

**Arab Academy for Science and Technology and Maritime Transport  
Computer Science Curriculum  
Course Syllabus**

<b>Course Code:</b> BA203	<b>Course Title:</b> Probability and Statistics	<b>Classification:</b> R	<b>Coordinator's Name:</b> Dr. Adel Elrfaay	<b>Credit:</b> 3
<b>Pre-requisites:</b> BA102	<b>Co-requisites:</b> None	<b>Schedule:</b> Lecture                    2 hrs. Tutorial/Lab            2 hrs.		
<b>Course Description:</b> This course provides an introduction on Statistics. Topics of interest include the statistical analysis on statistical data, statistical measurements. Elementary probability, probability theorems, conditional probability, independent and dependent events, total probability rule and Baye's Theorem. Discrete probability distribution, probability mass function, continuous probability distribution and probability density function. Mathematical expectation: mean and variance. Special discrete distribution: Bernoulli, Binomial. Geometric and Poisson distributions. Special continuous distribution: Uniform, negative exponential and normal distribution.				
<b>Textbook:</b> John E. Freund, <i>Modern Elementary Statistics</i> , Pearson Prentice Hall.				
<b>References:</b> 1. W. Feller, <i>An Introduction to Probability Theory and its Applications</i> , John Wiley. 2. S. M. Ross, <i>Introduction to Probability Models</i> , Academic press.				
<b>Course Objective/Course Learning Outcome:</b>		<b>Contribution to Program Student Outcomes:</b>		
<ol style="list-style-type: none"> <li>1. Make statistical analysis and calculating statistical measurements using computer programs like the Minitab program or Excel.</li> <li>2. Introduce the basic ideas of probability and conditional probability and its dependence.</li> <li>3. Introduce discrete and continues random variable.</li> <li>4. Study simple application to reliability and life testing.</li> </ol>		<p>(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.</p> <p>(SO3) Communicate effectively in a variety of professional contexts.</p>		

<p><b>Course Outline:</b></p> <ol style="list-style-type: none"> <li>1. An introduction to Statistics and statistical analysis on data observation</li> <li>2. Statistical measurements</li> <li>3. Elementary Probability- Probability theorems</li> <li>4. Conditional probability --Independent and dependent events</li> <li>5. Total probability rule – Baye’s Theorem and enumeration methods</li> <li>6. Discrete probability distribution – probability mass function</li> <li>7. Continuous probability distribution – probability density function</li> </ol>	<ol style="list-style-type: none"> <li>8. Mathematical expectation, mean and variance</li> <li>9. Special discrete distribution: Bernoulli , Binomial, Hypergeometric and Poisson</li> <li>10. distributions</li> <li>11. Special continuous distribution: Uniform and exponential distribution</li> <li>12. Special continuous distribution: normal distribution</li> <li>13. Discrete joint probability distribution</li> <li>14. Continuous joint probability distribution</li> </ol>