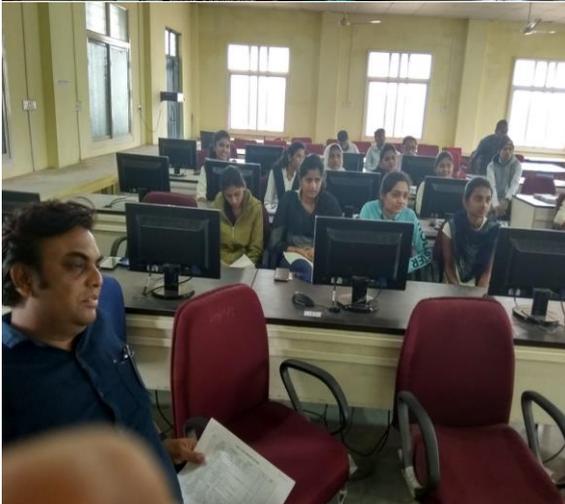


# GOVT. P.G. COLLEGE KHARGONE

## DEPARTMENT OF COMPUTER SCIENCE



## Program Outcomes, Program Specific Outcomes and Course Outcomes

### Department of Computer Science Govt. P.G. College Khargone

#### PROGRAMME OUTCOMES: B. Sc. Computer Science

Department of Computer Science	After successful completion of three year degree program in Computer Science a student should be able to.
Programme Outcomes	<p><b>PO-1</b> To develop problem solving abilities using a computer</p> <p><b>PO-2</b> To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.</p> <p><b>PO-3</b> To imbibe quality software development practices.</p> <p><b>PO-4</b> To create awareness about process and product standards</p> <p><b>PO-5</b> To train students in professional skills related to Software Industry.</p> <p><b>PO-6</b> To prepare necessary knowledge base for research and development in Computer Science</p> <p><b>PO-7</b> To help students build-up a successful career in Computer Science</p>
Program Specific Outcomes	<p><b>PSO1:</b> Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.</p> <p><b>PSO-2</b> Design, implements, test, and evaluate a computer system, component, or algorithm to meet desired needs and to solve a</p>

computational problem.

**PSO-3** To Enhance skills and adapt new computing technologies for attaining professional excellence and carrying research

## Course Outcomes BSc. Computer Science

course	outcomes
<b>Fundamental of computer</b>	<p><b>Upon completion of this course, the student will be able apply technical knowledge and perform specific technical skills, including.</b></p> <ol style="list-style-type: none"><li>1) Describe the usage of computers and why computers are essential components in business and society.</li><li>2) Utilize the Internet Web resources and evaluate on-line e-business system.</li><li>3) Solve common business problems using appropriate Information Technology applications and systems.</li><li>4) Identify categories of programs, system software and applications. Organize and work with files and folders.</li><li>5) Describe various types of networks network standards and communication software.</li></ol>
<b>Programing language c</b>	<p>To Understand the basic language implementation techniques</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Develop ability to learn new languages more quickly</li><li><input type="checkbox"/> To understand the concept of functional programming language</li><li><input type="checkbox"/> Develop ability to learn and write small programs in different programming Languages.</li></ul>
	<ol style="list-style-type: none"><li>a) Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.</li><li>b) Understand basic data structures</li></ol>

## Data structure

such as arrays, linked lists, stacks and queues.

c) Describe the hash function and concepts of collision and its resolution methods

d) Solve problem involving graphs, trees and heaps

e) Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data .

### Students will try to learn:

1 Understand and remember algorithms and its analysis procedure.

2 Introduce the concept of data structures through ADT including List, Stack, Queues.

3 To design and implement various data structure algorithms.

4 To introduce various techniques for representation of the data in the real world.

5 To develop application using data structure algorithms.

6 Compute the complexity of various algorithms.

## Object Oriented programming

a) Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.

b) Understand dynamic memory management techniques using pointers, constructors, destructors, etc .

c) Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.

