4. Fundamentals of Cryptography
- 15.9.5. Digital Signature

### 15.10. Internet Security Protocols

- 15.10.1. IP Security and Virtual Private Networks (VPN)
- 15.10.2. Web Security with SSL/TLS



**Module 16. Emerging Technologies****16.1. Mobile Technologies**

- 16.1.1. Mobile Devices
- 16.1.2. Mobile Communications

**16.2. Mobile Services**

- 16.2.1. Types of Applications
- 16.2.2. Decision on the Type of Mobile Application
- 16.2.3. Mobile Interaction Design

**16.3. Location-based Services**

- 16.3.1. Location-Based Services
- 16.3.2. Technologies for Mobile Localization
- 16.3.3. GNSS-Based Localization
- 16.3.4. Accuracy and Accuracy in Localization Technologies
- 16.3.7. Beacons: Location by Proximity

**16.4. User Experience (UX) Design**

- 16.4.1. Introduction to User Experience (UX)
- 16.4.2. Technologies for Mobile Localization
- 16.4.3. Methodology for UX Design
- 16.4.4. Best Practices in the Prototyping Process

**16.5. Extended Reality**

- 16.5.1. Extended Reality Concepts
- 16.5.2. Technologies for Mobile Localization
- 16.5.3. AR and VR Application and Services

**16.6. Internet of Things (IoT). (I)**

- 16.6.1. IoT Fundamentals
- 16.6.2. IoT Devices and Communications

**16.7. Internet of Things (IoT). (II)**

- 16.7.1. Beyond Cloud Computing
- 16.7.2. (Smart Cities)
- 16.7.3. Digital Twin
- 16.7.4. IoT Projects

**16.8. Blockchain**

- 16.8.1. Blockchain Fundamentals
- 16.8.2. Blockchain-based Applications and Services

**16.9. Autonomous Driving**

- 16.9.1. Technologies for Autonomous Driving
- 16.9.2. V2X Communications

**16.10. Innovative Technology and Research**

- 16.10.1. Fundamentals of Quantum Computing
- 16.10.2. Applications of Quantum Computing
- 16.10.3. Introduction to Research

## Module 17. Information Systems Security

### 17.1. A global Perspective on Security, Cryptography and Classical Cryptanalysis

- 17.1.1. Computer Security: Historical Perspective
- 17.1.2. But What Exactly is Meant by Security?
- 17.1.3. History of Cryptography
- 17.1.4. Substitution Ciphers
- 17.1.5. Case Study: The Enigma Machine

### 17.2. Symmetric Cryptography

- 17.2.1. Introduction and Basic Terminology
- 17.2.2. Symmetric Encryption
- 17.2.3. Operating Modes
- 17.2.4. DES
- 17.2.5. The New AES Standard
- 17.2.6. Encryption in Flow
- 17.2.7. Cryptanalysis

### 17.3. Asymmetric Cryptography

- 17.3.1. Origins of Public Key Cryptography
- 17.3.2. Basic Concepts and Operation
- 17.3.3. The RSA Algorithm
- 17.3.4. Digital Certificates
- 17.3.5. Key Storage and Management

### 17.4. Network Attacks

- 17.4.1. Network Threats and Attacks
- 17.4.2. Enumeration
- 17.4.3. Traffic Interception: Sniffers
- 17.4.4. Denial of Service Attacks
- 17.4.5. ARP Poisoning Attacks

### 17.5. Security Architectures

- 17.5.1. Traditional Security Architectures
- 17.5.2. Secure Socket Layer: SSL
- 17.5.3. SSH Protocol
- 17.5.4. Virtual Private Networks (VPNs)
- 17.5.5. External Storage Unit Protection Mechanisms
- 17.5.6. Hardware Protection Mechanisms

### 17.6. System Protection Techniques and Secure Code Development

- 17.6.1. Operational Safety
- 17.6.2. Resources and Controls
- 17.6.3. Monitoring
- 17.6.4. Intrusion Detection Systems
- 17.6.5. Host IDS
- 17.6.6. Network IDS
- 17.6.7. Signature-Based IDS
- 17.6.8. Lure Systems
- 17.6.9. Basic Security Principles in Code Development
- 17.6.10. Failure Management
- 17.6.11. Public Enemy Number 1: Buffer Overflows
- 17.6.12. Cryptographic Botches

### 17.7. Botnets and Spam

- 17.7.1. Origin of the Problem
- 17.7.2. Spam Process
- 17.7.3. Sending Spam
- 17.7.4. Refinement of Mailing Lists
- 17.7.5. Protection Techniques
- 17.7.6. Antispam Service Offered by Third Parties
- 17.7.7. Study Cases
- 17.7.8. Exotic Spam

