

Department of Computer Science

Vision

To empower students for globalised technological society possessing human values and emerging as innovative leaders to serve the needs of the industry and nation.

Mission

To integrate knowledge, skill and current techniques that will sustain an environment of learning and creativity among the students through holistic and value based education.

To provide a platform to enhance technical, programming and designing skills for developing Computer based solutions.

To groom students with IT skills and values for global competency so as to enable learning and applying new innovations as the field evolves.

Program Educational Objectives

1. To foster technical skills leading to self development and employability with the advent of sustainability.
2. Inculcate, apply and spread innovative ideas by collaborating with relevant IT industries to keep in pace with the emerging trends.
3. To Produce technically competent and ethically sound versatile professionals; thereby contributing towards building a strong, developed nation

Program specific outcome

To demonstrate the ability to design and develop complex systems in the areas of **Big data, IOT, Machine learning, Image processing**

To demonstrate the ability to solve complex problem using latest hardware and software tools.

Program Outcomes (POs)

PO1: Apply knowledge of computing fundamentals, mathematics and domain knowledge appropriate for the conceptualization of computing models. (**Computational Knowledge**)

PO2: Identify, analyze, formulate, Design and develop the real world requirements by critical thinking for complex problems in IT enabled services. (**Critical Thinking & Problem solving**)

PO3: Recognize the need and adopt appropriate tools and techniques for modern computing practices. (**Usage of modern tools**)

PO4: Make use of ethical practices and cyber regulations in the computing field for managing software projects in diverse environments. (**Ethics & Management**)

PO5: Understand the societal, environmental and moral values and its impact with respect to computing, communication, literary and professional practice.(**social responsibility**)

PO6: Communicate effectively with society at large, such as, being able to comprehend and write effective reports, design documentation and make effective presentations.(**communication & team work**)

PO7: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change (**Life long learning**)

B.C.A DEPARTMENT
COURSE OUTCOMES
SEMESTER - I

SUBJECT: Kannada

At the end of the course the student will be able

| | |
|-----|--|
| CO1 | To become responsible citizens and connect with the society building personality development skills through motivational stories by eminent writers. |
| CO2 | To develop environmental awareness and efficient literacy skills. |
| CO3 | To develop Effective Communication through Kannada Poetry, Stories and Grammar written by prolific and renowned poets and writers. |
| CO4 | Develop the art of reading and writing Kannada Language which is a system of syllabic and phonemic writing thereby improving vocabulary |
| CO5 | To establish themselves as Innovative thinkers and a creative writers in the society. |

CO PO Mapping

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 1 | 3 | 3 | 3 |
| CO2 | 2 | 2 | - | 2 | 3 | 1 | 3 |
| CO3 | - | - | - | - | 2 | 2 | 3 |
| CO4 | - | - | - | - | | | |
| CO5 | - | - | - | - | | 2 | |
| | 2 | 2 | 2 | 1 | 2.1 | 2 | 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject: Hindi

At the end of the course student will be able

| | |
|-----|--|
| CO1 | Better literary and linguistic skills. |
| CO2 | Enhance creativity and communicative skills. |
| CO3 | The ability to understand different cultural contexts through literature. |
| CO4 | To develop Effective Communication through Hindi Poetry, Stories and Grammar written by prolific and renowned poets and writers. |
| CO5 | Develop literary skills and flourish in grammar, reading comprehension , summarizing and paragraph writing |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 1 | - | 3 | 3 |
| CO2 | - | - | - | - | 2 | 3 | 3 |
| CO3 | - | - | - | 1 | 3 | - | 3 |
| CO4 | - | - | - | 2 | 3 | 2 | 3 |
| CO5 | - | - | - | - | 2 | 2 | 3 |
| Average | - | - | - | 1.3 | 2.5 | 2.5 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject: English