d) Classify inheritance with the

	<p>understanding of early and late binding, usage of exception handling, generic programming.</p> <p>e) Demonstrate the use of various OOPs concepts with the help of programs. Software Lab-1 (DSPM) (BTCS306) a) Implement basic dat.</p>
<p style="text-align: center;"><b>Operating system</b></p>	<p>(a) Understand the basics of operating systems like kernel, shell, types and views of operating systems</p> <p>(b) Describe the various CPU scheduling algorithms and remove deadlocks.</p> <p>(c) Explain various memory management techniques and concept of thrashing</p> <p>(d) Use disk management and disk scheduling algorithms for better utilization of external memory.</p> <p>(e) Recognize file system interface, protection and security mechanisms.</p> <p>(f) Explain the various features of distributed OS like Unix, Linux, windows etc. elated algorithms</p>
<p style="text-align: center;"><b>DBMS</b></p>	<p>(a) Define database system concepts and apply normalization to the database.</p> <p>b) Explain the basic processing and optimization techniques for high level query.</p> <p>(c) Describe different transaction processing concepts and use different concurrency control techniques.</p> <p>(d) Discuss different types of databases such as object oriented and distributed databases.</p> <p>(e) Identify different types of database failures and techniques to recover from such failures.</p> <p>(f) Discuss advanced database</p>

	<p>technologies and products used in enterprise.</p> <p><b>DBMS LAB:-</b></p> <p>a) Implement Basic DDL, DML and DCL commands.</p> <p>(b) Understand Data selection and operators used in queries and restrict data retrieval and control the display order.</p> <p>(c) Write sub queries and understand their purpose.</p> <p>(d) Use Aggregate and group functions to summarize data.</p> <p>(e) Join multiple tables using different types of joins f) Understand the PL/SQL architecture and write PL/SQL code for proc</p>
--	---

**PROGRAMME OUTCOMES: B. A./ B.Com. Computer  
Application**

<p><u>Department of Computer Application</u></p>	<p><b>After successful completion of three year degree program in Computer Science a student should be able to.</b></p>
<p><b>Programme Outcomes</b></p>	<p><b>At the end of three year B.A/B.Com programme, the students will be able to :-</b></p> <p><b>PO1-</b> Build a strong foundation in accounting, management and business subjects.</p> <p><b>PO2-</b> Seek variety of career options in accounting, management and business related fields.</p> <p><b>PO3-</b> Equip with skills and knowledge to excel in their future careers.</p> <p><b>PO4-</b> Develop critical thinking skills in students .</p> <p><b>PO5-</b> Enter master programmes like M.Com, MBA and pursue professional programmes like C.A, CMA, C.S, etc.</p> <p><b>PO6-</b> Develop entrepreneurial skills.</p>
<p><b>Programme Specific Outcomes</b></p>	<p><b>At the end of three year B.A. /B.Com programme with specialisation in Computer Application, the students will be able to:-</b></p> <p><b>PSO 1-</b> Understand the application of business Knowledge in both theoretical and practical aspects.</p> <p><b>PSO 2-</b> Determine the procedures and schedules to be followed on preparing financial statements of Companies.</p> <p><b>PSO 3-</b> Understand the basic concepts and functions of accounting, trade and computer software</p> <p><b>PSO 4-</b> Develop proficiency in the management of an organisation .</p> <p><b>PSO 5-</b> Attain skills in conducting business transactions online.</p> <p><b>PSO6 –</b> Analyse the scope of the business</p>

	<p>by adopting modern technology in the business practice.</p> <p><b>PSO7</b> - Follow the ethics pertaining to business transactions</p>
--	---

## Course Outcomes B.A./B.Com. Computer Application

<u>Course</u>	<u>Outcomes</u>
<b><u>CA 101 FUNDAMENTALS OF COMPUTER AND PC SOFTWARE</u></b>	<p><b>Upon completion of this course, the student will be able apply technical knowledge and perform specific technical skills, including:</b></p> <ol style="list-style-type: none"> <li>1) Describe the usage of computers and why computers are essential components in business and society.</li> <li>2) Utilize the Internet Web resources and evaluate on-line e-business system.</li> <li>3) Solve common business problems using appropriate Information Technology applications and systems.</li> <li>4) Identify categories of programs, system software and applications. Organize and work with files and folders.</li> <li>5) Describe various types of networks network standards and communication software.</li> </ol>
<b><u>CA102 DESKTOP PUBLISHING AND MULTIMEDIA</u></b>	<p><b>Careers in desktop publishing range from jobs involving manipulating blocks of text, such as newsletter designers, to freehand designers designing the latest logo for a company.</b></p> <p>Newsletter Designer. ...  Font Designer. ...  Graphic Designer. ...  Web Designer.</p>
<b><u>CA 201 INTERNET AND E COMMERCE</u></b>	<p><b>CO1</b> Recognizes the impact of Information and Communication Technologies, on the Internet in business Operations.</p> <p><b>CO2</b> Acquire knowledge in identifying the</p>

