Syllabus

INFORMATION TECHNOLOGY MANAGEMENT

March – June 2024

X TERM

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I. General course data

Course name:	Information Technology Management		
Pre-requisite:	Strategic Planning, Project Management	**ID:**	10319
Precedent:	NA	**Semester:**	2024-1
Credits:	3	**Term:**	X
Hours:	4 Hours	**Course Modality:**	Classroom course
Type of course and Career	**Mandatory:** Information Technology and Systems Engineering	**Course coordinator:**	Joseph Ballon A. jballon@esan.edu.pe

II. Sumilla

Information Technologies (IT) have evolved over time from the "information age" to the "knowledge age". In both periods of time, IT has been a determining factor in the survival and success of companies in the market. Those companies that know how to make better investments in IT will be able to develop competitive advantages at a lower cost than their competitors.

Given the unique characteristics of IT investments, the course not only covers traditional financial assessment methods, but incorporates other decision methodologies to select the best technology and justify its acquisition, also providing the financial and non-financial criteria to be considered in the analysis and decision making to choose the best IT project to be applied in the company.

III. Objectives of the course

- Provide the knowledge and methodology necessary for students to efficiently and effectively propose, design and support an Information Technology Investment Project.

- Consolidate the criteria and the application of financial and non-financial methodologies to be taken into account in order to evaluate various alternatives for investment in information technologies.

IV. Learning outcomes

At the end of the course students will be able to:

- Describe and apply the financial methodology to assess the feasibility of an IT project.
- Describe and apply non-financial methodologies to assess the feasibility of an IT project.

- Develop the necessary competencies and skills that allow the student to decide the best evaluation methodology or the optimal combination of them, which allow him to make the best investment decision.

V. Methodology

The methodology to be used will be the system of face-to-face classes, where the teacher will expose each topic acting as a facilitator, thereby allowing interaction with the student and between them. Models for evaluating IT investment projects in Excel will be developed and the acquisition of theoretical knowledge will be reinforced through Reading Controls. Students will apply the knowledge acquired through a real Business Case Evaluation of an IT Project

VI. Evaluation

The evaluation system is as follows:

AVERAGE PERMANENT ASSESSMENT 40%		
Type of Evaluation	**Description**	**Weight**
Targeted Practices	Exercises in Class	20%
Business Cases	6 Business Cases	80%

PF = (0.30 x EP) + (0.40 x PEP) + (0.30 x EF)

PF = Final score
EP = Partial Examination
PEP = Average of Permanent Evaluation
EF = Final Examination

VII. Scheduled content of the course

<table>
<tr><th>WEEK</th><th>CONTENTS</th><th>ACTIVITIES/ EVALUATION</th></tr>
<tr><td colspan="3">LEARNING UNIT I: IT Investment Management

LEARNING OUTCOMES:
• The student will be able to identify and analyze the needs that originate IT projects within a Reference Framework for IT Investment Management
• The ability to identify, formulate, seek information and analyze complex engineering problems to arrive at informed conclusions using basic principles of mathematics, natural sciences and engineering sciences.
• The ability to conduct studies of complex engineering problems using research-based knowledge and research methods including the design and conduct of experiments, analysis and interpretation of information, and the synthesis of information to produce valid conclusions.</td></tr>
<tr><td rowspan="2">1°
Del 23 al 27 de marzo</td><td>• Introduction to IT Portfolio Management
o The Paradox of Productivity
o The business environment behind IT Projects
o Reference Framework for IT Investment Management.
o Maturity Levels in IT Portfolio Management
o IT Investment Classification: The Four "S" Model
o IT Project Portfolio Life Cycle.</td><td rowspan="2"></td></tr>
<tr><td>• Reading: L01-IT Portoflio Management An Overview (C51211). Maizlish, B., Handler, R. (2005). IT portfolio management: an overview. En IT portfolio management step-by-step:unlocking the business value of technology (pp.7-37)(376p.). New Jersey : John Wiley & Sons.</td></tr>
<tr><td rowspan="2">2°
Del 01 al 07 de abril</td><td>• Reference Framework for IT Investment Management
o The Information Economy
o Criteria for Evaluation of IT Projects
o Analysis of Needs that give rise to an IT Project
o Measuring IT Value for Business</td><td rowspan="2"></td></tr>
<tr><td>• Reading: The true new economy (AR51408). Farrell, D. (October 2003). The real new economy. Harvard Business Review Latin America, 81 (10) pp. 3-10. (AR51408).
• Lectura: Justifying IT Investments (C51409) Willcocks, L. Information management :the evaluation of information systems investments (pp.151-169)(272p.). New York : Springer Science+ Business Media.</td></tr>
<tr><td colspan="3">LEARNING UNIT II: The Economic Study of the Project

