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SEP
SECRETARÍA DE
EDUCACIÓN PÚBLICA

ASSOCIATE DEGREE IN BUSINESS DEVELOPMENT IN
MARKETING AREA
PROFESSIONAL COMPETENCES

UTyP

STATISTICS

1. Competences	To manage products and services marketing process according to the market diagnosis, selling strategies and administrative tools, in order to meet client's needs, to contribute to the national and international competitiveness and positioning of the corporation.
1. Term	Second
2. Theoretical hours	17
3. Practical hours	58
4. Total hours	75
5. Weekly hours	5
6. Objective	Students will evaluate corporation information using probability and statistics tools to contribute to commercial performance diagnosis and propose improvement measures.

Learning Unit	Hours		
	Theoretical	Practical	Total
I. Introduction to statistics and probability	7	18	25
II. Descriptive statistics	6	19	25
III. Inferential statistics	4	21	25
Total	17	58	75

STATISTICS
Learning Units

1. Learning Unit	I. Introduction to statistics and probability
2. Theoretical Hours	7
3. Practical Hours	18
4. Total	25
5. Objective	Students will infer a population behavior for an efficient decisión making.

Topic	Knowledge	Skills	Values/ Behavior
Identification of statistics concepts	To identify the concept of statistics and the relevance of statistics in commercial projects development. To explain the concepts of descriptive and inferential statistics. To identify the importance of the use of statistical software.		Organized Systematic Analytical
Populations and variables	To identify the concepts of infinite and finite population. To describe the concept of continuous and discrete variables. To explain the concept of qualitative and quantitative variables.	To establish the type of population according to a given situation.	Organized Systematic Analytical

Topic	Knowledge	Skills	Values/ Behavior
Sampling Techniques and Subjects	To describe the concept of sample. To explain different types of sampling: -Probabilistic Sampling: Simple Random, Stratified, Systematic and Cluster. -Non-probabilistic Sampling: Judgment, criterion and snowball.	To select the type of sampling according to population characteristics and the need for information.	Organized Systematic Analytical Ability to work under pressure
Probability	To identify the concepts of: - Probability - Experiment - Result - Sample space and - Event To understand the concept of conditional probability. To distinguish mutually exclusive and non-exclusive events. To identify probability rules: - Sum and multiplication - Venn Diagram - Combinations and permutations.	To solve probability considering rules and types of events.	Organized Systematic Analytical

Learning Outcome	Learning Process	Assessment Instruments
From a practical case in commercial sector, to write a report including: a) Population, simple and variables. b) Type of sampling that should be applied according to the submitted population. c) The probability of an event to happen.	1. To understand the concepts of descriptive and inferential statistics, population, variables, sample and sampling. 2. To analyze the types of sampling and their application according to the population characteristics. 3. To select the type of sampling. 4. To identify probability basic concepts 5. To solve permutations and combinations problems.	Practical exercises Checklist

ELABORÓ:	Comité de Directores de la Carrera de TSU en Desarrollo de Negocios área Mercadotecnia	**REVISÓ:**	Dirección Académica	
APROBÓ:	C. G. U. T. y P.	**FECHA DE ENTRADA EN VIGOR:**	Septiembre de 2017	

F-CAD-SPE-28-PE-5B-XX

STATISTICS

Teaching Methodologies	Teaching Materials
Cases analysis Practical exercises	Computer Projector Internet Printed material

TRAINING FACILITIES

Classroom	Languages Lab/Workshop	Corporation
X		

1. Learning Unit	II. Descriptive statistics
2. Theoretical Hours	6
3. Practical Hours	19
4. Total	25
5. Objective	Students will evaluate data from a population to establish corporation's sales and purchases behavior.

Topic	Knowledge	Skills	Values/ Behavior
Data ordering	To explain the distribution of frequencies. To explain data gathering methods: - Stem diagram - Leaves To describe the concepts, graphic types and uses of: - Histogram - Frequency polygons. To identify advantages and disadvantages of frequency graphs.	To gather data according to the established method. To produce frequency distribution tables.	Organized Systematic Tolerant

Topic	Knowledge	Skills	Values/ Behavior
Statistical measures of central tendency and dispersion	To describe the concepts, formulae, and characteristics of central tendency: - Mean - Median - Mode To describe the concepts of dispersion, formulae and characteristics for pooled and non-pooled data: - Range - Standard deviation - Variance - Variation coefficient	To calculate central tendency and dispersion measures. To determine data representative measures. To determine a data set behavior based on central tendency and dispersion measures.	Organized Systematic Stress management
Normal Distribution	To understand the concept of data distribution. To identify the types of distribution: - Normal - Binomial - Poisson - Student's T To explain normal distribution properties.	To calculate area under normal distribution curve. To integrate normal distribution table.	Organized Systematic Critical Analytical Ability to work under pressure

Learning Outcome	Learning Process	Assessment Instruments
From a practical case in commercial sector, to write a report including: - Data ordering and pooling using data pooling methods. -Central tendency and dispersion measures calculation and interpretation for pooled data. -Determination of area under curve for a given probability. -Conclusion	1. To understand data pooling methods. 2. To identify concepts and types of graphics. 3. To distinguish central tendency and dispersion measures for pooled and non-pooled data. 4. To identify normal distribution properties. 5. To interpret performed measurements.	Practical exercises Checklist

STATISTICS

TEACHING-LEARNING PROCESS

Teaching Methodologies	Teaching Materials
Collaborative teams Case analysis Practical exercises	Computer Projector Internet Printed material Board

TRAINING FACILITIES

Classroom	Languages Lab/Workshop	Corporation
X		

1. Learning Unit	III. Inferential statistics
2. Theoretical Hours	4
3. Practical Hours	21
4. Total	25
5. Objective	Students will perform inferences, estimates and interpretations of a data series to determine consumer preferences.

