



UNIVERSIDAD
esan

Course Syllabus Product Design and Development

March - July 2019

VIII Level

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I. General information of the course

Name of the course:	Product Design and Development		
Prerequisite:	Marketing for Engineering	Code:	03171
Preceding:	Does not have	Semester:	2019-1
Credits:	4	Cycle:	VIII
Weekly hours:	5 hours	Modality of the course:	Presential
Course Type: Career(s):	Mandatory Course: Industrial and Commercial Engineering	Course coordinator:	Javier Del Carpio jdelcarpio@esan.edu.pe

II. Summary

The course aim is provide the student with the concepts and tools for the design of new products. The different approaches and methodologies for the design of new products, the stages of the design project, the design and the quality and the fundamental practices of design are reviewed. Economic, financial and operational evaluations. Criteria for the selection of new products. Product life cycle. Also the mechanisms and approaches for the introduction of new products.

III. Course Objective

The aim of the course is to facilitate that student develops a key competition in the search or creation of the value of a business, which consists in the developing of his capacity to generate, integrate and combine ideas to launch in a successful way new products to a market (including the design of a prototype of its package) as well as to develop and plan each of the stages of the process that must follow. The course seeks to develop also the skills of evaluation of the attractiveness of a category market of a new product, the effective presentation of his offers, as well as the leadership and the teamwork involve in the management of a launching project.

IV. Learning Results

As the outcome of completing this course the student:

- Analyzes, evaluates and recommends the opportunities of market that could be turn into potential ideas for successful products launching that allow companies to lever up their growth strategies.
- Designs and develop in detail a plan and the process that an idea for a product have to follow to turn it into a winning concept, analyzing carefully each of its stages.
- Evaluates the attractiveness of the market for a new product, applying methods of forecasting or estimating potential market demand.
- Formulates and presents clearly how to develop a differential concept from a product idea and a better comprehension of the needs of the target audience.
- Designs, analyzes and interprets research and products or concepts tests.
- Designs and establishes the plans for launching and methods of introduction of new products to the market aligned with the rest of the marketing mix variables.
- Develops the skills of speaking and writing, as well as the argumentation and the effective presentation of proposals, research plans and launching plans.

V. Methodology

The methodology of the course encourages student active participation and use of diverse methods and techniques. The professor acts as learning facilitator, combining class expositions, lecture analysis and discussions, case studies and discussions, discussion of journals articles and teamwork.

The method of teaching reinforces the participant learning and develops the skills needed to performance successfully in the business world such as analytical skills, critical synthesis, solving problems and decision making.

A mandatory textbook is used and it´s reading must be completed by students prior to the session, according to the course program. Complementary text can also combine the study of topics. Besides, the course encourages students to work each topic using the case method.

The course contemplates the accomplishment and sustentation of a final proposed plan to develop the launching or relaunching of a product of the choice of the students. The final project is developed in teams.

VI. Assessment

The evaluation system is permanent and comprehensive, and is intended to promote student learning. The course grade is obtained by averaging the continuous evaluation (55%), the midterm exam (20%) and the final exam (25%).

The continuous evaluation is the weighing average of the corresponding assessments: Reading Quizzes / Graded Assessments / Case Studies Presentations / Final Work – Product Launching Proposal. The average of these scores gives the corresponding note.

The weights of the permanent evaluation are described in the following table:

CONTINUOUS EVALUATION AVERAGE - CEA 55%		
Evaluation Type	Description	Weighing %
Reading Control	2 Quizzes	12%
Graded Assessments	3 Tests	35%
Practical Applications	4 Case studies	15%
Final Assignment Teamwork*	A New Product Launching Plan 1st Draft (20%) + Final Paper (30%) + Team and Individual Oral Presentation (50%)	33%
Participation	Attendance and Participation in class discussions	5%

(*) In the assessment of the written document of the research, aspects of content, monitoring and utilization of the standards of the American Psychological Association (APA) is further contemplated. Thereby it promotes communication skills in academic written down documents.

