SYLLABUS

MANONMANIAM SUNDARANAR UNIVERISTY, TIRUNELVELI-12

UG - COURSES – AFFILIATED COLLEGES

Course Structure for BCA
(Choice Based Credit System)
(with effect from the academic year 2017- 2018 onwards)

Semester-V				
Part	**Subject Status**	**Subject Title**	**Subject Code**	**Credit**
III	Core	Software engineering	SMCA51	4
	Core	Web Technology	SMCA52	4
	Core	RDBMS	SMCA53	4
	Major Practical V	RDBMS Lab	SMCAP5	2
	Elective-I	ARTIFICIAL INTELLIGENCE	SECA5B	4
	Project	Mini Project	SMCA5P	4
IV	Common	Personality development	SCSB5A	2

Total Marks: 100 Internal Exam: 25 marks + External Exam: 75 marks

A. **Scheme for internal Assessment**:
Maximum marks for written test: **20 marks**
3 internal tests, each of **I hour** duration shall be conducted every semester.
To the average of the **best two** written examinations must be added the marks scored in. The **assignment** for 5 marks.

The break up for internal assessment shall be:
Written test- 20 marks; Assignment -5 marks Total - 25 marks

B. Scheme of External Examination
3 hrs. examination at the end of the semester
A – Part : 1 mark question two - from each unit
B – Part : 5 marks question one - from each unit
C – Part : 8 marks question one - from each unit

- **Conversion of Marks into Grade Points and Letter Grades**

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	B	6	Above Average
6	40-49	C	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

- **Cumulative Grade Point Average (CGPA)**

$$\mathbf{CGPA} = \frac{\mathbf{\Sigma\,(GP \times C)}}{\mathbf{\Sigma C}}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

- **Classification**
  a) First Class with Distinction : CGPA $\geq$ 7.5*****
  b) First Class : CGPA $\geq$ 6.0
  c) Second Class : CGPA $\geq$ 5.0 and $<$ 6.0
  d) Third Class : CGPA $<$ 5.0

SOFTWARE ENGINEERING

COURSE OBJECTIVES:

- To understand the nature of software & software engineering.
- To introduce principles of software development
- To learn about planning, developing, designing testing and validating a project

UNIT I
SOFTWARE AND SOFTWARE ENGINEERING

The Nature of Software – What is Software Engineering? - Software engineering as a branch of the engineering profession – Stack holders in Software engineering - Software quality - Software engineering projects – Activities common to Software projects – Difficult and risk in software engineering as a whole. Review of Object Orientation: What is object orientation/ - Classes and objects – Instance variables – Methods, Operations and Polymorphism – Concepts best define object orientation – Difficulties and risks in programming language choice and object – oriented programming.

UNIT II
DEVELOPING REQUIREMENTS

Domain analysis – The starting point for software projects – Defining the problem and the scope – What is a requirement? – Types of requirements – Some techniques for gathering and analyzing requirements – Managing changing requirements – Difficulties and risks in domain and requirements analysis.

UNIT III
MODELING WITH CLASSES

What is UML? – Essentials of UML class diagrams – Associations and Multiplicity – Generalization – Instance diagrams – More advanced features of class diagrams. Modeling Interactions and Behavior: Interaction diagram – State diagrams – Activity diagrams.

UNIT IV
ARCHITECTING AND DESIGNING SOFTWARE

The process of design – Principles leading to good design – Techniques for making good design decisions – Software architecture – Architectural patterns – Writing a good designing document.

UNIT V
TESTING AND INSPECTING TO ENSURE HIGH QUALITY

Basic definitions – Effective and efficient testing – Defects in ordinary Algorithms – Defects in numerical algorithms – Defects in timing and co-ordination. Managing the Software Process: What is project management? – Software process models – Cost estimation – building software engineering teams – Project scheduling and tracking.

COURSE OUTCOMES:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to identify, formulates, and solves engineering problems.

TEXT BOOK:

1. Object Oriented Software Engineering, Timothy C.Lethbridge and Robert Laganiere, TMH 2004.

REFERENCE BOOKS:

1. Object Oriented and classical Software Engineering, Fifth Edition, Stephen, R. Schach, TMH.
2. Fundamentals of Software Engineering, Second Edition, CarioGhezzi, MedhiJazayeri, Dino Mandrioli, PHI.