At the end of the course student will be able

| | |
|-----|--|
| CO1 | Developed literary sensibility through varied topics of the text. |
| CO2 | Ability to write film analysis, review and advertisements |
| CO3 | Understanding of pieces of literature related to human emotions, modernity and technology. |
| CO4 | Improved language skills and practice in the areas of remedial grammar, reading comprehension, summarizing and paragraph writing |
| CO5 | Awareness on issues of contemporary relevance through exposure to literature. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|------|------|
| CO1 | | | | | 2 | 3 | 2 |
| CO2 | | | | | 3 | 3 | - |
| CO3 | | | | | 3 | - | 3 |
| CO4 | | | | | 2 | 3 | - |
| CO5 | | | | | - | 2 | 3 |
| Average | | | | | 2.5 | 2.75 | 2.66 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT: DISCRETE MATHEMATICS

At the end of the course students will be able

| | |
|------------|---|
| CO1 | To solve different real world problems using concepts of sets, functions and relations and the Concepts in mathematical logic |
| CO2 | To solve linear system of equations and finding inverse, Eigen values and Eigen vectors using matrix algebra. |
| CO3 | To Understand the basic ideas of logarithms, permutation and combinations |
| CO4 | To Acquire ability to describe computer programs in a formal mathematical manner |
| CO5 | To understand logical arguments and logical constructs. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 3 | 3 | 1 | 1 | - | 2 | 3 |
| CO2 | 3 | 3 | 1 | 1 | - | 2 | 1 |
| CO3 | 2 | 3 | 1 | - | - | 1 | 1 |
| CO4 | 2 | 3 | 3 | - | - | 2 | 3 |
| CO 5 | 2 | 2 | 2 | 1 | - | 1 | 2 |
| AVERAGE | 2.4 | 2.8 | 1.6 | 1 | - | 2.2 | 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject: Problem solving techniques using C

At the end of the course students will be able

| | |
|------------|--|
| CO1 | Understand the fundamental concepts of C Programming like datatypes, variables and various types of statements. |
| CO2 | Analyze programming problems to choose when the loops and decision making statements are used to produce a better program. |
| CO3 | Design, implement, test and debug the programs that use arrays, pointers and structures. |
| CO4 | Implement file operations in c programming for a given applications. |
| CO5 | Use functions and algorithms to solve programming problems. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 2 | 2 | - | 2 | 1 |
| CO2 | 3 | 3 | 3 | 3 | - | 3 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 2 | - | 2 | 3 |
| CO5 | 2 | 3 | 2 | 2 | - | 3 | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.4 | 2 | 2.6 | 2.2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT : Digital Electronics

At the end of the course student will be able to

| | |
|------------|--|
| CO1 | Design and construct Basic Logic gates using truth table and Logic symbols |
| CO2 | Realize and Implement Adders and Flip Flops |
| CO3 | Formulate and solve Decimal, Binary, Octal and Hexadecimal Number System. |
| CO4 | Simplify K-maps with Boolean expressions and logic circuit |
| CO5 | Apply Bohr's Atomic Model and P-N Junction diode principles |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 3 | 1 | 1 | - | 2 | 2 |
| CO2 | 3 | 3 | 1 | - | - | 3 | 2 |
| CO3 | 3 | 3 | 2 | - | - | 2 | 3 |
| CO4 | 2 | 3 | 1 | 1 | - | 3 | 2 |
| CO5 | 2 | 3 | 1 | 1 | - | 2 | 2 |
| Average | 2.4 | 3 | 1.2 | 1 | - | 2.4 | 2.2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT: ENVIRONMENTAL STUDIES