	<p>main business and market place models for electronic Communications and Trading</p> <p><b>CO3</b> Understanding Electronic Payment System and its environment.</p> <p><b>CO4</b> Make ethical decisions related to ecommerce based on laws, privacy, and security.</p> <p><b>CO5</b> Analyze the steps, tools, and security considerations needed create an E-commerce websites</p>
<p><b><u>CA 202 RELATIONAL DATABASE MANAGEMENT SYSTEM</u></b></p>	<ol style="list-style-type: none"> <li>1. Master the basic concepts and appreciate the applications of database systems.</li> <li>2. Master the basics of SQL and construct queries using SQL.</li> <li>3. Be familiar with a commercial relational database system (Oracle) by writing SQL using the system.</li> <li>4. Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.</li> <li>5. Mater sound design principles for logical design of databases, including the E-R method and normalization approach.</li> <li>6. Be familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B-tree, and hashing.</li> <li>7. Master the basics of query evaluation techniques and and query optimization.</li> <li>8. Be familiar with the basic issues of transaction processing and concurrency control.</li> <li>9. (optional) Master working successfully on a team by design and development of a database application system as part of a team.</li> </ol> <p>Texts and Other Course Materials:</p>
<p><b><u>CA301 WEB DESIGNING</u></b></p>	<p>Become familiar with graphic design principles that relate to web design and learn how to implement theories into practice. Develop skills in analyzing the usability of</p>

	<p><b>a web site. Understand how to plan and conduct user research related to web usability. Learn the language of the web: HTML and CSS.</b></p> <ul style="list-style-type: none"> <li>• You will discover how does web works really, what makes web sites work.</li> <li>• Simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs.</li> <li>• How to and where to start research, planning for website &amp; actually build excellent web sites.</li> <li>• Pro level skills in SEO with keyword research and content strategy for your website.</li> <li>• To create web elements like buttons, banners &amp; Bars and of course complete UI designs.</li> <li>• Forms and validations for your website.</li> <li>• Setting up page layout, color schemes, contract, typography in the designs.</li> <li>• Writing valid and concise code for webpages.</li> <li>• Best use of social media for revenue generation.</li> <li>• Setting up a perfect landing page for business, clients and yourself</li> </ul>
<p><b><u>CA 302</u> DIGITAL MARKETING</b></p>	<p>On successful completion of the course students will be able to:</p> <ol style="list-style-type: none"> <li>1. Analyze the confluence of marketing, operations, and human resources in real-time delivery.</li> <li>2. Demonstrate cognitive knowledge of the skills required in conducting online research and research on online markets, as well as in identifying, assessing and selecting digital market opportunities.</li> <li>3. Explain emerging trends in digital marketing and critically assess the use of digital marketing tools by applying relevant marketing theories and frameworks.</li> <li>4. Investigate and evaluate issues in adapting to globalized markets that are constantly changing and increasingly networked.</li> </ol>

	<p>5. Interpret the traditional marketing mix within the context of a changing and extended range of digital strategies and tactics.</p> <p>6. Comprehend the importance of conversion and working with digital relationship marketing.</p> <p>7. Analyze cross-cultural and ethical issues in globalized digital markets.</p>
--	--

□ To explore the modern tools and technology to produce cost effective and maintainable software.

Department of Computer Science	After successful completion of two year degree program in Computer Science a student should be able to;
<b><u>PROGRAMME OUTCOMES:</u></b>	<p><b>PO-1.</b> Able to developed the necessary learning skills and independence for further studies</p> <p><b>PO-2.</b> Can initiate and lead projects within the scientific field and be responsible for the work of individuals and groups</p> <p><b>PO-3.</b> Can communicate scientific information, challenges and findings to scholars as well as to general audience</p> <p><b>PO-4.</b> Are capable of presenting and describing scientific issues and research findings in a foreign language</p> <p><b>PO-5.</b> Can make decisions in an independent, professional manner and support them</p> <p><b>PO-6.</b> Can decide which analytical methods and complex theories are applicable</p> <p><b>PO-7.</b> Can communicate statistical information.</p> <p><u>□ To understand both theoretical and practical concepts of computer science.</u></p> <p><u>□ To develop problem solving skills using logical and analytical techniques.</u></p> <p><u>□ To understand various programming languages and apply to</u></p>

