

Vidnyan Mahavidhyalaya Sangola
Department of Computer Science
Teaching Plan

Teacher Name: Mr. Shaikh J.U.

Academic Year: 2019-20

Class	Subject	Month	Topics
BCA – I Sem- I	Software Engineering- I	July	● System concepts ● Definition of system ● Elements of system ● System concepts ● Types of system ● System Analysis and Role of System Analyst
		August	● Software Engineering ● Definition of software engineering ● Characteristics of software ● Qualities of software
		September	● System Development life cycle ● What is System Development life cycle? ● SDLC Models- • Classical model • Spiral model • Waterfall model • Prototyping Model • RAD model
		October	● Fact finding techniques ● Need of fact finding techniques ● • Interviews • Questionnaire • Record reviews • Observation

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B. Sc – (ECS)-II Sem-III	Software Engineering	July	System concepts: Introduction system, characteristics, Elements of system, Types of system, System Analysis, Role of System Analyst. Software Engineering: Definition, Characteristics of software, Qualities of software. System Development life cycle Waterfall model, V-shape model, Spiral model, Prototyping,
		August	Software requirements: Functional, Non-functional requirements, User requirement, System requirements, Fact finding techniques: Interviews, Questionnaire, Record reviews, Observation Analysis and Design Tools: Flow charting, Decision tables, Decision Trees, Structured English, Structure charting Techniques (HIPO)
		September	System Design: Data flow Diagram (Physical, Logical), Entity relation diagram, structured chart, Data Dictionary, Input and output design, Types of Dependencies, Normalization(1NF,2NF,3NF,BCNF,4NF,5NF)
		October	Coding: Verification, size measures, complexity analysis, coding standards, Effort Estimation, Cost Estimation, Testing fundamentals Construction of the system: traditional and incremental approaches, conversion methods, Software Implementation, Overview of maintenance process, types of maintenance

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Class	Subject	Month	
BCA – I Sem-II	Software Engineering II	December	System Analysis and System Design Tools: • Flow chart • Decision tables & Decision Trees • Structure charting Techniques (HIPO) • Entity relation Analysis (ERD) • Normalization • Input output design • Data flow Diagram (Physical, Logical), structured chart • Data Dictionary: Features of Data Dictionary, Process specification Methods
		January	• Configuration and Construction of the System • Collection of system statistics • Setting Sub-system Boundaries • Fractional Approach, Incremental Approach
		February	• Software Testing, Implementation and maintenance • Need of Testing, White Box, Black Box testing • Changeover, Pilot, Parallel
		March	• Case studies Pay Roll, Library System, Inventory Management System, College Admission System

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B. Sc – (ECS)-II Sem- IV	Database Management System	December	Introduction to Database Management System: Definition, Limitations of traditional file system· Advantages of DBMS, Components of DBMS, Database Users· Database Structure· Database Architecture- 2-tier and 3 level (schema)tier architecture· Instances and Schemas· Database languages, Data Independence· Types of data models(Relational, Network, Hierarchical, hybrid)·
		January	Conceptual Design E-R model: entities, attributes and its types, Relationship, Relationship sets,· Generalization, Specialization, Aggregation Relational Model: Relation, Domain, Tuple, Degree, cardinality· Relational Algebra operations: Select, Project, Cartesian Product, Union, Set· difference, join
		February	Transaction Management & Concurrency Control: Introduction of Transaction, ACID properties, transaction states, scheduling,· conflict and view serializability, Introduction of Concurrency Control, problems of concurrency control, lock based· protocols, timestamp based protocol, deadlock, deadlock handling methods.

		March	Database recovery and Atomicity: Introduction, recovery algorithms, log base recovery, shadow paging, recovery with concurrent transaction, checkpoints or syncpoints or savepoints. Query Optimization: Overview Query Processing and Optimization – Heuristics and Cost Estimates in Query Optimization.
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