At the end of the course student will be able to

| | |
|-----|--|
| CO1 | <ul style="list-style-type: none"> The students will be able to create programs using their computer knowledge to integrate with Environmental conservation. |
| CO2 | <ul style="list-style-type: none"> The students will be able to identify environment friendly ways to manage, reduce and reuse e-waste. |
| CO3 | <ul style="list-style-type: none"> The students will be able to make use of the knowledge on environment conservation and critically think to create programs to communicate with the masses to give awareness. |
| CO4 | <ul style="list-style-type: none"> The students will be able to apply their awareness of environment protection for reducing wastage and conservation of resources. |
| CO5 | <ul style="list-style-type: none"> The students will be able to create awareness programs on environment through volunteering and computer literacy. |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | - | 2 | - | 3 | - | 3 |
| CO2 | - | 1 | - | 1 | 3 | - | 3 |
| CO3 | 1 | 2 | - | - | 3 | 3 | 3 |
| CO4 | - | 1 | - | - | 3 | - | 3 |
| CO5 | 3 | - | 2 | - | 3 | 3 | 3 |
| Average | 2 | 1.3 | 1 | - | 3 | 3 | 3 |

SEMESTER – II

SUBJECT: kannada

At the end of the course student will be able

| | |
|-----|--|
| CO1 | To become responsible citizens and connect with the society building personality development skills through motivational stories by eminent writers. |
| CO2 | To develop environmental awareness and efficient literacy skills. |
| CO3 | To develop Effective Communication through Kannada Poetry, Stories and Grammar written by prolific and renowned poets and writers. |
| CO4 | Develop the art of reading and writing Kannada Language which is a system of syllabic and phonemic writing thereby improving vocabulary |
| CO5 | To establish themselves as Innovative thinkers and a creative writers in the society. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | - | 3 | 2 | 3 |
| CO2 | - | - | - | 2 | 3 | 1 | 3 |
| CO3 | - | - | - | 1 | 2 | 2 | 3 |
| CO4 | - | - | - | - | 2 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| Average | - | - | - | 1.5 | 2.6 | 2 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT : HINDI

At the end of the course student will be able

CO1: Develop the aesthetic sensibility and communication skills

CO2: To address issues of society and cultural contexts through literary texts.

CO3: Students will be able to create awareness program by small skits or role play among their citizens.

CO4: They will be able to inculcate moral values and ethics as a member and leader in their teams.

CO5: The ability to grasp the plot of drama, analyze the characters and understand the contemporary Indian society.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 2 | 2 | 3 | 3 |
| CO2 | - | - | - | - | 3 | 3 | 3 |
| CO3 | - | - | - | - | 3 | 3 | 3 |
| CO4 | - | - | - | 2 | 3 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| Average | - | - | - | 2 | 2.8 | 2.8 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject : English

CO1 : Enhancement of linguistic skills

CO2: Improve literary skills by Understanding pieces of literature related to human emotions, modernity and technology.

CO3: Exposure to learn a variety of poetic genres and issues that merit serious attention in society

CO4: Develop language skills through reading, writing, speaking and listening.

CO5: Ability to draft Reports, semi formal letters and media transfer.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | - | - | 3 | 2 |
| CO2 | - | - | - | - | - | 3 | - |
| CO3 | - | - | - | - | 3 | - | - |
| CO4 | - | - | - | - | 2 | 3 | - |
| CO5 | - | - | - | - | - | 3 | 3 |
| Average | - | - | - | - | 2.5 | 3 | 2.5 |

SUBJECT: Data Structures

The student will be able to

CO1- Apply the concept of array data structures, its applications and Dynamic memory management

CO2 - Compare, implement and know when to apply various sorting techniques

CO3 - Implement the operational aspects of stacks, queues and linked list in problem solving.

CO4 - Analyze various operations on trees and Graphs

CO5 - Handle operations like searching, insertion, deletion, traversing mechanism etc ; on various data structures.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|----------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 2 | 3 | 2 | - | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 1 | - | 1 |
| CO3 | 2 | 3 | 3 | - | 1 | 2 | 1 |
| CO4 | 2 | 2 | 3 | 1 | - | 3 | 3 |
| CO5 | 2 | 3 | 3 | - | - | 2 | 1 |
| average | 2.2 | 2.8 | 3 | 1.6 | 1 | 2.3 | 1.8 |

SUBJECT: NUMERICAL AND STATISTICAL METHOD

At the end of the course students will be able

CO1: To represent and statistically analyse data both graphically and numerically.

CO2: To apply numerical methods to obtain appropriate solution to mathematical problems.