The final average (PF) is obtained as follows:

$$FA = (0,20 \times ME) + (0,55 \times CEA) + (0,25 \times FE)$$

Where:

FA = Final Average

ME = Mid-Term Exam

CEA = Continuous Evaluation Average

FE = Final Exam

VII. Program Content

WEEK	CONTENTS	ACTIVITIES / EVALUATION
<p>LEARNING UNIT I: PRODUCT DEVELOPMENT FUNDAMENTALS AND PROCESS</p> <p>LEARNING RESULTS:</p> <ul style="list-style-type: none"> Analyzes, evaluates and recommends the opportunities of market that could be turn into potential ideas for successful products launching that allow companies to lever up their growth strategies. Designs and develop in detail a plan and the process that an idea for a product have to follow to turn it into a winning concept, analyzing carefully each of its stages. 		
<p>1° From March 21 to March 30</p>	<p>1.1 PRODUCT MARKETING IMPORTANCE</p> <p>1.1.1 Relevance of Costumer Centric Businesses 1.1.2 Value Generation 1.1.3 Product Idea and Product Concept 1.1.4 Strategic and Tactical Planning in Marketing</p> <p>1.2. NEW PRODUCTS AND INNOVATIONS</p> <p>1.2.1 What is a New Product? 1.2.2 Technological Innovation and Entrepreneurship 1.2.3 The ‘S’ Curve with New Products 1.2.4 Types of New Products</p> <p>Baker, M. & Hart S. (2007). Chap. 1. Competition and product strategy. In <i>Product Strategy & Management</i> (pp. 33-39) & Chap. 2. The product in theory and practice. In <i>Product Strategy & Management</i> (pp. 40-71). (2nd. Ed.). Edinburgh: Pearson Education.</p> <p>Ulrich, K. & Eppinger, S. (2012). Chap.1. Introduction. In <i>Product Design & Development</i>. (pp.1-10). (5th. Ed.). Los Angeles: McGraw Hill Education.</p>	<p>Presentation of the Course Methodology</p> <p>Guidelines for the Final Assignment and Research Work</p> <p>Review of the Guide for Written Report in ESAN with APA norms.</p> <p>Review of the Guidelines for Effective Oral Presentations</p>
<p>2° From 01 to 06 April</p>	<p>1.3 WHY DEVELOPING NEW PRODUCTS?</p> <p>1.3.1 Importance of New Products 1.3.2 Main Reasons of the Failure of New Products 1.3.3 Key Success Factors of New Products</p> <p>1.4 NEW PRODUCT PROCESS OF DEVELOPMENT</p> <p>1.4.1 Reduction of Products Lifecycles 1.4.2 Time to Market 1.4.3 Product Development Process 1.4.4 Stage-Gate Process 1.4.5 Product Lifecycle Management - PLM</p> <p>Baker, M. & Hart, S. (2007). Chap. 4. The product lifecycle in theory and practice. In <i>Product Strategy & Management</i>. (pp. 103-135). & Chap. 6. The importance, nature and management of new product development process. In <i>Product Strategy & Management</i>. (pp. 157-196). (2nd. Ed.). Edinburgh: Pearson Education.</p> <p>Floren, H.& Others (2017). <i>Critical success factors in early new product development: a review and a conceptual model</i>. International Entrepreneurship and Management Journal. 14 (2), 411-427.</p>	<p>Case Study #1</p> <p>Examples of types of new products launching that were successful and other that Fail.</p>

<p style="text-align: center;">3° From 08 to 13 April</p>	<p>1.5 NEW PRODUCTS MANAGEMENT</p> <p>1.5.1 Organization and Structure 1.5.2 Global Vision of the Development Process 1.5.3 Product policy and guidelines: Mission 1.5.4 Product portfolio analysis 1.5.5 Generic Business Strategies 1.5.6 Growing Strategies: New Product & New Market</p> <hr/> <p>Pinna, C. & Others (2018) <i>Effect of product lifecycle management on new product development performances: Evidence from the food industry</i>. Computers in Industry, 100, 184-195.</p> <p>Ulrich, K. & Eppinger, S. (2012). Chaps. 2. Development processes and organizations. In <i>Product Design & Development</i>. (pp.11-32). (5th. Ed.). Los Angeles: McGraw Hill Education.</p> <p>Baker, M. & Hart, S. (2007). Chap. 1. Competition and product strategy. In <i>Product Strategy & Management</i>. (pp. 19-33) & Chap. 5. Product portfolios. In <i>Product Strategy & Management</i>. (pp. 136-153) (2nd. Ed.). Edinburgh: Pearson Education.</p>	<p style="text-align: center;">Quiz 1 (Week 1 & 2)</p> <p>Readings: Baker, M & Hart, S. (2007) Op. Cit. Chap 1, 2, 4 & 6. Floren, H. & Others (2017). <i>Critical success factors in early new product development: a review and a conceptual model</i>. Op cit.</p>
<p>LEARNING UNIT II: PRODUCT IDEATION, OPPORTUNITY SEEKING AND ATTRACTIVENESS VALIDATION</p> <p>LEARNING RESULTS:</p> <ul style="list-style-type: none"> Evaluates the attractiveness of the market for a new product, applying methods of forecasting or estimating potential market demand. 		
<p style="text-align: center;">4° From April 15 to 20 (Holiday 18,19 and April 20)</p>	<p>2.1 BLUE OCEAN STRATEGY</p> <p>2.1.1 How to innovate without being worry of competitors. 2.1.2 The six ways to explore new market creation 2.1.3 How to be more creative with the ERIC matrix.</p> <p>2.2 CREATIVITY AND INNOVATION</p> <p>2.2.1 The Creative Process 2.2.2 Problem Solving 2.2.3 Brakes and Blocks to Creativity</p> <p>2.3 HOW TO SEARCH AND FIND IDEAS FOR NEW PRODUCTS?</p> <p>2.3.1 Origin of Ideas, sources of opportunities 2.3.2 Creatives techniques 2.3.3 Rational and intuitive techniques</p> <hr/> <p>Chan, K. & Mauborgne, R. Chaps. 1, 2 & 3, Creating blue oceans, Analytical tools and Frameworks & Reconstruction of the market boundaries. In <i>Blue Ocean Strategy</i>. (pp. 1-80). Boston: Harvard Business School Press.</p> <p>Ulrich K. & Eppinger, S. (2012). Chaps. 3. Opportunity Identification. In <i>Product Design & Development</i>. (pp. 35-51). (5th. Ed.). Los Angeles: McGraw Hill Education.</p>	<p style="text-align: center;">Case Study #2</p> <p>Growing Strategies applied by Peruvian Corporations</p> <p style="text-align: center;">Classes in Computer Laboratory</p>