### 17.8. Web Auditing and Attacks

- 17.8.1. Information Gathering
- 17.8.2. Attack Techniques
- 17.8.3. Tools

### 17.9. Malware and Malicious Code

- 17.9.1. What is Malware?
- 17.9.2. Types of Malware
- 17.9.3. Virus
- 17.9.4. Cryptovirus
- 17.9.5. Worms
- 17.9.6. Adware
- 17.9.7. Spyware
- 17.9.8. Hoaxes
- 17.9.9. Phishing
- 17.9.10. Trojans
- 17.9.11. The Economy of Malware
- 17.9.12. Possible Solutions

### 17.10. Forensic Analysis

- 17.10.1. Evidence Collection
- 17.10.2. Evidence Analysis
- 17.10.3. Anti-forensic Techniques
- 17.10.4. Case Study

**Module 18. Integration Systems****18.1. Introduction to Information Systems in the Company**

- 18.1.1. The Role of Information Systems
- 18.1.2. What is an Information System?
- 18.1.3. Dimensions of Information Systems
- 18.1.4. Business Processes and Information Systems
- 18.1.5. Department of SI/TI

**18.2. Opportunities and Needs of Information Systems in the Company**

- 18.2.1. Organizations and Information Systems
- 18.2.2. Features of Organisations
- 18.2.3. Impact of Information Systems in the Company
- 18.2.4. Information Systems to Achieve a Competitive Advantage
- 18.2.5. Use of Systems in the Administration and Management of the Company

**18.3. Basic Concepts of Information Systems and Technologies**

- 18.3.1. Data, Information and Knowledge
- 18.3.2. Technology and Information Systems
- 18.3.3. Technology Components
- 18.3.4. Classification and Types of Information Systems
- 18.3.5. Service and Business Process Based Architectures
- 18.3.6. Forms of Systems Integration

**18.4. Systems for the Integrated Management of Company Resources**

- 18.4.1. Business Needs
- 18.4.2. An Integrated Information System for the Company
- 18.4.3. Acquisition vs. Development
- 18.4.4. ERP Implementation
- 18.4.5. Implications for Management
- 18.4.6. Leading ERP Vendors

**18.5. Supply Chain and Customer Relationship Management Information Systems**

- 18.5.1. Definition of Supply Chain
- 18.5.2. Effective Supply Chain Management
- 18.5.3. The Role of Information Systems
- 18.5.4. Supply Chain Management Solutions
- 18.5.5. Customer Relationship Management
- 18.5.6. The Role of Information Systems
- 18.5.7. Implementation of a CRM System
- 18.5.8. Critical Success Factors in CRM Implementation
- 18.5.9. CRM, e-CRM and Other Trends

**18.6. ICT Investment Decision-Making and Information Systems Planning**

- 18.6.1. Criteria for ICT Investment Decisions
- 18.6.2. Linking the Project to the Management and Business Plan
- 18.6.3. Management Implications
- 18.6.4. Redesign of Business Processes
- 18.6.5. Management's Decision on Implementation Methodologies
- 18.6.6. Need for Information Systems Planning
- 18.6.7. Objectives, Participants and Moments
- 18.6.8. Structure and Development of the Systems Planning
- 18.6.9. Follow-up and Updating

**18.7. Security Considerations in the Use of ICTs**

- 18.7.1. Risk Analysis
- 18.7.2. Security in Information Systems
- 18.7.3. Practical Advice

**18.8. Feasibility of ICT Project Implementation and Financial Aspects in Information Systems Projects**

- 18.8.1. Description and Objectives
- 18.8.2. EVS Participants
- 18.8.3. Techniques and Procedures
- 18.8.4. Cost structure
- 18.8.5. Financial Projection
- 18.8.6. Budgets

**18.9. Business Intelligence**

- 18.9.1. What is Business Intelligence?
- 18.9.2. BI Implementation Strategy
- 18.9.3. Present and Future in BI

**18.10. ISO/IEC 12207**

- 18.10.1. What is "ISO/IEC 12207"?
- 18.10.2. Analysis of Information Systems
- 18.10.3. Information System Design
- 18.10.4. Implementation and Acceptance of the Information System

07

# 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"*

## TECH Business School uses the 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”*



*This program prepares you to face business challenges in uncertain environments and achieve business success.*



## A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch to present executives with challenges and business decisions at the highest level, whether at the national or international level. 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 business reality is taken into account.