CO3: To acquire the knowledge of finite difference, interpolation, numerical differentiation and numerical integration.

CO4: To be familiar with the basic concepts and use of statistics in real world.

CO5: To understand the various probability distribution concepts and solve different problems.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 3 | 2 | 1 | - | - | 1 | 3 |
| CO2 | 2 | 3 | 2 | - | - | 1 | 2 |
| CO3 | 2 | 3 | 2 | - | - | 1 | 1 |
| CO4 | 3 | 3 | 3 | - | - | 2 | 3 |
| CO 5 | 3 | 2 | 2 | - | - | 2 | 2 |
| AVERAGE | 2.6 | 2.6 | 2 | - | - | 1.4 | 2 |

Subject : DATABASE MANAGEMENT SYSTEM

At the end of the course students will be able

CO1 –Familiarize basic database concepts and architecture.

CO2- Analyze database requirements and create a relational database using relational database package.

CO3-Determine the relationships among entities and design an entity relationship diagram in data modeling.

CO4-Use normalization concepts and concurrency control to design effective database.

CO5- Apply the basics of relational algebra and database transactions.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 2 | 2 | - | 2 | 1 |
| CO2 | 3 | 3 | 3 | 3 | 1 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 1 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | - | 2 | 3 |
| CO5 | 2 | 2 | 2 | 1 | - | 2 | 2 |
| Average | 2.6 | 2.6 | 2.6 | 2.2 | 1 | 2.2 | 2.2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject - Personality Development

| | |
|-----|--|
| CO1 | The students will be able to develop self esteem and better communication skills to solve issues concerning personal and professional life |
| CO2 | To make use of their time wisely through learning time management. |
| CO3 | To develop Inter-personal skills for team building and group work. |
| CO4 | To develop leadership skills and apply them in their life. |
| CO5 | To identify specific goals to construct their future. |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | - | 2 | 3 | 1 |
| CO2 | - | - | - | - | 1 | 1 | 1 |
| CO3 | - | - | - | - | 2 | 3 | 2 |
| CO4 | - | - | - | - | 2 | 3 | 3 |
| CO5 | - | - | - | - | 1 | 2 | 3 |
| Average | | | | | 1.6 | 2.4 | 2 |

SEMESTER : III

SUBJECT: Kannada

At the end of the course students will be able

| | |
|-----|--|
| CO1 | To become responsible citizens and connect with the society building personality development skills through motivational stories by eminent writers. |
| CO2 | To develop environmental awareness and efficient literacy skills. |
| CO3 | To develop Effective Communication through Kannada Poetry, Stories and Grammar written by prolific and renowned poets and writers. |
| CO4 | Develop the art of reading and writing Kannada Language which is a system of syllabic and phonemic writing thereby improving vocabulary |
| CO5 | To establish themselves as Innovative thinkers and a creative writers in the society. |

CO PO MAPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 1 | 3 | - | 3 |
| CO2 | - | - | - | 1 | 3 | 3 | 3 |
| CO3 | 3 | - | - | 2 | - | 2 | 3 |
| CO4 | - | - | - | 2 | 3 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| Average | 3 | - | - | 1.5 | 3 | 2.5 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject : Hindi

At the end of the course students will be able

1. Develop the aesthetic sensibility and communication skills
2. To address issues of society and cultural contexts through literary texts.
3. Students will be able to create awareness program by small skits or roleplay among their citizens.
4. They will be able to inculcate moral values and ethics as a member and leader in their teams.
5. The ability to grasp the plot of drama, analyze the characters and understand the contemporary Indian society.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 2 | 2 | 3 | 3 |
| CO2 | - | - | - | - | 3 | 3 | 3 |
| CO3 | - | - | - | - | 3 | 3 | 3 |
| CO4 | - | - | - | 2 | 3 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| Average | - | - | - | 2 | 2.8 | 2.8 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject : English