	<p><u>solve real world problems from diversified domain.</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>To develop better algorithms and analyze them.</u></li> <li><input type="checkbox"/> <u>To apply software engineering principles in the development of computer software.</u></li> </ul>
<p style="text-align: center;"><b><u>PROGRAMME SPECIFIC OUTCOMES:</u></b></p>	<p><b>PSO-1</b> Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity. <b>PSO-2</b> Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>To learn use of numerous software systems in the wide range of areas such as Internet and Web Technology, Cloud computing, Algorithms, Networking, Compiler design, and Web design, Machine learning, Artificial Intelligence, etc.</u></li> <li><input type="checkbox"/> <u>To develop better algorithms and solutions for Computing Problems.</u></li> <li><input type="checkbox"/> <u>To understand latest tools and technology to undertake further research.</u></li> </ul>

## I Semester:

Course Code	Title	Outcomes
<b>CS-101</b>	<b>Computer and Communication Fundamentals</b>	<p>a) Study of logic gates and realization of OR,AND,NOT AND XOR Functions using universal gates.</p> <p>b) Design and implement combinational circuits like half adder/full adder, half subtractor/full subtract or, code converters, comparators, MUX/DEMUX.</p> <p>c) Design and implement sequential circuits like flip-flops, counters and shift registers d) Study of 8-bit DAC and 8-bit ADC.</p> <p><b>a) Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions.</b></p> <p><b>b) Develop K-maps to minimize and optimize logic functions up to 5 variables.</b></p> <p><b>c) Acquire knowledge about various logic gates and logic families and analyze basic circuits of these families.</b></p> <p><b>d)Design various combinational and sequential circuits such as encoders, decoders and counters using multiplexers, and flip – flops.</b></p> <p><b>e) Describe and compare various memory systems, shift registers and analog.</b></p>
<b>CS-102</b>	<b>Programming and Problem Solving Using C</b>	<p>To Understand the basic language implementation techniques.</p> <p>☐ Develop ability to learn new languages more quickly.</p> <p>☐ To understand the concept of functional programming language.</p> <p>☐ Develop ability to learn and write small</p>

		programs in different programming Languages
<b>CS-103</b>	<b>Operating Systems</b>	<p>a) Understand the basics of operating systems like kernel, shell, types and views of operating systems</p> <p>b) Describe the various CPU scheduling algorithms and remove deadlocks.</p> <p>c) Explain various memory management techniques and concept of thrashing</p> <p>d) Use disk management and disk scheduling algorithms for better utilization of external memory.</p> <p>e) Recognize file system interface, protection and security mechanisms.</p> <p>f) Explain the various features of distributed OS like Unix, Linux, windows etc. elated algorithms</p>
<b>CS-104</b>	<b>Discrete Structures</b>	<p>a) Perform operations on various discrete structures such as sets, functions, relations, and sequences.</p> <p>b) Ability to solve problems using Counting techniques, Permutation and Combination, Recursion and generating functions.</p> <p>c) Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems.</p> <p>d) Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems. e) Use of K-Maps and Truth Tables to construct and verify correctness of a Boolean expression.</p> <p>Course Outcomes:  <b>Upon completing the course, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Learn a particular set of mathematical facts and</li> </ul>

		<p>know how to apply them.</p> <ul style="list-style-type: none"> <li>• Think logically and mathematically.</li> <li>• Use and analyze recursive definitions.</li> <li>• How to count some different types of discrete structures.</li> <li>• Techniques for constructing mathematical proofs and to reason about the efficiency of an algorithm.</li> </ul>
<b>CS-105</b>	<b>Communication Skills</b>	<p>Demonstrate critical and innovative thinking.</p> <ul style="list-style-type: none"> <li>• Display competence in oral, written, and visual <b>communication</b>.</li> <li>• Apply <b>communication</b> theories.</li> <li>• Show an understanding of opportunities in the field of <b>communication</b>.</li> <li>• Use current technology related to the <b>communication</b> field.</li> </ul>

## II Semester:

Course Code	Title	Outcomes
CS-201	<b>Data Structures using C++</b>	<p>Able to write well-structured procedure-oriented programs of up to 1000 lines of code. Analyze run-time execution of previous learned sorting methods, including selection, merge sort, heap sort and Quick sort. To implement the Stack ADT <b>using</b> both array based and linked-list based <b>data structures</b>.</p>
CS-202	<b>Database Management System</b>	<p>a) Define database system concepts and apply normalization to the database.  b) Explain the basic processing and optimization techniques for high level query.  c) Describe different transaction processing concepts and use different concurrency control techniques.  d) Discuss different types of databases such as object oriented and distributed databases.  e) Identify different types of database failures and techniques to recover from such failures.</p>

