

**Course: Major Mandatory 2 Credit Course  
Quantitative Techniques for Economics**

<b>Semester: II</b>	<b>Credits: 2</b>	<b>Subject Code: AMAJCECO223503</b>	<b>Lectures: 30</b>
---------------------	-------------------	-------------------------------------	---------------------

**Course Outcomes:**

At the end of the course, the learner will be able to:

- CO1 - Use mathematical techniques in economic analysis
- CO2 - Use statistical techniques in economic analysis
- CO3 - Apply the mathematical techniques in real life economic phenomena.
- CO4 - Apply the statistical techniques in real life economic phenomena.

<b>Unit 1: Mathematics for Economics</b>	<b>15</b>
<ul style="list-style-type: none"> <li>• Linear Equations and Graphs, slope-intercept form, Applications of linear equations in economics-Graphing functions and applications of nonlinear functions in economics-Supply and Demand analysis-Break-Even analysis.</li> <li>• Differential Calculus-Derivatives- Higher order derivatives-Increasing and decreasing functions- Optimisation of economic function</li> <li>• Applications in Economics – marginal concepts, relationship between total, marginal and average functions-elasticity of demand- effects of subsidy etc.</li> <li>• Matrices and basic operations on matrices- Determinants-Inverse of a matrix-Cramer's rule and its application to IS-LM Analysis</li> </ul>	

<b>Unit 2: Statistics for Economics</b>	<b>15</b>
<ul style="list-style-type: none"> <li>• Concepts of Cross -sectional data, Times series data, Pooled Data</li> <li>• Select graphical techniques - Bar Diagram, Flow charts, Pie charts, Line Graphs, time-series graphs, Histogram, Scatter plot</li> <li>• Measures of Central Tendency - arithmetic mean, median, and mode and their applications</li> <li>• Measures of Dispersion - Dispersion and Standard deviation with simple applications</li> <li>• Concept of population, Sample, Sampling Frame and Sampling unit</li> <li>• Types of Probability sampling techniques and Non-probability sampling techniques</li> <li>• Correlation Analysis - Karl Pearson's coefficient of correlation, Spearman's rank correlation coefficient (with the help of excel)</li> </ul>	



<b>Board of Studies</b>	<b>Department</b>	<b>Name</b>	<b>Signature</b>
Chairperson (HoD)	Economics	Dr. Manisha Pimpalkhare	<i>Manisha Pimpalkhare</i> 14/7/23

**RecommendedTextBooks:**

- ChiangA.C.*FundamentalMethodsofMathematicalEconomics*,3rdedition,McGraw- Hill, 1984.
- DowlingEdwardT.*IntroductiontoMathematicalEconomics*,Schaum'sOutlineSeriesin Economics, Tata McGraw -Hill, 2004.
- GuptaS.P.*StatisticalMethods*,S.Chandpublishing,2014
- PatraS.C.*MathematicalTechniquesforEconomicAnalysis*,HimalayaPublishingHouse, Mumbai, 2010.
- SanchetiD.C.andV.K.Kapoor.*Statistics-TheoryMethodsandApplications*,S.Chand, 2014.
- Sydsaeter,Knut.,andPeterHammond,*MathematicsforEconomicAnalysis*,Pearson Education India, 1st edition. 2002.

**ReferenceBooks:**

- AlphaC.Chiang,KevinWainwright.*FundamentalMethodsofMathematicalEconomics*, McGraw Hill Education, 4<sup>th</sup> edition, 2017.
- AshishJ. Dave. *AppliedStatistics for Economics*
- GeorgeCarroll,GlynBurton,StuartWall. *QuantitativeMethodsforBusinessand Economics*, Pearson Education Limited, 2001.
- SRKothari, *ResearchMethodologyMethodsandTechniques*, 2012,Pragun Publication
- RKRanaandLeenaGuptaSCAggarwal.*MathematicsforEconomists*,VKGlobal Publications Pvt Ltd, 2022.

BoardofStudies	Name	Signature
Chairperson(HoD)	Dr.ManishaPimpalkhare	<i>mpkhan</i> 14/7/23
Faculty	Dr.MeenalSumant	<i>Meenal</i> 14/7/23
SubjectExpert (OutsideSPPU)	Dr.SailiBelsare	<i>Saili</i> 14/7/23
SubjectExpert (OutsideSPPU)	Dr.SubhashPatil	<i>Subhash</i> 14/7/23
VCNominee(SPPU)	Dr.MahendraAgale	<i>Mahendra</i> 14/7/23
IndustryExpert	Ms.GauriKulkarni	<i>Gauri</i> 14/7/23
Alumni	Ms.AishwaryaRathore	<i>Aishwarya</i> 14/7/23



BoardofStudies	Department	Name	Signature
Chairperson(HoD)	Economics	Dr.ManishaPimpalkhare	<i>mpkhan</i> 14/7/23