At the end of the course students will be able

1. Enhancement of linguistic skills
2. Improve literary skills by Understanding pieces of literature related to human emotions, modernity and technology.
3. Exposure to learn a variety of poetic genres and issues that merit serious attention in society
4. Develop language skills through reading, writing, speaking and listening.
5. Ability to draft Reports, semi formal letters and media transfer.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | | | | | - | 3 | 2 |
| CO2 | | | | | - | 3 | - |
| CO3 | | | | | 3 | - | - |
| CO4 | | | | | 2 | 3 | - |
| CO5 | | | | | - | 3 | 3 |
| Average | | | | | 2.5 | 3 | 2.5 |

Subject: Financial Accounting and Management

At the end of the course students will be able

| | |
|-----|---|
| CO1 | Understand the basic terms used in Accounting |
| CO2 | Understand fundamental Accounting Concepts and Principles, Acquaint with book keeping, financial accounting process and familiarize the preparation of bank reconciliation statement. |
| CO3 | Understand the fundamentals of accounting for bills of exchange. |
| CO4 | Acquaint with preparation of Final Accounts- Sole traders and Partnership firms and analyse the financial statements. |
| CO5 | Application of theoretical aspect in accounting software |

CO- PO Mapping

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | | | 1 | 1 | 3 | 1 | 2 |
| CO2 | | 1 | 1 | 2 | 3 | 1 | 2 |
| CO3 | | 1 | 1 | 2 | 3 | 2 | 2 |
| CO4 | 1 | 2 | 2 | 2 | 3 | 3 | 2 |
| CO5 | 2 | 2 | 2 | 3 | 3 | 3 | 2 |
| Average | 1.5 | 1.5 | 1.4 | 2 | 3 | 2 | 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject- Society, Diversity and culture

| | |
|-----|--|
| CO1 | The students will be able to utilize the learnt subject knowledge to sensitize the society on human values through using computer application. |
| CO2 | The students will be able to apply his/her learning of Society, Diversity and Culture to enhance and to construct better relations with the society at large. |
| CO3 | The students will be able to organize computer literacy programs for the under privileged children. |
| CO4 | The students will be able to apply their learning of diverse cultures in the society and develop low cost people friendly technologies to communicate to the masses. |
| CO5 | The students will be able to apply their learning to serve society as part of their life style through volunteering in various public forums. |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|------|-----|-----|-----|-----|
| CO1 | 3 | - | 1 | - | 3 | 2 | 3 |
| CO2 | - | - | - | - | 3 | 2 | 3 |
| CO3 | 3 | - | 3 | - | 3 | 2 | 3 |
| CO4 | 3 | 1 | 3 | - | 3 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| Average | 3 | 1 | 2.33 | - | 3 | 2.2 | 3 |

Subject: Operating Systems

Students will be able to

Co1: Understand the basics concepts like structures, components and services of Operating Systems.

Co2: Familiar with various process management concepts including semaphores, synchronization and deadlocks.

Co3: Use CPU and disk scheduling algorithms for better utilization of memory.

Co4: Recognize the issues related to file management, disk management, protection and security.

Co5: Analyze the various features of OS like Unix, Linux and Windows.

CO PO MAPPING

| . | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 2 | 2 | - | 2 | 2 |
| CO2 | 3 | 2 | 2 | 3 | - | 3 | 2 |
| CO3 | 3 | 3 | 3 | 2 | - | 2 | 2 |
| CO4 | 3 | 2 | 3 | 3 | - | 2 | 2 |
| CO5 | 2 | 2 | 3 | 1 | - | 2 | 3 |
| average | 2.6 | 2.2 | 2.6 | 2.2 | - | 2.2 | 2.2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject : Object oriented programming using C++