		<p>f) Discuss advanced database technologies and products used in enterprise.</p> <p><b>DBMS LAB:-</b></p> <p>a) Implement Basic DDL, DML and DCL commands.</p> <p>b) Understand Data selection and operators used in queries and restrict data retrieval and control the display order.</p> <p>c) Write sub queries and understand their purpose.</p> <p>d) Use Aggregate and group functions to summarize data.</p> <p>e) Join multiple tables using different types of joins f) Understand the PL/SQL architecture and write PL/SQL code for proc</p>
CS-203	<b>Software Engineering</b>	<p>a) 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.</p> <p>b) Able to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project.</p> <p>c) Analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.</p> <p>d) Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice.</p> <p>e) Able to use modern engineering tools necessary for software project</p>

		management, time management and software reuse.
CS-204	<b>Computer Architecture</b>	<p>Explain the organization of basic computer, its design and the design of control unit.</p> <p>b) Demonstrate the working of central processing unit and RISC and CISC Architecture.</p> <p>c) Describe the operations and language of the register transfer, micro operations and input-output organization.</p> <p>d) Understand the organization of memory and memory management hardware.</p> <p>e) Elaborate advanced concepts of computer architecture, Parallel Processing, inter processor communication and synchronization.</p> <p><b>Students will try to learn:</b> 1. Conceptualize the basics of organizational and architectural issues of a digital computer.</p> <p>2. Analyze processor performance improvement using instruction level parallelism.</p> <p>3. Learn the function of each element of a memory hierarchy.</p> <p>4. Study various data transfer techniques in digital computer.</p> <p>5. Articulate design issues in the development of processor or other components that satisfy design requirements and objectives.</p> <p>6. Learn microprocessor architecture and study assembly language programming.</p>
CS-205	<b>Computer oriented numerical and statistical method</b>	<p>After learning the course the students should be able to:</p> <ul style="list-style-type: none"> <li>• Solve system of linear equations.</li> <li>• Understand various methods of modeling.</li> <li>• Apply Mathematical Modeling and for Engineering Problem Solving.</li> <li>• Solve Mathematical Equations by various methods.</li> <li>• Find Best Curve fitting for given data.</li> <li>• Apply Numerical Integration.</li> </ul>

		<ul style="list-style-type: none"> <li>• Solve Differential Equations.</li> <li>• Understand Statistical Methods for Data Analysis and sampling techniques.</li> <li>• Write programs for various numerical and statistical methods</li> </ul>
--	--	--

### III Semester:

Course Code	Title	Outcomes
<b>CS-301</b>	<b>Object Oriented Programming using JAVA</b>	<p><b>CO-1</b> To learn database programming using Java</p> <p><b>CO-2</b> To study web development concept using Servlet and JSP</p> <p><b>CO-3</b> To develop a game application using multithreading</p> <p><b>CO-4</b> To learn socket programming concept</p>
<b>CS-302</b>	Database Application and Tools	<p><b>On successful completion of this course, students will be able to:</b></p> <p><b>CO1.</b> Demonstrate knowledge on Data models and Database Languages · Database design · Normal forms · Storage and Indexing</p> <p><b>CO2.</b> Analyze databases using normal forms to provide solutions for real time applications. <b>CO3.</b> Design solutions for database problems using database design, views design and framing queries.</p> <p><b>CO4.</b> Use database techniques for designing databases, managing databases and its security.</p> <p><b>CO5.</b> Select SQL, Hash based Indexing and Tree based Indexing to manage data in databases.</p> <p><b>CO6.</b> Apply contextual knowledge to develop database applications related to societal issues.</p>
<b>CS-303</b>	<b>Theory of</b>	a) Understand the basic concepts of

