

Course Syllabi

1. MAES-00091 STATISTICAL INFERENCE TECHNIQUES

2. 144 credits hours.

3. Bibliography

- Probabilidad y Estadística, Spiegel M., Schiller J. y Srinivasan A. , 2003
- PROBABILIDAD Y ESTADISTICA PARA INGENIERIA Y CIENCIAS, DEVORE, J., 2016
- PROBABILIDAD Y ESTADÍSTICA BÁSICA PARA INGENIERO, Luis Rodríguez Ojeda, 2007
- Probabilidad y estadística para ingenieros, Myers, Raymond H.. and Walpole, Ronald E.. and Myers, Sharon, 2012
- <https://es.r4ds.hadley.nz/>, Hadley Wickham, Garrett Golemund, 2017

4. Specific Course Information

- a. Techniques of Statistical Inference is a subject that addresses from the collection, representation and organization of data to its analysis the decision making, with the use of the theory of sampling, probability, estimates and analysis of time series. In the subject you can review concepts such as: modeling variables, estimation of population parameters, relation between sample and population, confidence intervals, hypothesis tests and regression analysis. statistics allow the industrial engineering professional to analyze data in the production of goods and services the identification of variables that allow proper planning, process optimization, quality control for decision-making in the industry. The subject contributes to ABET's learning results: RA1. Problem solving. It identifies, formulates and solves complex engineering problems by applying principles of engineering, science and mathematics. RA3. Common icación. It communicates professional topics to a range of audiences effectively.
- b. Prerequisites:
 - MAES-00088 ANALYTICAL STATISTICS

5. Learning Objectives of the Course

- a. Analyze statistical inference techniques for adequate decision
 - making based on data and information analysis.
 - Identify collection, representation and organization processes in tabular and graphical form the frequency distributions of statistical variables.
 - Identify inferential statistical techniques and their application in decision
 - making on population parameters with their respective confidence interval.
 - Analyze probability and random variables as a model of statistical variables.
- b. Learning Outcomes
 - Ra1. identify the main types of discrete and continuous random variables as models of statistical variables applied to complex engineering problems by applying engineering, science and mathematics principles.
 - Ra3. effectively communicate data behavior.
 - Ra1. identify the main types of discrete and continuous random variables as models of statistical variables applied to complex engineering problems by applying engineering, science and mathematics principles.
 - Ra1. knowledge of basic concepts and applications of statistical inference techniques related to complex engineering problems by applying engineering, science and mathematics principles.

- Ra3. effectively communicate the results of statistical hypothesis testing for decision-making to different audiences.
- Ra3. effectively communicate data behavior.
- Ra1. identify the main types of discrete and continuous random variables as models of statistical variables applied to complex engineering problems by applying engineering, science and mathematics principles.
- Ra1. knowledge of basic concepts and applications of statistical inference techniques related to complex engineering problems by applying engineering, science and mathematics principles.
- Ra3. effectively communicate the results of statistical hypothesis testing for decision-making to different audiences.
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6. Course Topics

- Introduction to inferential statistics
- Discrete random variables and discrete probability distributions
- Continuous random variables and probability distributions
- Estimation of parameters
- Hypothetical tests
- Simple regression and correlation