LEARNING OUTCOMES:
• Develop cash flows by identifying investment in fixed and intangible assets as well as working capital.
• Apply the breakeven concept and identify various sources of funding. Apply financial evaluation techniques of projects based on indicators (NPV, TIR, B/C, etc.) and apply sensitivity analysis to assess the risk level of the project.
• The ability to demonstrate knowledge and understanding of management principles in engineering and economic decision-making, and their respective application</td></tr>
</table>

**3°
Del 08 al 14 de abril**
	• **Initial investment in an IT Project**
	  ○ Structure of the total initial investment of the project
	  ○ Investment in tangible assets
	  ○ Investment in intangible assets
	  ○ Working capital
	  ○ Unforeseen
		Business Case Presentation No. 1

	• Reading: Sapag Chain Nassir. Investment, Formulation and Evaluation Projects. Chap. 5 Pags 141-177	

**4°
Del 15 al 21 de abril**
	• **Costs and Expenses in an IT Project**
	  ○ Economic costs, accounting costs and opportunity costs
	  ○ The cost and the expense
	  ○ Direct and indirect labour force
	  ○ Administrative Expenses
	  ○ Depreciation
	  ○ Amortization
	  ○ Financial Expenses
	  ○ Total Cost of Ownership (TCO) of IT Projects	

	• Lectura: Revamping your IT Funding Model. Weill, Peter & Roos, Jeanne from IT Savvy: What Top Executives Must Know to Go from Pain to Gain	

**5°
Del 22 al 28 de abril**
	• **Financing**
	  ○ Sources of Financing
	  ○ Indebtedness of enterprises
	  ○ The loan and the credit
	  ○ Short-term instruments
	  ○ Medium- and long-term instruments
	  ○ Annuities and Amortization Tables
		Business Case Presentation No. 2

	• Reading: Sapag Chain Nassir. Investment, Formulation and Evaluation Projects. Chap. 10 Pags 311-323	

**6°
Del 29 de abril al 05 de mayo**
	• **Financial projections**
	  ○ Projected cash flow rate.
	  ○ Types of cash flow: Economic and financial cash flow.
	  ○ General structure of a projected cash flow of a project.
	  ○ Projection of financial statements: Projected profit and loss statements.
	  ○ Net Present Value (NPV)
	  ○ Internal Rate of Return (IRR)
	  ○ Contradictions between the NPV and the TIR	

	• Reading: Sapag Chain Nassir. Investment, Formulation and Evaluation Projects. Capt. 7 Pags 213-235. Cap 8 Pags. 245-266	

**7°
Del 06 al 12 de mayo**
	• **Financial Assessment Models for IT Projects**
	  ○ Financial Assessment Model for a Software Development Project
	  ○ Financial Assessment Model for a Cloud Migration Project
		Business Case Presentation No. 3

	• Reading: What every CEO should know about the Cloud. Mcaffee, Andrew. Harvard Business Review. Nov. 2011 • Lectura: Cloud Computing – The Business Perspective. www.elsevier.com/locate/dss	
8° Del 13 al 19 de mayo	**MID TERM EXAM**	

LEARNING UNIT III: Portfolio Development of IT Projects and Risk Analysis

LEARNING OUTCOMES:

- Structure, balance and evaluate the risks associated with an IT Project Portfolio
- The ability to demonstrate knowledge and understanding of management principles in engineering and economic decision-making, and their respective application.
- The ability to create, select and use modern engineering and information technology techniques, skills, resources and tools, including prediction and modeling, with an understanding of their limitations.

9° Del 20 al 26 de mayo	• **Risk Analysis in IT Investment Projects**
	  ○ Definition of Risk
	  ○ Risk Analysis
	  ○ Conditional Probability and Bayes Theorem Applied to Investment Projects
	  ○ Decision trees	

	• Lectura: L13-Risk and information systems developing analysis (C51273). Willcocks, L., Margetts, H. (1994) . Risk and information systems: developing the analysis. En Willcocks, L. Information management :the evaluation of information systems investments (pp.207-230)(272p.). New York : Springer Science+Business Media.	