	<p><b>Computation</b></p>	<p>formal languages, automata and grammar types, as well as the use of formal languages and reduction in normal forms</p> <p>b) Demonstrate the relation between regular expressions, automata, languages and grammar with formal mathematical methods</p> <p>c) Design push down automata, cellular automata and Turing machines performing tasks of moderate complexity</p> <p>d) Analyze the syntax and formal properties, parsing of various grammars such as LL(k) and LR(k)</p> <p>e) Describe the rewriting systems and derivation languages .</p> <p><b>Students will try to learn:</b> 1. To learn fundamentals of Regular and Context Free Grammars and Languages</p> <p>2. To understand the relation between Regular Language and Finite Automata and machines.</p> <p>3. To learn how to design Automata's and machines as Acceptors, Verifiers and Translators.</p> <p>4. To understand the relation between Contexts free Languages, PDA and TM.</p> <p>5. To learn how to design PDA as acceptor and TM as Calculators.</p> <p>6. To learn how to co relate Automata's with Programs and Functions.</p>
<p><b>CS-304</b></p>	<p><b>Computer Graphics and Multimedia</b></p>	<p>a) Understand the basics of computer graphics, different graphics systems and applications of computer graphics.</p> <p>b) Discuss various algorithms for scan conversion and filling of basic objects and</p>

		<p>their comparative analysis.</p> <p>c) Use of geometric transformations on graphics objects and their application in composite form.</p> <p>d) Extract scene with different clipping methods and its transformation to graphics display device.</p> <p>e) Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.</p> <p>f) Render projected objects to naturalize the scene in 2D view and use of illumination models for this.</p> <p><b>Computer graphics lab:-</b>a) Understand the basic concepts of computer graphics.  b) Design scan conversion problems using C++ programming.  c) Apply clipping and filling techniques for modifying an object.  d) Understand the concepts of different type of geometric transformation of objects in 2D and 3D.  e) Understand the practical implementation of modeling, rendering, viewing of objects in 2D.</p>
<p><b>CS-305</b></p>	<p><b>Computer Networks</b></p>	<p>a) Understand computer network basics, network architecture, TCP/IP and OSI reference models.</p> <p>b) Identify and understand various techniques and modes of transmission.</p> <p>c) Describe data link protocols, multi-channel access protocols and IEEE 802 standards for LAN.</p> <p>d) Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme.</p> <p>e) Discuss the elements and protocols of</p>

		transport layer. f) Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS
--	--	--

#### IV Semester:

Course Code	Title	Outcomes
<b>CS-401</b>	<b>Linux/Unix Administration</b>	<p><b>Expected Learning Outcomes for Course:-</b></p> <p>Choose appropriate UNIX/Linux operating system commands to make effective use of the environment to solve problems</p> <ul style="list-style-type: none"> <li>• Write efficient, effective scripts with documentation</li> <li>• Research the Internet for information and resources utilizing new commands.</li> </ul>
<b>CS-402</b>	<b>Compiler Design</b>	<p><b>CO-1 To understand design issues of a lexical analyzer and use of Lax tool.</b></p> <p><b>CO-2 To understand design issues of a parser and use of Yacc tool.</b></p> <p><b>CO-3 To understand issues related to memory allocation</b></p> <p><b>CO-4 To understand and design code generation schemes</b></p>
<b>CS-403</b>	<b>Internet &amp; Web Technology</b>	<p>a) Explain the history of the internet and related internet concepts that are vital in understanding web development.</p> <p>b) Discuss the insights of internet programming and implement complete application over the web.</p> <p>c) Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.</p> <p>d) Utilize the concepts of JavaScript and Java.</p> <p>e) Use web application development software tools i.e. Ajax, PHP and XML etc. and identify the environments currently available on the market to design web sites.</p>

<p><b>CS-404</b></p>	<p><b>Design and Analysis of Algorithms</b></p>	<ul style="list-style-type: none"> <li>☐ To design efficient algorithms using various algorithm designing strategies.</li> <li>☐ To analyze the problem and develop the algorithms related to these problems.</li> <li>☐ To classify the problem and apply the appropriate design strategy to develop algorithm.</li> <li>☐ To design algorithm in context of space and time complexity and apply asymptotic notation.</li> </ul> <p><b>Design and Analysis of Algorithms Lab</b></p> <ul style="list-style-type: none"> <li>(a) Identify the problem given and design the algorithm using various algorithm design techniques.</li> <li>(b) Implement various algorithms in a high level language.</li> <li>(c) Analyze the performance of various algorithms.</li> <li>(d) Compare the performance of different algorithms for same problem.</li> </ul>
<p><b>CS-405</b></p>	<p><b>Major Project</b></p>	<ul style="list-style-type: none"> <li>(a) Students should be able to design and construct a hardware and software system, component, or process to meet desired needs.</li> <li>(b) Students are provided to work on multidisciplinary Problems.</li> <li>(c) Students should be able to work as professionals, with portfolio ranging from data management, network configuration, designing hardware, database and software design to management and administration of entire systems.</li> </ul>