WEB TECHNOLOGY

COURSE OBJECTIVES:

- To provide the conceptual and technological developments in the field of Internet and web designing with the emphasis on comprehensive knowledge of Internet, Describe the basic concepts for network implementation.
- To learn the basic working scheme of the Internet and World Wide Web.
- Understand fundamental tools and technologies for web design.

UNIT I
INTRODUCTION TO THE WEB

Understanding the Internet and World Wide Web – History of the Web – Protocols Governing the Web – Creating Websites for Individuals and the Corporate World – Web Applications – Writing Web projects – Identification of Objects – Target Users – Web Team – Planning and Process Development – Web Architecture – Internet Standards – TCP/IP Protocol Suite – IP Address – MIME – Cyber Laws. Hyper Text Transfer Protocol (HTTP): Introduction – Web servers and clients – Resources – URL and its Anatomy – Message Format.

UNIT II
HYPER TEXT MARKUP LANGUAGE (HTML)

History of HTML and W3C – HTML and its Flavors – HTML Basics – Elements, Attributes, and Tags – Basic Tags – Advanced Tags – Frames.

UNIT III
JAVA SCRIPT

Introduction – Variables – Literals – Operators – Control Structure – Conditional statements – Arrays – Functions – Objects.

UNIT IV
EXTENSIBLE MARKUP LANGUAGE (XML)

Common Usage – Role of XML – Prolog – Body – Elements – Attributes – Validation – Displaying XML – Namespace.XML DTD: XML Schema Languages– Validation – Introduction to DTD– Purpose of DTD – Using a DTD in an XML Document.

UNIT V
COMMON GATEWAY INTERFACE (CGI)

Internet Programming Paradigm – Server – side Programming – Languages for CGI – Applications – Server Environment – Environment Variables – CGI Building Blocks – CGI Scripting Using C, Shell Script – Writing CGI programs – CGI Security – Alternatives and Enhancements to CGI. Servlet: Server – Side Java – Advantages Over Applets - Servlet Alternatives – Servlet Strength – Servlet Architecture – Servlet Life Cycle.

COURSE OUTCOME:

- Employ fundamental computer theory to basic programming techniques.
- Use fundamental skills to maintain web server services required to host a website.
- Select and apply markup languages for processing, identifying, and presenting of information in web pages.
- Use scripting languages and web services to transfer data and add interactive components to web pages.

TEXT BOOK*:*

1. Web Technologies – UttamK.Roy – OxfordUniversity Press 2010.

REFERENCE BOOKS:

1. Web Technology and Design, C. Xavier, New Age International Publishers.
2. Web Technologies TCp/IP Architecture and Java Programming Second Edition, Achyut S. Godbole&AtulKahate, Tata McGraw Hill.
3. Web Technology A Developer's Perspective, N.P.Gopalan, J.Akilandeswari, PHI.

RDBMS

COURSE OBJECTIVES:

- To understand relational database concepts and transaction management concepts in database system.
- To write PL/SQL programs that use: procedure, function, package, cursor and Exceptions.
- To Use current techniques and tools necessary for complex computing practices.

UNIT I

AN OVERVIEW: PERSONAL DATABASES

Client server databases – Oracle 9i An introduction – The SQL*Plus Environment – SQL – SQL*PLUS commands – Sample Databases. Oracle Tables; Naming rules and conventions – Data types – Constraints – Creating an Oracle table – Displaying table information's – Altering and exiting table – Dropping a table – Renaming a table – Truncating a table.

UNIT II

WORKING WITH TABLES

DML statements – Arithmetic operations – Where clause – sorting – Define command – Built in functions – Grouping data.

UNIT III

MULTIPLE TABLES

Joints – Set operators – Subquery – Top – N Analysis .Advanced features: Views – Subsequences – Synonyms – Index.

UNIT IV

PL/SQL: FUNDAMENTALS

PL/SQL: FUNDAMENTALS – Block structure – Comments – Data types – Variable declaration – Anchored declaration – Assignment operation – Bind variables – Substitution Variables – Arithmetic operators. Structures in PL/SQL: Control structures – Nested blocks – SQL in PL/SQL DML in PL/SQL – Transaction Control Statements.