The student will be able to

| | |
|-----|--|
| CO1 | Apply an object oriented approach to programming and identify potential benefits of object-oriented programming over other approaches. |
| CO2 | Understand concepts of classes and objects and their significance in real world |
| CO3 | Implement overloading concepts of function and operators |
| CO4 | Implementing inheritance, polymorphism and object relationship in C++ |
| CO5 | Apply exception handling and gain efficient debugging skills |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 1 | 3 | 3 | 1 | 1 | - | 2 |
| CO2 | 2 | 3 | 3 | 2 | 1 | - | 2 |
| CO3 | 3 | 3 | 3 | - | - | 2 | 3 |
| CO4 | 3 | 3 | 3 | - | - | 2 | 2 |
| CO5 | 2 | 2 | 3 | - | - | - | 1 |
| Average | 2.2 | 2.8 | 3 | 1.5 | 1 | 2 | 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SEMESTER : IV

SUBJECT: Kannada

The student will be able to

| | |
|-----|--|
| CO1 | To become responsible citizens and connect with the society building personality development skills through motivational stories by eminent writers. |
| CO2 | To develop environmental awareness and efficient literacy skills. |
| CO3 | To develop Effective Communication through Kannada Poetry, Stories and Grammar written by prolific and renowned poets and writers. |
| CO4 | Develop the art of reading and writing Kannada Language which is a system of syllabic and phonemic writing thereby improving vocabulary |
| CO5 | To establish themselves as Innovative thinkers and a creative writers in the society. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | 2 | 3 | 2 | 3 |
| CO2 | - | - | - | - | 3 | 3 | 3 |
| CO3 | 3 | - | - | 1 | - | 1 | 3 |
| CO4 | - | - | - | 2 | 3 | 3 | 3 |
| CO5 | - | - | - | - | 3 | 2 | 3 |
| | 3 | - | - | 1.6 | 3 | 2.2 | 3 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject: Hindi

The student will be able to

1. Improved language skills and practice in the areas of remedial grammar, reading comprehension, summarizing and paragraph writing
2. Awareness on issues of contemporary relevance through exposure to literature.
3. Understanding of pieces of literature related to human emotions, modernity and technology.
4. Students will be creative writer, innovative thinker in society.
5. Ability to write film analysis, review and advertisements

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | - | - | - | - | 3 | 1 | 3 |
| CO2 | - | - | - | - | 3 | 1 | 3 |
| CO3 | - | - | - | 1 | 3 | 2 | 3 |
| CO4 | - | - | - | - | 3 | 2 | 3 |
| CO5 | - | - | - | - | 1 | 1 | 2 |
| Average | - | - | - | 1 | 2.6 | 1.4 | 2.8 |

Subject : English

The student will be able to

1. Develop the aesthetic sensibility and communication skills
2. To address issues of society and cultural contexts through literary texts.
3. The ability to grasp the plot of drama, analyze the characters and understand the contemporary Indian society.
4. Exposure to a variety of poetic genres and issues that merit serious attention in society.
5. Introduced to research methodology

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|------|------|-----|
| CO1 | | | | | 3 | 3 | - |
| CO2 | | | | | 2 | 3 | - |
| CO3 | | | | | - | - | - |
| CO4 | | | | | 3 | 2 | - |
| CO5 | | | | | - | 3 | 3 |
| Average | | | | | 2.66 | 2.75 | 3 |

SUBJECT: OPERATION RESEARCH

At the end of the course students will be able

1. To formulate and solve mathematical model for a physical solution like production, distribution of goods.
2. To set up decision models and use some solution methods for nonlinear optimization programs.
3. To solve the problems of transporting the product from origin to destination
4. To Identify the resources required for a project and generate a plan and work schedule
5. To Construct network for large projects and solving problems by CPM and PERT.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 3 | 2 | 1 | 1 | - | 1 | 3 |
| CO2 | 2 | 3 | 2 | - | - | 1 | 2 |
| CO3 | 2 | 3 | 2 | 1 | - | 1 | 1 |
| CO4 | 2 | 3 | 3 | - | - | 2 | 3 |
| CO 5 | 1 | 2 | 2 | - | - | 2 | 2 |
| AVERAGE | 2.6 | 2.6 | 2 | - | - | 1.4 | 2 |