<p style="text-align: center;">5° From April 22 to 27</p>	<p>2.4 IDENTIFICATION OF NEEDS 2.4.1 Needs and Desires 2.4.2 Usage Habits and Attitude Study 2.4.3 Matrix of Attributes Importance versus Customers Evaluations 2.4.4 Creating Customers Value Proposition</p> <p>2.5 SELECTION OF IDEAS 2.5.1 Screening of Ideas 2.5.2 Methods to Select the Best Ideas.</p> <hr/> <p>Ulrich, K. & Eppinger, S. (2012). Chap. 5. Identifying customer needs. In <i>Product Design & Development</i>. (pp. 73-90). (5th. Ed.). Los Angeles: McGraw Hill Education.</p> <p>Baker, M. & Hart, S. (2007). Chaps. 8. Idea management for new product development. In <i>Product Strategy & Management</i>. (pp. 215-254). (2nd. Ed.). Edinburgh: Pearson Education.</p>	<p style="text-align: center;">Test # 1 (Weeks 1 to 5) In Laboratory</p> <p>From 1.1 to 2.4 with reading assigned: Baker, M. & Haart, S. (2007) Op. cit. Chaps. 5. Pinna, C. & Others (2018) <i>Effect of product lifecycle management on new product development performances: Evidence from the food industry</i>. Op.cit.</p> <p style="text-align: center;">Classes in Computer Laboratory</p>
<p style="text-align: center;">6° From April 29 to May 4</p>	<p>2.6 MARKET ATTRACTIVENESS ANALYSIS 2.6.1 Strategic Validation of the Opportunity and Attractiveness of the Market 2.6.2 Market Attractiveness Matrix versus Competitive Position or IE Matrix. Applications to a portfolio of projects.</p> <hr/> <p>Baker, M. & Hart, S. (2007). Chaps. 9. Screening new products. In <i>Product Strategy & Management</i>. (pp.256-273). (2nd. Ed.). Edinburgh: Pearson Education.</p>	
<p style="text-align: center;">7° From May 06 to 11</p>	<p>2.7 VALIDATION OF MARKET ATTRACTIVENESS 2.7.1 Market Size Studies, Estimations and Sales Forecast 2.7.2 Methods for New Products Demand Forecasting 2.7.3 Qualitative Break Down methodology for new products</p> <hr/> <p>Kahn, K. (2006). Chap. 1. In <i>New Product Forecasting: An Applied Perspective</i>. (pp. 10-18.). Sharpe Inc.</p>	<p style="text-align: center;">Quiz 2 (Weeks 9 & 10)</p> <p>Readings: Baker, M. & Hart, S. (2007) Op. cit. Chaps. 8, 9 & 11</p> <p style="text-align: center;">Classes in Computer Laboratory</p>
<p style="text-align: center;">8° From May 13 to 18</p>	<p>MID-TERM EXAMS</p>	
<p>LEARNING UNIT III: CONCEPT CREATION AND CUSTOMER VALIDATIONS LEARNING RESULTS:</p> <ul style="list-style-type: none"> • Formulates and presents clearly how to develop a differential concept from a product idea and a better comprehension of the needs of the target audience. • Designs, analyzes and interprets research and products or concepts tests. 		