**“** *You will learn, through collaborative activities and real cases, how to solve complex situations in real business environments”*

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 we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They must integrate all their knowledge, research, argue and defend their ideas and decisions.

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

## 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.

*Our online system will allow you to organize your time and learning pace, adapting it to your schedule. You will be able to access the contents from any device with an internet connection.*

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 online business school is the only one in the world licensed to incorporate this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best 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.

With this methodology we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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.



### Management Skills Exercises

They will carry out activities to develop specific executive competencies in each thematic area. Practices and dynamics to acquire and develop the skills and abilities that a high-level manager 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.





### 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 senior management 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.



08

# Our Students' Profiles

Students who decide to take this Advanced Master's Degree in TECH are business professionals with extensive experience, who have understood the importance of knowing the new technologies to apply to the company in depth and, therefore, seek ways to specialize in this area of knowledge to be able to manage the programs that have been introduced in their businesses, and to get the most out of them.





“

*This program will help business professionals specialize in a novel field"*

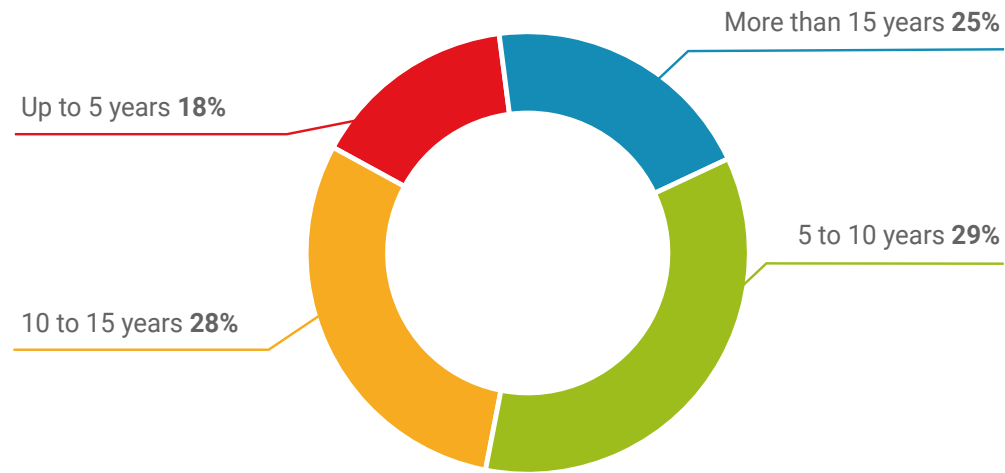
### Average Age

---

Between **35** and **45** years old

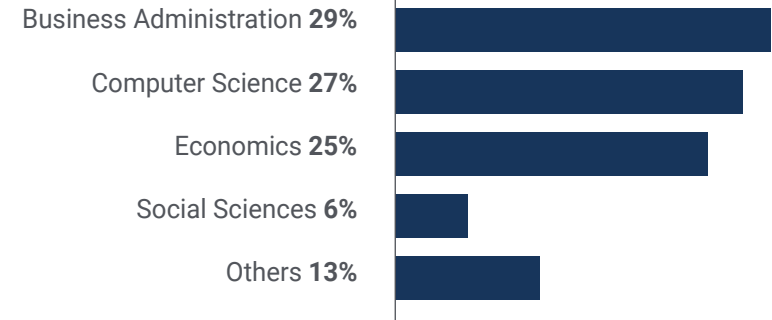
### Years of Experience

---



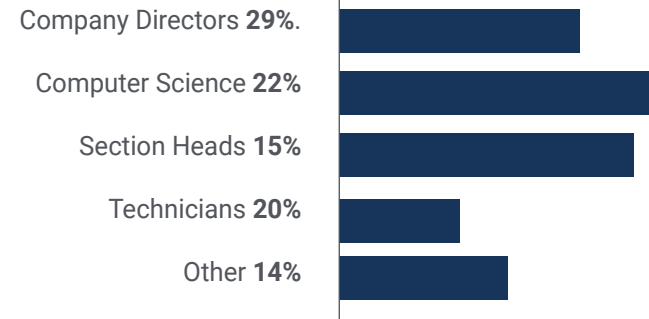
### Training

---



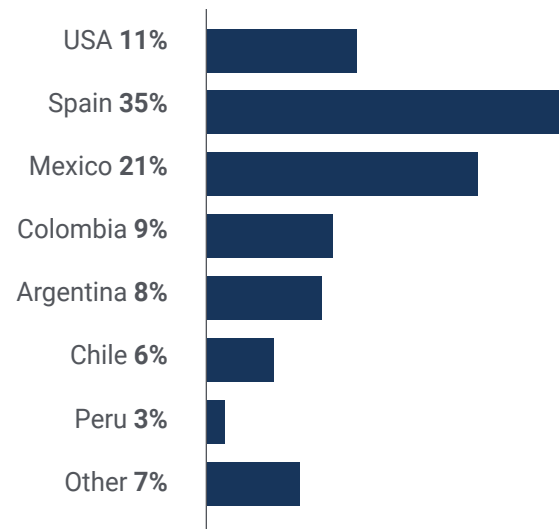
### Academic Profile

---



## Geographical Distribution

---



## Germán Díaz

---

CIO

*"Completing this Advanced Master's Degree has opened the doors to an area of knowledge that is fundamental to my professional development. I am now better able to understand the use we must make of new technologies in the company, and I can manage this work with more confidence. Undoubtedly, the step I needed to give a boost to my career"*

09

# Impact on Your Career

This program is a unique opportunity to improve students' skills and thus improve their employability, giving a boost to their professional careers. It is a high-quality program, which includes the most complete and relevant data on Information Systems Management, as well as a first class teaching staff and the most innovative teaching methodology in the current academic panorama.







“

*Obtaining a higher specialization in this field will allow you to improve your employability options in a short time"*

### Are you ready to take the leap? Excellent professional development awaits you

The Advanced Master's Degree in Information Systems Management (Chief Information Officer) at TECH Technological University is an intensive program that prepares students to face business challenges and decisions, both nationally and internationally. The main objective is to promote your personal and professional growth. Help you achieve success.