Unix Shell Programming

The student will be able to

| | |
|-----|---|
| CO1 | The student will be able to learn the fundamental concepts of UNIX Operating system |
| CO2 | Analyze the working of various commands in the operating system |
| CO3 | Formulate various filters to solve variety of applications |
| CO4 | Develop, Debug and execute shell scripts effectively. |
| CO5 | Ability to program in AWK script |

CO PO MAPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 3 | 2 | - | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 1 | - | 1 |
| CO3 | 2 | 3 | 3 | - | 1 | 2 | 1 |
| CO4 | 2 | 2 | 3 | 1 | - | 3 | 3 |
| CO5 | 2 | 3 | 3 | - | - | 2 | 1 |
| | 2.2 | 2.8 | 3 | 1.6 | 1 | 2.3 | 1.8 |

Subject :Visual Programming

The student will be able to

| | |
|-----|--|
| CO1 | Designing, formulate and construct windows applications with VB 6 and implement lists and loop with VB 6 controls. |
| CO2 | Build Integrated VB6 solutions using different controls, determine variables and constants into calculation applying VB6 |
| CO3 | Assemble multiple forms, Modules and Menus into working VB6 solutions and links with the database like MS access and SQL with ODBC and OLEBD |
| CO4 | Understand and use the Event-driven Programming, Properties and implement applications using an object-oriented methodology |
| CO5 | Develop practical, professional-quality programs using appropriate Visual Basic programming methods. |

| | Po1 | Po2 | Po3 | Po4 | Po5 | Po6 | Po7 |
|---------|-----|-----|-----|------|-----|-----|-----|
| CO1 | 1 | 3 | 3 | 1 | - | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | - | 1 | 3 |
| CO3 | 2 | 2 | 3 | 1 | 1 | 1 | 2 |
| CO4 | 2 | 3 | 3 | - | - | - | 3 |
| CO5 | 3 | 2 | 3 | 1 | 1 | 1 | 2 |
| Average | 2.2 | 2.6 | 3 | 1.25 | 1 | 1 | 2.6 |

Subject - ICHR

The student will be able to

| | |
|-----|--|
| CO1 | The students will be able to develop software for societal cause |
| CO2 | The students will be able to understand the value of Indian Constitution and will be applying it ethically in a day-to-day life. |
| CO3 | The Students will be able to apply his/her knowledge on the value systems and law to be better citizens |
| CO4 | The students will be able to identify and make use of information related to Law and cyber regulations in an effective way. |
| CO5 | The students will be able to make use of fundamental rights and duties personally and professionally. |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | - | - | - | 3 | 1 | 3 |
| CO2 | - | - | - | - | 3 | 1 | 3 |
| CO3 | - | - | - | - | 3 | 1 | 3 |
| CO4 | 2 | - | - | 3 | 2 | 1 | 3 |
| CO5 | - | - | - | 2 | 3 | 1 | 3 |
| Average | 2 | - | - | 2.5 | 2.8 | 1 | 3 |
| CO-PO mapping | 2 | - | - | 2.5 | 2.8 | 1 | 3 |

SEMESTER : V

SUBJECT: Computer Architecture

The Student will be able to

CO1 – Analyze the basic structure of a Computer

CO2- Ability to design memory organization that uses different word size operations.

CO3- Conceptualize control unit operations and instruction level parallelism.

CO4- Implement Cache Mapping Techniques

CO5- Apply I/O techniques using Computer Arithmetic Operations.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 3 | 1 | 1 | 1 | 2 | 2 |
| CO2 | 3 | 3 | 1 | - | - | 3 | 2 |
| CO3 | 3 | 3 | 2 | - | - | 2 | 3 |
| CO4 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| CO5 | 2 | 3 | 1 | 1 | 1 | 2 | 3 |
| Average | 2.4 | 3 | 1.8 | 1 | 1 | 2.4 | 2.4 |

Subject: Data Communication and Networks

Students will be able to

Co1: Familiar with concepts of OSI and TCP/IP reference model.

Co2: Describe the services, functions and inter-relationship of different layers in network models.

