

K.S.N.GOVERNMENT DEGREE COLLEGE FOR WOMEN, ANANTHAPURAMU

B.Sc(MPCs, MECs PROGRAMME STRUCTURE)

COMPUTER SCIENCE SYLLABUS W.E.F 2017-18

DEPARTMENT OF COMPUTER SCIENCE

Programme Specific Outcomes (PSO)

- PSO1 -The ability to apply problem solving skills,
- PSO2 -The knowledge of computer science to analyze and develop solution to real world Problems related to data structure, web design, networking of varying complexity.
- PSO3 - The ability to employ modern computer languages, environments and platforms in Creating innovative career paths in the field of computer science.
- PSO4 --Demonstrate understanding of the principles and working of the hardware and Software aspects of computer systems.

Programme outcomes (Pos)

- ✚ **PO1: Relevance of the Principles:** To understand the basic laws of nature, fundamental principles, and the scientific theories related to various phenomena and their relevance in the day-to-day life
- ✚ **PO2: Critical Thinking, Problem Solving Skills:** Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments. The skills of observations and drawing logical inferences from the scientific experiments.
- ✚ **PO3: Interdisciplinary learning:** Realizing that knowledge of subjects in other branches such as humanities, performing arts, social sciences etc. can have greater influence and inspiration in evolving new scientific theories and inventions, and understanding the importance of interdisciplinary study in every walk of life.
- ✚ **PO4: Moral and Ethical Values:** To imbibe ethical, moral and social values in personal and social life leading to highly cultured, civilized and responsible personality development.
- ✚ **PO5: Scientific Temper:** Analyzing the given scientific data critically and systematically and the ability to draw the objective conclusions. Acquire the knowledge with facts and figures related to various subjects in pure sciences such as Botany, Chemistry, Computer Science, Electronics, Mathematics, Physics, and Zoology etc.
- ✚ **PO6: Technical and Intellectual proficiency:** To give a glimpse of designing solutions for communication problems with specific needs with appropriate technology thus developing healthy competition and setting parameters for excellence.

ANANTHAPURAMU
Department of Computer Science

Computer Science	1-1-107R	B. Sc(MPCs & MECs)
I Year 1st Semester PAPER – I – Computer Fundamentals & Photoshop		
No.of.Hoursper Week:4		No of Credits: 3

Learning Objectives::

- a. This course introduces the concepts of computer basics & programming with particular attention to Engineering examples.
- b. The C programming language is used but the course will stress on fundamental parts of programming language, so that the students will have a basic concept for understanding and using other programming language.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1:	Bridge the fundamental concepts of computers with the present level of knowledge of the students.	PO1,PO2
CO2	To explore basic knowledge on computers and Photoshop's beauty from the practical to the painterly artistic	PO1,PO5, PO6
CO3	To understand how Photoshop will help you create your own successful images	PO1,PO3, PO4

Reference Books:

1. Fundamentals of Computers by Reema Thareja from Oxford University Press
2. Adobe Photoshop Class Room in a Book by Adobe Creative Team.
3. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Color Grading & Graphic...19 February 2016 by David Maxwell

**K.S.N.GOVERNMENT DEGREE COLLEGE FOR WOMEN,
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Department of Computer Science

Computer Science	C-2120 A	B. Sc(MPCs & MECs)
I Year 2nd Semester		
PAPER – II – Programming in “C”		
No.of.Hoursper Week: 4		No of Credits: 3

Learning Objectives: :

1. Learn how to solve common types of computing problems.
2. Learn data types and control structures of C
3. Learn to map problems to programming features of C.
4. Learn to write good portable C programs

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.	PO1,PO2,PO3
CO2	Understand binary, hexadecimal and octal number systems and their arithmetic.	PO2,PO3
CO3	Understand how logic circuits and Boolean algebra forms as the basics of digital computer.	PO1,PO2,PO6
CO4	Demonstrate the building up of Sequential and combinational logic from basic gates	PO1,PO2,PO3
CO5	Analyze a given problem and develop an algorithm to solve the problem	PO2,PO3
CO6	Design, develop and test programs written in 'C'	PO1,PO2,PO3,PO6

References:-

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: —COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. Henry Mullish & Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.