Topic	Knowledge	Skills	Values/ Behavior
Estimate	To describe the concepts and procedures of estimate calculation, confidence intervals and margin of error.	To calculate estimate considering sample size and population type.	Organized Systematic Tolerant
Hypothesis testing	To describe the concepts of: - null hypothesis - alternative hypothesis - confidence level - significance of grade - Type I and II errors. To describe hypothesis testing models and their characteristics: - Student's T - Fisher's F	To perform hypothesis testing.	Organized Systematic Tolerant

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STATISTICS
ASSESSMENT PROCESS

Learning Outcome	Learning Process	Assessment Instruments
To integrate a portfolio of practical cases in commercial sector of hypothesis testing from a mean and standard deviation.	1. To identify the concepts: sampling error, population size and sample. 2. To understand procedures to calculate sampling error, sample size and confidence intervals. 3. To understand models to complete hypothesis testing (normal distribution, Student's T and Fisher's F). 4. To carry out inferences from hypothesis testing results.	Practical exercises Checklist

STATISTICS

Teaching Methodologies	Teaching Materials
Collaborative teams Practical cases Research tasks	Computer Projector Published cases Statistical software Board

TRAINING FACILITIES

Classroom	Languages Lab/Workshop	Corporation
X		

STATISTICS
ABILITIES DERIVED FROM PROFESSIONAL COMPETENCIES TO WHICH THE SUBJECT CONTRIBUTES

Ability	Performance Criteria

To diagnose the corporation's condition through the use of financial, administrative and researching tools, as well as to analyze functional areas in order to plan the commercialization process.	Students elaborate a corporation diagnosis including:
	- organizational philosophy
	- organizational objectives
	- financial analysis:
	  - Vertical method
	    - Financial reasons
	    - Integral percentages
	    - Critical point
	  - Horizontal method
	    - Tendencies
	    - Percentage change
	- Installed capacity
	- Positioning in the market
	- Product analysis
	- Distribution channels
	- Competitiveness of sales force
	- Client portfolio behavior
	- Public perception
	- Identification of strengths and weaknesses.

To determine competition positioning through the study of its competitive advantages, weaknesses, use of methods and techniques, in order to identify the corporation's opportunities in the market.	Students deliver the competition analysis including:
	- participation in the market
	- positioning in the market
	- Competitive and comparative advantages matrix:
	  - Price
	  - Product quality
	  - Service quality
	  - Distribution channels
	  - Delivery time
	  - Advertising
	  - Payment terms
	  - After-sales service
	- Analysis and interpretation of results
	- Opportunity identification.

Ability	Performance Criteria
To perform national and international market research through an analysis of environment and the use of quantitative and qualitative methods, for commercial decision making.	Students present a report of markets research including: - Executive overview - Research statement (problem, objective, hypothesis, research methodology, technical proposal, instrument for information gathering) - Data gathering and management - Results analysis and interpretation - Conclusions and recommendations.

To formulate national and international business ideas through business projects methodology, in order to harness detected opportunities	Students present a draft at a profile level containing:
	Executive overview
	Definition of goods or service
	Market analysis
	Technical analysis:
	  - Organizational
	  - Legal
	  - Production
	  - Environmental impact
	Financial analysis
	Pre-feasibility analysis
	Conclusions

To elaborate sales programs based on sales projections and through resources analysis and strategies design, to achieve commercial goals.	Students elaborate a sales program containing: - projection - objectives - goals - strategies - budgets - activities timetable

STATISTICS
BIBLIOGRAPHY

Author	Year	Title	City	Country	Editorial
Levine, David M./Krehbiel, Timothy/ Berenson, Mark	2014	*Estadística para Administración*	Ciudad de México	México	Pearson Educación ISBN: 9786073222570
Triola, Mario F	2013	*Estadística*	Ciudad de México	México	Pearson Educación ISBN: 9786073217682
Murray R. Spiegel	2013	*Probabilidad y estadística*	Ciudad de México	México	McGraw-Hill Interamericana ISBN: 9786071511881
Anderson, David R./,Sweeney, Dennis J./ Williams, Thomas A.	2016	*Estadística para negocios y Economía*	Ciudad de México	México	Cengage Learning ISBN: 9786075225159
Lind / Marchal / Watmen	2015	*Estadística aplicada a los negocios y Economía*	Ciudad de México	México	McGraw-Hill ISBN: 9786071513038