<p style="text-align: center;">9° From May 20 to 25</p>	<p>3.1 WINNING CONCEPTS CREATION</p> <p>3.1.1 Development of a Concept: the process of pursuit value</p> <p>3.1.2 Importance of discovering Insights</p> <p>3.1.3 Empathy Map</p> <p>3.1.4 Development of Positioning Concepts</p> <p>3.1.5 Key Benefits types for Concept Creation</p> <hr/> <p>Ulrich, K. & Eppinger, S. (2007). Chap. 7. Concept Generation. In <i>Product Design & Development</i>. (pp. 119-141). (5th. Ed.). Los Angeles: McGraw Hill Education.</p> <p>Baker, M. & Hart, S. (2007). Chaps. 10. Concept Development and Testing. In <i>Product Strategy & Management</i>. (pp. 274-307). (2nd. Ed.). Edinburgh: Pearson Education.</p>	<p style="text-align: center;">Classes in Computer Laboratory</p>
<p style="text-align: center;">10° From May 27 to June 1</p>	<p>3.2 CONCEPT AND PRODUCT TESTING</p> <p>3.2.1 How to prepare a market research brief and how to design a Concept Test or a Product Testing</p> <p>3.2.2 Concept Test</p> <p>3.2.3 Product Testing</p> <p>3.2.4 Concept and Use Test</p> <hr/> <p>Ulrich, K. & Eppinger, S. (2012). Chap. 9. Concept Test. In <i>Product Design & Development</i>. (pp. 165-180). (5th. Ed.). Los Angeles: McGraw Hill Education.</p> <p>Baker, M. & Hart, S. (2007). Chaps. 11. Business Analysis. In <i>Product Strategy & Management</i>. (pp.308-328) & Chaps. 12. Product Testing. In <i>Product Strategy & Management</i>. (pp. 327-354). (2nd. Ed.). Edinburgh: Pearson Education.</p> <p>Pope, J. (1993). Part IV: <i>Solving specific marketing problems</i>. (pp. 107-156 & 192-197).</p>	<p style="text-align: center;">Case Study #3 Analysis of Examples of Concepts per Benefit Types</p>
<p>LEARNING UNIT IV: BRANDING, QUALITY WITH TECHNICAL SPECIFICATIONS, PACKAGING AND LAUNCHING STRATEGIES</p> <p>LEARNING RESULTS:</p> <ul style="list-style-type: none"> • Designs and establishes the plans for launching and methods of introduction of new products to the market aligned with the rest of the marketing mix variables. • Develops the skills of speaking and writing, as well as the argumentation and the effective presentation of proposals, research plans and launching plans. 		
<p style="text-align: center;">11° From June 03 to June 08</p>	<p>4.1 BRAND IDENTITY AND INTELLECTUAL PROPERTY</p> <p>4.1.1 Intellectual Property Right and Brand Naming</p> <p>4.1.2 Brand Management, Brand Identity vs. Brand Image</p> <p>4.1.3 Brand Strategies for a portfolio of products and line extensions.</p> <hr/> <p>Aaker, D. & Joachimsthaler, E. Chap. 2. Brand identity the cornerstone of the brand strategy. In <i>Brand Leadership</i>. (pp. 31-64). New York: The Free Press.</p>	<p style="text-align: center;">First Delivery of Final Assignment</p> <p style="text-align: center;">Test #2 (Weeks 7 to 10) In laboratory</p> <p>From 2.5 to 3.2 with reading assigned: Ulrich K. & Eppinger, S. (2012) Op. cit. Cap. 5, 7 y 9</p> <p style="text-align: center;">Classes in Computer laboratory</p>