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ANANTHAPURAMU**

Department of Computer Science

Computer Science	1-1-107R	B. Sc(MPCs & MECs)
II Year 1st Semester		
PAPER – III – Object Oriented Program Using Java		
No.of.Hoursper Week: 4		No of Credits: 3

Learning Objectives::

1. Understand the concept and underlying principles of Object-Oriented Programming .
2. Understand how object-oriented concepts are incorporated into the Java programming language .
3. Develop problem-solving and programming skills using OOP concept .
4. Understand the benefits of a well structured program .
5. Develop the ability to solve real-world problems through software development in high-level programming language like Java .
6. Develop efficient Java applets and applications using OOP concept.
7. Become familiar with the fundamentals and acquire programming skills in the Java language.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO2	Ability to apply the acquired knowledge of basic skills, principles of computing, mathematical foundations, algorithmic principles, modeling and design of computer- based systems in solving real world engineering Problems.	PO1,PO2
CO3	Ability to understand the structure and development methodologies of software systems. Possess professional skills and knowledge of software design process. Familiarity and practical competence with a broad range of programming language and open source platforms. Use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.	PO2,PO3,PO5
CO4	Ability to update knowledge continuously in the tools like, Computing, Communication to meet the industry requirements in creating innovative career paths for immediate employment and for higher studies.	PO1,PO3,PO6

Reference Books:

1. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.
2. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TATA McGraw-Hill Company.
3. Deitel &Deitel. Java TM: How to Program, PHI (2007)
4. Java Programming: From Problem Analysis to Program Design- D.S Mallik
5. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

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Department of Computer Science

Computer Science	1-1-107R	B. Sc(MPCs & MECs)
II Year 2nd Semester		
PAPER – IV – Data Structure Using Java		
No.of.Hoursper Week: 4		No of Credits: 3

Learning Objectives:-

1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms
2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
4. Demonstrate different methods for traversing trees
5. Compare alternative implementations of data structures with respect to performance
6. Compare and contrast the benefits of dynamic and static data structures implementations

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.	PO1,PO2,PO5
CO2	Understand basic data structures such as arrays, linked lists, stacks and queues.	PO1,PO3,PO5,PO2
CO3	Describe the hash function and concepts of collision and its resolution methods	PO1,PO3
CO4	Solve problem involving graphs, trees and heaps	PO4,PO5,PO6
CO5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	PO1,PO2,PO3,PO5,PO6

References:-

1. D S Malik, Data Structures Using C++, Thomson, India Edition 2006.
2. Sahni S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002.
3. Samanta D, Classic Data Structures, Prentice-Hall of India, 2001.
4. Heilman G I., Data Structures and Algorithms with Object-Oriented Programming, Tata McGraw-Hill. 2002. (Chapters I and 14).
5. Tremblay P, and Sorenson P G, Introduction to Data Structures with Applications, Tata McGraw-Hill,

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ANANTHAPURAMU**

Department of Computer Science

Computer Science	1-1-107R	B. Sc(MPCs & MECs)
III Year 1st Semester PAPER – V – DBMS		
No.of.Hoursper Week: 3		No of Credits: 3

Learning Objectives:

1. Design & develop database for large volumes & varieties of data with optimized data processing techniques.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	Describe DBMS architecture, physical and logical database designs, database modeling, relational, hierarchical and network models.	PO1, PO2, PO3
CO2	Identify basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.	PO1,PO3,PO5
CO3	Learn and apply Structured query language (SQL) for database definition and database manipulation.	PO3,PO5,PO6
CO4	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.	PO1,PO3,PO4,PO5
CO5	Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.	PO1,PO3,PO5, PO6

References:-

1. “Database System Concepts” by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010, 9780073523323
2. “Database Management Systems” by Raghu Ramakrishnan, McGrawhill, 2002,
3. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications
4. “An Introduction to Database Systems” by Bipin C Desai
5. “Principles of Database Systems” by J. D. Ullman
6. “Fundamentals of Database Systems” by R. Elmasri and S. Navathe

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Computer Science	1-1-107R	B. Sc(MPCs & MECs)
III Year 1st Semester		
PAPER – VI- Software Engineering		
No.of.Hoursper Week: 3		No of Credits: 3

Learning Objectives:

1. The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements	PO1,PO2,PO4
CO2	Able to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project	PO2,PO5
CO3	Analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.	PO1,PO5,PO6
CO4	Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice.	PO2, PO3,PO5, PO6
CO5	Able to use modern engineering tools necessary for software project management, time management and software reuse	PO1,PO3,PO6

REFERENCES:

