

DSEH admission - Arguments for the Interview

Statistics and Mathematics	Computer Science	Economics
<ul style="list-style-type: none"> • Real functions of one and two variables • Derivatives • Partial derivatives • Integrals • Vectors and matrices • Operations between matrices • Determinants • Eigenvalues and eigenvectors • Probability measures and events • Random variables • Distributions and moments • Central Tendency measures • Variability measures • Distributions and moments • The Law of Large Number • The Central Limit Theory • Sample distributions • Estimation (techniques and properties of estimates) • Confidence Intervals • Hypothesis testing 	<ul style="list-style-type: none"> • Introductory programming <ul style="list-style-type: none"> • variables and expressions • flow control • functions and parameters • recursion • Fundamental algorithms <ul style="list-style-type: none"> • sorting • algorithms on graphs • Elementary data structures <ul style="list-style-type: none"> • lists, stacks, queues • search trees • Introductory understanding of database modeling • The database relational model <ul style="list-style-type: none"> • database structure • integrity constraints • Basic SQL (Structured Query Language) notions <ul style="list-style-type: none"> • simple queries • table-join operations • selection constraints (where condition) • Fundamentals of computer networks <ul style="list-style-type: none"> • network taxonomy (LAN, MAN, WAN, Internet) • standard ISO/OSI • interconnection devices (switch, router, gateway) • IP layer (IP address, IP subnet mask, IP subnetting) • TCP and UDP (definition and main differences, no technical details on their operation) • HTTP and SSH (fundamentals) 	<p>Introduction to microeconomics</p> <ul style="list-style-type: none"> • Consumer theory: basic concepts and applications with particular reference: <ul style="list-style-type: none"> • properties of preferences • indifference curves • budget constraint • optimal consumption • construction of the demand curve, and its properties • elasticity of the demand • Producer theory: basic concepts and applications with particular reference: <ul style="list-style-type: none"> • different definitions of costs • different definitions of revenues • isoquants and isocosts • profit maximization and cost minimization • construction of the supply curve • How to derive the market equilibrium <p>Introduction to macroeconomics:</p> <ul style="list-style-type: none"> • Aggregate economic variables: GDP and prices • Long run economic growth • Saving and investment • Unemployment • Money and banking system • Short term economic fluctuations