UNIT V

PL/SQL CURSORS & EXCEPTIONS

PL/SQL Cursors & Exceptions - PL/SQL Composite data types: Records, Tables and VARRAYS.

COURSE OUTCOMES:

- Master the basic concepts and appreciate the applications of database systems.
- Master the basics of SQL and construct queries using SQL.
- Be familiar with a commercial relational database system (Oracle) by writing SQL using the system.

TEXT BOOK:

1. Database System Using Oracle – Second edition – Nilesh Shan – PHI 2007.

REFERENCE BOOK:

1. Oracle 9i Complete reference – Loney Koch - Tata McGraw Hill 2005.

PRACTICAL LIST

ORACLE PROGRAMMING LIST:

1. Create an employee database with tables department, employee details, address, pay details and project details. After the tables and add constraints relevant to the fields in the tables. Insert records into all the tables.
2. Create queries to retrieve relevant information from a table.
3. Create a table from the exiting tables. Create views from the tables.
4. Develop queries to retrieve information from more than one table. Develop summary queries to retrieve relevant information from the table
5. Create a partition table and query the records.
6. Create a PL / SQL Program to print multiplication table.
7. Create a PL / SQL Program to check whether a given string is palindrome or not.
8. Create a PL / SQL Program to print student details using report.
9. Create a PL/SQL Program to perform updation using various triggers.
10. Create a PL/SQL Program to find factorial of numbers using function and procedure

ARTIFICIAL INTELLIGENCE

COURSE OBJECTIVES:

- To introduce the basic principles, techniques, and applications of Artificial Intelligence.
- Emphasis will be placed on the teaching of these fundamentals, not on providing a mastery of specific software tools or programming environments.
- Assigned projects promote a 'hands-on' approach for understanding, as well as a challenging avenue for exploration and creativity.

UNIT I
PROBLEM, PROBLEM SPACES AND SEARCH

What is AI? – AI Problems – What is an AI technique – Defining the problem as a state space search – Production system - Production system – Characteristics – Problem Characteristics?

UNIT II
HEURISTIC SEARCH TECHNIQUES

Generate and test – Hill Climbing – Best first Search – Problem Reduction – Constraints satisfaction – Means end analysis.

UNIT III
KNOWLEDGE REPRESENTATION

Representations and Mappings – Approaches to Knowledge Representation. Using predicate Logic: Representing simple facts in logic – Computable functions and prediction – Resolution – The basic of resolution – Resolution in Propositional Logic – The Unification algorithm – Resolution in Predicate Logic.

UNIT IV
REPRESENTING KNOWLEDGE USING RULES

Procedural versus – Declarative Knowledge – logic Programming – Forward versus Backward Reasoning – Matching.

UNIT V
GAME PLAYING

The Minimax search procedure – Adding Alpha Beta cut offs – Addition Refinements – Waiting for Quiescence – Secondary Searches – Using Book moves.

COURSE OUTCOMES:

- Knowledge of what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence.
- Explain how Artificial Intelligence enables capabilities that are beyond conventional technology, for example, chess-playing computers, self-driving cars, robotic vacuum cleaners.

- Ability to apply Artificial Intelligence techniques for problem solving.

TEXT BOOKS*:*

1. Elain Rich Kevin knight ”Artificial Intelligence” - Tata McGraw Hill.
2. Artificial Intelligence and Intelligent Systems – N.P.PADHY.

REFERENCE BOOKS:

1. Introduction to Artificial Intelligence Rajenda Akeskar PHI.
2. Artificial Intelligence by PH, Winston – Addison Wesley.
3. Introduction to Artificial Intelligence and Expert System by Patter.

MINI PROJECT

OBJECTIVE:

To develop applications in PHP using various concepts like arrays, udf's, Sessions and make the students to understand and to establish the connectivity between PHP and MySQL and develop programs to add records, retrieve records and delete records from a table.

Each exercise should be completed within THREE hours.