- 1.Roger Pressman S., “Software Engineering: A Practitioner's Approach”, 7th Edition, McGraw Hill, 2010.
2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, “Software Engineering”, Eighth Edition, Pearson Education, 2007
3. Pfleeger, “Software Engineering: Theory & Practice”, 3rd Edition, Pearson Education, 2009
4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, “Fundamentals of Software Engineering”, Pearson Education, 2003

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Computer Science	C 63034 D	B. Sc(MPCs & MECs)
III Year 2nd Semester PAPER – VII- Elective-C-Web technology		
No.of.Hoursper Week: 3		No of Credits: 3

Learning Objectives:

- To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.
- To provide skills to design interactive and dynamic web sites.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	To understand the web architecture and web services	PO1,PO3
CO3	To practice latest web technologies and tools by conducting experiments.	PO1,PO4,PO5
CO3	To design interactive web pages using HTML and Style sheets.	PO2,PO5
CO4	To study the framework and building blocks of .NET Integrated Development Environment.	PO1,PO4,PO5
CO5	To provide solutions by identifying and formulating IT related problems.	PO2,PO4,PO5,PO6

Reference:

1. Harvey M. Deitel and Paul J. Deitel, “Internet & World Wide Web How to Program”, 4/e, Pearson Education.
2. Uttam Kumar Roy, Web Technologies from Oxford University Press
3. Jason Cranford Teague “Visual Quick Start Guide CSS, DHTML & AJAX”, 4e, “Pearson Education.
4. Tom Nerino Doli smith “JavaScript & AJAX for the web” Pearson Education 2007.
5. Joshua Elchorn “Understanding AJAX” Prentice Hall 2006.
6. Hal Fulton “The Ruby Way”, 2e, Pearson Education 2007.
7. David A. Black “Ruby for rails” Dreamtech Press 2006.
8. Bill Dudney, Johathan lehr, Bill Willies, Lery Mattingly “Mastering Java Server Faces” Wiely India 2006.

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Computer Science	C 63118-E	B. Sc(MPCs & MECs)
III Year 2nd Semester		
PAPER – VIII- Cluster-C1-PHP & MySql, Wordpress		
No.of.Hoursper Week: 3		No of Credits: 3

Learning Objectives

1. To introduce the concept of PHP and to give basic Knowledge of PHP.
2. Learn about PHP Syntax., Arrays, PHP Loops, PHP and MySQL connectivity, PHP form validation, PHP form handling.
3. Overview of MySQL and PHPMyAdmin, Understand basic concepts of how a Database stores information via tables,
4. Understanding of SQL syntax used with MySQL, Learn how to retrieve and manipulate data from one or more tables, Know how to filter data based upon multiple conditions, Updating and inserting data into existing tables,
5. Learning how the relationships between tables will affect the SQL, The advantages of store procedures with storing data using variables and functions, How SQL can be used with programming languages like PHP to create dynamic websites for visitors, Review of some sample PHP projects interacting with MySQL.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	Introduction to web development with PHP	PO1,PO3,PO5
CO3	How to code a PHP application	PO2,PO6
CO3	Introduction to relational databases and MySQL	PO1,PO4,PO5
CO4	How to use PHP with a MySQL database	PO1,PO4,PO5
CO5	How to use regular expressions, handle exceptions, and validate data	PO2,PO4,PO5

Reference:

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach yourself, Pearson Education (2007).
2. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).

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Computer Science	1-1-107R	B. Sc(MPCs & MECs)
III Year 2nd Semester		
PAPER – VIII- Cluster-C2-Advanced Java Script (JQUERY/AJAX/JSON/Angular JS)		
No.of.Hoursper Week: 3		No of Credits: 3

Learning Objectives

1. To impart knowledge in designing a webpage in a structured way by using advanced java Script i.e., using different scripting languages.

COURSE OUTCOMES

Upon successful completion of this course, students should have

CO1	On completing the subject, students will be able to: create a dynamic website using advanced features of JavaScript .	PO1,PO2,PO5
CO2	create a website with good and attractive design.	PO4,PO3,PO6

Reference:

- 1.jQuery UI 1.8: The User Interface Library for jQuery by [Dan Wellman](#)
2. jQuery Fundamentals by [Rebecca Murphey](#)
3. Ajax: The Complete Reference by [Thomas A. Powell](#)
4. Pro AngularJS by [Adam Freeman](#) Kindle Edition