Therefore, those who wish to improve themselves, achieve a positive change at a professional level and interact with the best, will find their place at TECH.

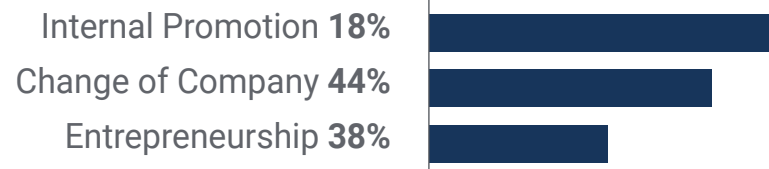
*If you want your CV to stand out in the selection processes, do not hesitate and join TECH.*

*Get the job promotion you want by improving your career prospects.*

#### When the change occurs



#### Type of change



### Salary increase

---

This program represents a salary increase of more than **25%** for our students.



10

# Benefits for Your Company

This TECH program has been designed with the training needs of business professionals in Information Systems Management in mind, but also what students will be able to contribute to the companies in which they work. Therefore, it will not only be a competitive advantage for the student themselves, providing him with greater employability, but also for the companies, where he will be able to contribute all their value and knowledge.





“

*Bring a new model of Information Systems Management, to your company which is more up to date and more competitive”*

Developing and retaining talent in companies is the best long-term investment.

01

### **Intellectual Capital and Talent Growth**

The executive will introduce the company to new concepts, strategies, and perspectives that can bring about significant changes in the organization.

---

02

### **Retaining high-potential executives to avoid talent drain**

This program strengthens the link between the company and the executive and opens new avenues for professional growth within the company.

03

### **Building agents of change**

The manager will be able to make decisions in times of uncertainty and crisis, helping the organization overcome obstacles.

---

04

### **Increased international expansion possibilities**

Thanks to this program, the company will come into contact with the main markets in the world economy.



05

### **Project Development**

The manager will be able to work on a real project or develop new projects in the R&D or Business Development area of his or her company.

---

06

### **Increased competitiveness**

This Advanced Master's Degree provides students with the necessary skills to take on new challenges and drive the organization forward.

11

# Certificate

The Advanced Master's Degree in Information Systems Management (Chief Information Officer) guarantees, in addition to the most rigorous and update training, access to a Advanced Master's Degree issued by TECH Technological University.





“

*Successfully complete this training and receive your university degree without travel or laborious paperwork”*

This **Advanced Master's Degree in Information Systems Management (Chief Information Officer)** contains the most complete and updated program on the market.

After you have passed the evaluations, you will receive your corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Advanced Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Advanced Master's Degree in Information Systems Management (Chief Information Officer)**

Official N° of hours: **3,000 h.**



\*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.



## Advanced Master's Degree Information Systems Management (Chief Information Officer)

- » Modality: **online**
- » Duration: **2 years**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Advanced Master's Degree Information Systems Management (Chief Information Officer)