<p style="text-align: center;">12° From June 10 to 15</p>	<p>4.2 TECHNICAL STANDARDS, PRODUCT QUALITY SPECIFICATIONS AND SUSTAINABILITY 4.2.1 Product quality and Sustainable Designing 4.2.2 Technical specifications Norms 4.2.3 Matrix of the Houses of Quality: Integrating customer requirements in the design</p> <hr/> <p>Ulrich, K. & Eppinger, S. (2012). Chap. 6. <i>Product specifications</i>. In <i>Product Design & Development</i>. (pp. 91-116). (5th. Ed.). Los Angeles: McGraw Hill Education.</p> <p>Cohen, L. (1995). Chap. 4, 5, 6 & 17. Quality Function Deployment. How to make QFD work for you. (pp. 68-122) & (pp. 296-306). Massachusetts: Addison-Wesley Publishing Co.</p> <p>Dyllick, T. & Rost, Z. (2017) Towards true product sustainability. <i>Journal of Cleaner Production</i>. 162, pp. 346-360.</p>	<p style="text-align: center;">Case Study #4 The launching strategy of a new product with its market size estimation</p> <p style="text-align: center;">Classes in Computer laboratory</p>
<p style="text-align: center;">13° From June 17 to 22</p>	<p>4.3 PACKAGING 4.3.1 Components and functionalities of a Package 4.3.2 Types of Packages. 4.3.3 Package impact in the ecology 4.3.4 Packaging Technologies and Trends 4.3.5 Development of a package prototype</p> <hr/> <p>Chunawalla, S.A. (2009). Chap. 21. Packaging. In <i>Product Management</i>. (pp. 259-265). Mumbai: Himalaya Publication.</p>	<p style="text-align: center;">Test #3 (Weeks 11 to 13): In laboratory From 3.1 to 4.2 with reading assigned: Pope, J. (1993) Op. cit. Part IV. pp. 107 - 156 & 192-197.</p>
<p style="text-align: center;">14° From June 24 to 29</p>	<p>4.4 INTRODUCTION AND LAUNCHING 4.4.1 Consumer Buying Behavior for Innovations: Diffusion of Innovation and Adoption Curve 4.4.2 Blocks and risks to new product adoption 4.4.3 Launching Methods and Strategies for a New Product Introduction 4.4.4 Sales Promotions to accelerate introduction</p> <hr/> <p>Baker, M. & Hart, S. (2007). Chaps. 13, Commercialization: test marketing and launching the new product. In <i>Product Strategy & Management</i>. (pp. 357-395). (2nd. Ed.) Edinburgh: Pearson Education.</p>	
<p style="text-align: center;">15° From 01 to 06 July</p>	<p>FINAL PRESENTATIONS OF TEAM ASSIGNMENTS</p>	<p>Written and Oral Presentations</p>
<p style="text-align: center;">16° From 08 to July 13</p>	<p>FINAL EXAMS</p>	

VIII. References

Basic Course Textbooks:

- Baker, M. & Hart S. (2007). Product Strategy and Management. (2nd. Ed.) Edinburgh: Pearson Education.

- Ulrich, K. & Eppinger, S. (2012). *Product Design and Development*. (5th. Ed.) Los Angeles: McGraw Hill Education.

Complementary Bibliography:

- Aaker, D. & Joachimsthaler, E. (2000). *Brand Leadership*. New York: The Free Press.
- Cohen, L. (1995). *Quality Function Deployment. How to make QFD work for you*. Massachusetts: Addison-Wesley Publishing Co.
- Chan, K., W. & Mauborgne, R. (2005). *Blue Ocean Strategy*. Boston: Harvard Business School Press.
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- Dyllick, T. & Rost, Z. (2017). *Towards true product sustainability*. *Journal of Cleaner Production*. 162, 346-360.
- Fernandez Del Hoyo, A. (2009). *Innovación y gestión de nuevos productos: a visión estratégica y práctica*. Madrid: Pirámide.
- Floren, H. & Others. (2017). *Critical success factors in early new product development: a review and a conceptual model*. *International Entrepreneurship and Management Journal*. 14 (2), 411-427.
- Kahn, K. (2006). *New Product Forecasting: An Applied Perspective*. Sharpe Inc. Download free version by chapters at:
<http://site.ebrary.com/lib/esan/docDetail.action?docID=10178089&p00=kahn>
- Kapferer, J.N. (2012). *The New Strategic Brand Management*. (5th. Edition), London: Kogan Page
- Lehmann, D. & Winer, R. (2002). *Product Management*. (3rd. Ed.). Boston: McGraw-Hill Education.
- Müller-Stewens & Möller, (2017) *Performance In New Product Development A comprehensive framework, current trends and research directions*. *Journal Management Control*. 28 (2), 157- 201.
- Pinna, C. & Others (2018) *Effect of product lifecycle management on new product development performances: Evidence from the food industry*. *Computers in Industry*, 100, 184-195.
- Pope, J. (1993). *Practical Marketing Research*. (3rd Ed.) AMACOM.
- Schnarch, A. (2009). *Desarrollo de Nuevos Productos y Empresas*. (5ta. Ed.). Bogotá: McGraw Hill Interamericana.

IX. Laboratory support

Computer Lab with Microsoft Excel in required in weeks 4, 5, 7, 9, 11,12 & 13.

X. Professor

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