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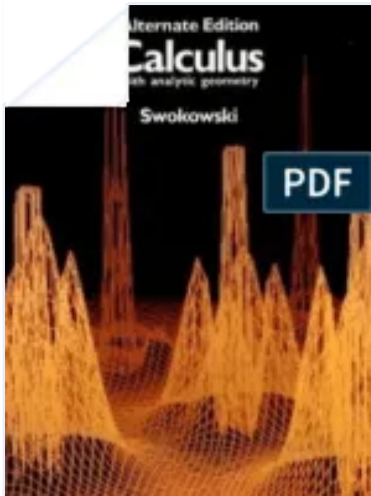
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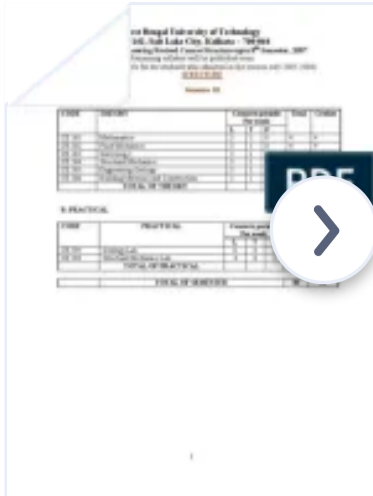
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BS (Computer Science) Program Courses Contents

SEMESTER-1

GS-111 Calculus and Analytical Geometry (3+0)

Prerequisites: None

Objectives: To provide foundation and basic ground for calculus and analytical geometry background.

Course Outline: Complex Numbers, DeMoivre's Theorem and its Applications, Simple Cartesian Curves, Functions and Graphs, Symmetrical Properties, Curve Tracing, Limit and Continuity, Differentiation of Functions. Derivative as Slope of Tangent to a Curve and as Rate of Change, Application to Tangent and Normal, Linearization, Maxima/Minima and Point of Inflexion, Taylor and Maclaurin Expansions and their convergence. Integral as Anti-derivative, Indefinite Integration of Simple Functions. Methods of Integration: Integration by Substitution, by Parts, and by Partial Fractions, Definite Integral as Limit of a Sum, Application to Area, Arc Length, Volume and Surface of Revolution.

Reference Material:

- 1. Swokowski, Olinick and Pence, Calculus and Analytical Geometry, 6th edition, 1994, Brooks/Cole Publishers.
- 2. Howard Anton, Calculus, 7th edition. 2002, John Wiley and Sons (WIE).
- 3. William E. Boyce Richard C. Dprima, Calculus, John Wiley & Sons, ISBN: 0471093335.
- 4. Thomas Finny, Calculus and Analytical Geometry, 10th edition, John Wiley and Sons.
- 5. Erwin Kreyzig, Advanced Engineering Mathematics, 7th edition, 1993, John Wiley & Sons Inc.

CS-111 INTRODUCTION TO COMPUTING (2+1)

Prerequisites: None

Objectives: This course focuses on a breadth-first coverage of computer science discipline, introducing computing environments, general application software, basic computing hardware, operating systems, desktop publishing, Internet, software applications and tools and computer usage concepts; Introducing Software engineering and Information technology within the broader domain of computing, Social issues of computing.

Course Outline: Number Systems, Binary numbers, Boolean logic, History computer system, basic machine organization, Von Neumann Architecture, Algorithm definition, design, and implementation, Programming paradigms and languages, Graphical programming, Overview of Software Engineering and Information Technology, Operating system, Compiler, Computer networks and internet, Computer graphics, AI, Social and legal issues.

Reference Material:

- 1. Computers: Information Technology in Perspective, 9/e by Larry Long and Nancy Long,
- 2. Prentice Hall, 2002 / ISBN: 0130929891
- 3. An Invitation to Computer Science, Schneider and Gersting, Brooks/Cole Thomson Learning, 2000
- 4. Computer Science: An overview of Computer Science, Sherer,

HS-111 FUNCTIONAL ENGLISH (3+0)

Prerequisites: None