10° Del 27 de mayo al 02 de junio	• **Evaluation of Investments in Uncertainty**
	  ○ Creating a Simulation Model using @Risk software
	  ○ Probability Distribution Selection Methods for Simulation
	  ○ Project Timeline Risk Analysis
	  ○ Analysis of a Model by Simulation Monte Carlo
	  ○ Interpretation of results and decision making	

	• Reading: Sapag Chain Nassir. Investment, Formulation and Evaluation Projects. Chap. 9 Pags 275-296	

11° Del 03 al 09 de junio	• **Non-financial Methods for Evaluating Investments in IT Projects**
	  ○ Method of Critical Success Factors
	  ○ Delphi method
	  ○ Balanced Scorecard method
	  ○ Method of Hierarchical Analytical Process
		Business Case Presentation No. 4

	• Lectura: L09-Multi-factor scoring methods and the analysis hierarchy process (C51314). Schniederjans, M., Hamaker, J., Schniederjans, A. (2010) . Multi - factor scoring methods and the analytics hierarchy process. En Information technology investment: decision-making methodology (pp.193-236)(442p.) (2a ed). New Jersey : World Scientific.	

12° Del 10 al 16 de junio	• **Structuring the IT Investment Portfolio**
	  ○ Preparing to Structure the Portfolio
	  ○ Scope and Content of the Portfolio
	  ○ Portfolio Structure
	  ○ Sources of Information to structure the Portfolio
		Business Case Presentation No. 5

	• Lectura: L12-Developing the porftfolio (C51294). Fitzpatrick, E . (2005) . Developing the portfolio . En Planning and implementing IT portfolio management: maximizing the return on information technology investments (pp.71-104)(245p.). Maryland: IT Economics Corporation.	

13° Del 17 al 23 de junio	• **IT Investment Portfolio Analysis and Balancing**
	  ○ Introduction
	  ○ Concepts and Techniques to balance the Portfolio
	  ○ IT Infrastructure and the Portfolio
		Business Case Presentation No. 6

	• Lectura: L13-Analyzing and balancing the protfolio (C51297). Fitzpatrick, E. (2005). Analyzing and balancing the portfolio. En Planning and implementing IT portfolio management : maximizing the return on information technology investments (pp. 125 - 168) (245p). Maryland : IT Economics Corporation.	
14° Del 24 al 30 de junio	• **Steps to Implement an IT Investment Portfolio** ○ Basic Rules for Implementation ○ Steps to follow during Implementation ○ Practical Benefits after Implementation ○ Common Barriers During Implementation Expectations for the future after implementation	
	L14-Practical implementation steps (C51300). Fitzpatrick, E. (2005). Practical implementation steps. En Planning and implementing IT portfolio management : maximizing the return on information technology investments (pp.205-224)(245p.). Maryland : IT Economics Corporation.	
15° Del 01 al 07 de julio	**Final Delivery of IT Plan Project**	
16° Del 08 al 14 de julio	**FINAL EXAM**	

VIII. References

Basic Bibliography:

- Information Technology Investment: Decision-Making Methodology (2nd Edition), Wspc, Marc J. Schniederjans Jamie L. Hamaker, Ashlyn M. Schniederjans, 2010
- IT Investment Evaluation: A Suitability Analysis of Financial Evaluation Measures, VDM Verlag Dr. Mueller e.K. , Uwe Wohlfahr, 2007
- Information Management: The Evaluation of Information Systems Investments, Chapman & Hall; 1st edition, Leslie Willcocks, 1994
- Planning and Implementing IT Portfolio Management: Maximizing the Return on Information Technology Investments, IT Economics Corporation, Edmund W. Fitzpatrick
- The IT Value Network: From IT Investment to Stakeholder Value, Tony J. Read, Phd

Additional Bibliography:

- The Real Business of IT: How CIOs Create and Communicate Value, Richard Hunter & George Westerman

- IT Portfolio Management Step-by-Step: Unlocking the Business Value of Technology, Bryan Maizlish & Robert Handler

- Buying Information Systems: Seleccting, Implementing ans Assessing Off-The-Shelf Systems, David James

IX. Laboratory support

For being a theoretical-practical course will be required Computer Lab with Microsoft Excel in all classes and software @RISK.

X. Professor

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