

Course Title	Research Methods				
Course Code	CSE600				
Course Type	Optional				
Level	Master (2 nd Cycle)				
Year / Semester	2 nd Year/3 rd Semester				
Teacher's Name	TBA				
ECTS	10	Lectures / week	none	Laboratories / week	none
Course Purpose and Objectives	The student acquires the necessary skills to enable the successful completion of scientific experiments and their analysis. Established research methods for independent research are introduced using methodical processes.				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • Explain the scientific method • Discuss the various types of research • Assess data through descriptive statistics • Create correct scientific experiments • Propose critical analyses of data based on statistical tests • Explain correlation and regression evidence as part of the analysis of an experimental result 				
Prerequisites	None	Co-Requisites	CYS600		
Course Content	<p>The nature of research:</p> <p>Definitions and types of research; research process; types of research methods; feasibility and value; Statistical and qualitative techniques for data analysis; use of appropriate software</p> <p>Descriptive Statistics: Frequency Distributions; Proportions and Percentages; Nominal, Ordinal and Interval Data; Cumulative Distributions; Cross-Tabulations; Mode, Median, and Mean; Range, Variance and Standard Deviation; Graphical Representations</p> <p>Probability and the Normal Curve: Probability; Probability Distributions; Characteristics of the Normal Curve; Random Sampling; Sampling Error; Sampling Distribution of Means; Standard Error; Confidence Intervals; The t Distribution; Proportions; Generalizing From Samples to Populations</p> <p>Decision Making The Null Hypothesis; The Research Hypothesis; Levels of Significance; Standard Error; Two Sample Tests of Proportions; Analysis of Variance; The Sum of Squares; The F Ratio;</p>				

	<p>Nonparametric Tests; The Chi-Square Test; The Median Test</p> <p>Association Methods Correlation; Strength and Direction of Correlation; Curvilinear Correlation; Correlation Coefficient; Pearson's Correlation Coefficient; The Regression Model; Regression and Pearson's Correlation; Spearman's Rank-Order Correlation Coefficient; Goodman's and Kruskal's Gamma; stration: Goodman's and Kruskal's Gamma.</p> <p>Program-specific content As this course is taught in a variety of Master's programs offered by the department of Computer Science, the last part of the course will discuss specific research methods for each discipline. The specific topics will be provided by the instructor of the course according to the specific needs of the audience.</p>						
Teaching Methodology	E-Learning						
Bibliography	<p>Edgar, T. W. and Manz, D. O. Research Methods for Cyber Security. Cambridge, MA: Syngress.</p> <p>Argyrous, G. Statistics for Research: with a guide to SPSS. Los Angeles, CA: Sage.</p> <p>King, R. S. Research Methods for Information Systems, Dallas, TX: Mercury Learning & Information</p>						
Assessment	<table border="1" data-bbox="459 1137 1177 1249"> <tr> <td data-bbox="459 1137 976 1173">Examinations</td> <td data-bbox="976 1137 1177 1173">50%</td> </tr> <tr> <td data-bbox="459 1173 976 1209">Assignments/On-going evaluation</td> <td data-bbox="976 1173 1177 1209">50%</td> </tr> <tr> <td data-bbox="459 1209 976 1249"></td> <td data-bbox="976 1209 1177 1249">100%</td> </tr> </table>	Examinations	50%	Assignments/On-going evaluation	50%		100%
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	100%						
Language	English						