It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Create a simple webpage using PHP.
2. Design a form to create an email. Store the data in a database. Validate all the input fields. Database connectivity in PHP with MySQL.
3. Create a MySQL database table tbllogin with fields user name and Password. Perform all database operations like select, insert, delete, update on the table tbllogin
4. Develop a CRUD application, which stands for Create, Read, Update, Delete. A quick example of a CRUD application would be a database of employees for a company. From the control panel, an admin would be about to add a new employee (create), view a list of employees (read), change an employee's salary (update) or remove a fired employee from the system (delete).
5. Create a table with two columns namely the name of the player and number of wickets. Create a Chart to display the data.
6. Create your college webpage.
7. Design a biodata form.

SKILL BASED
PERSONALITY DEVELOPMENT

Course objective :

- To develop the skills of the professional undergraduate students for proper self expression, social communication, spoken English, correct pronunciation, voice modulation and business etiquettes.
- The students should improve their personality, communication skills and enhance their self-confidence.
- To develop the presentation skills of the undergraduate students.
- The students should be able to act with confidence, should be clear about their own personality, character and future goals.

UNIT-I:
PERSONALITY

Definition – Determinants - Personality Traits – Theories Of Personality – Importance Of Personality Development - SELF AWARENESS – Meaning – Benefits Of Self – Awareness – Developing Self- Awareness. SWOT – Meaning – Importance – Application – Components. GOAL SETTING: Meaning – Importance – Effective Goal Setting – Principles Of Goal Setting – Goal Setting At The Right Level .

UNIT-II:
SELF MONITORING

Meaning-High Self – Monitor Vs. Low-Self Monitor-Advantages & Disadvantages of Self- Monitor- Self Monitoring And Job Performance. PERCEPTION – Definition – Factors Influencing Perception – Perception Process – Errors In Perception – Avoiding Perceptual Errors. ATTITUDE- Meaning – Formation Of Attitude – Types Of Attitude – Measurement Of Attitude – Barriers To Attitude Change- Methods To Attitude Change. ASSERTIVENESS - Meaning – Assertiveness In Communication - Assertiveness Techniques – Benefits Of Being Assertive – Improving Assertiveness.

UNIT-III
TEAM BUILDING

Meaning – Types Of Teams – Importance of Team Building - Creating Effective Team. LEADERSHIP – Definition – Leadership Style – Theories Of Leadership – Qualities Of An Effect Leader. NEGOTIATION SKILLS – Meaning – Principles Of Negotiation - Types Of Negotiation – The Negotiation Process – Common Mistakes In Negotiation Process.CONFLICT MANAGEMENT – Definition – Types Of Conflict – Levels Of Conflict – Conflict Resolution – Conflict Management.

UNIT-IV
COMMUNICATION

Definition – Importance Of Communication – Process Of Communication – Communication Symbols – Communication Network – Barriers In Communication - Overcoming Communication Barriers. TRANSACTIONAL ANALYSIS –Meaning – EGO states – Types Of Transactions – Johari Window – Life Positions. EMOTIONAL INTELLIGENCE – Meaning – Components Of Emotional Intelligence – Significance Of Managing Emotional Intelligence – How Develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources Of Stress – Symptoms Of Stress – Consequences Of Stress – Managing Stress. Page **26** of **37**

UNIT – V:
SOCIAL GRACES

Meaning – Social Grace At Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes In Multicultural Environment – Do‟s And Don‟ts Of Table Etiquettes. DRESS CODE – Meaning – Dress code for selected Occasions – Dress Code for an Interview – GROUP DISCUSSION: Meaning - Personality Traits Required For Group Discussion – Process Of Group Discussion – Group Discussion Topics. INTERVIEW – Definition – Types Of Skills – Employer Expectations – Planning For The Interview – Interview Questions – Critical Interview Questions.

REFERENCE BOOKS:

1. Personality Development – Dr. S. Narayanarajan, Dr. B. Rajasekaran, G. Venkadasalapathi, V. VijueshNayaham and Herald M.Dass
2. Organisational Behaviour – Stephan P. Robbins
3. Organisational Behaviour – Jit S. Chandran
4. From campus to Corporate – Dr.K.K. Ramachandran and Dr. K.K. Karthick