Co3: Understand network routing algorithms including shortest path, flooding, distance vector, hierarchical routing and congestion control algorithms.

Co4: Analyze the protocols used in data link layer, Network layer and Transport layer to design the better network architecture.

Co5: Implement the features and functions of multiplexing and modulations in network design.

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|---------|---------|---------|-----|-----|---------|---------|
| CO 1 | 2 | 2 | 2 | 2 | - | 2 | 1 |
| CO 2 | 3 | 2 | 2 | 2 | - | 3 | 2 |
| CO 3 | 3 | 3 | 2 | 2 | - | 2 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 1 | 2 | 3 |
| CO 5 | 2 | 2 | 2 | 1 | - | 2 | 2 |
| Average | 2. 6 | 2. 4 | 2. 2 | 2 | 1 | 2. 2 | 2. 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

Subject: Microprocessor

Students will be able to

| | |
|-----|--|
| CO1 | Understanding of Pin Diagram and 8085 architecture with the types of bus system, various flags and 8 bits of data can be transmitted to the microprocessor 8085 requires a 16 bits |
| CO2 | Design system using memory chips and peripheral chips involving system design by interfacing of 16 bit microprocessor. |
| CO3 | Write assembly language instruction and can identify each size of the instructions to run on 8085 microprocessor. Also tracking of the data moving from register pairs. |
| CO4 | Able to select appropriate architecture and program design to apply a particular interrupt-driven I/O handler for real-time machine |
| CO5 | Predicting Operating Modes of the Peripheral Controllers namely 8255PPI and DMAC |

CO PO MAPPING

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 2 | 1 | - | - | - | - |
| CO2 | 3 | 3 | 3 | - | - | 1 | 2 |
| CO3 | 3 | 2 | 3 | - | - | 1 | 2 |
| CO4 | 2 | 3 | 3 | 1 | - | 1 | 2 |
| CO5 | 1 | 2 | 1 | - | 1 | - | - |

Subject: Banking and Finance

On completion of the Course students are able to:

| | |
|-----|--|
| CO1 | Gained knowledge about various Concepts related to Banking, Evolution and its structure. |
| CO2 | Students are imbued with concepts related to deposits, Loans and advances. |
| CO3 | Students gained knowledge regarding Banker-Customer relationship. |
| CO4 | Students acquired Knowledge regarding basic concepts of Finance. |

CO PO Mapping

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 3 | - | 1 | - | - |
| CO2 | - | 2 | - | 1 | - | - | - |
| CO3 | 3 | 1 | 3 | 1 | 1 | 2 | 1 |
| CO4 | 1 | 1 | 2 | - | - | 1 | - |
| Avg | 2 | 1.5 | 2.7 | 1 | 1 | 1.5 | 1 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT: Software Engineering

The Student will be able to

CO 1: Implement different software development process models

CO 2: Extract and analyze software requirements specifications for different projects

CO 3: Develop some basic level of software architecture/design

CO 4: Apply and implement standard coding practices and software metrics

CO 5: Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 3 | 2 | 1 | - | 2 | 2 |
| CO2 | 3 | 3 | 1 | - | - | 1 | 2 |
| CO3 | 3 | 3 | 2 | - | 1 | 2 | 3 |
| CO4 | 3 | 2 | 1 | 1 | - | 3 | 2 |
| CO5 | 2 | 3 | 1 | 1 | 1 | 2 | 2 |
| Average | 2.6 | 2.8 | 1.4 | 1 | 1 | 2 | 2.2 |

SEMESTER: VI

SUBJECT: Cryptographic and Network security

The student will be able to

| | |
|-----|--|
| CO1 | Understand the security architecture, model and mechanisms to work with classical encryption techniques |
| CO2 | Identify and apply block cipher design principles and advanced encryptions standards to create secure cryptosystems |
| CO3 | Analyze various public key cryptosystems and their vulnerability to attack, and learn different key exchange mechanisms |
| CO4 | Able to generate digital signatures with Hash and or MAC algorithms for secure authentication |
| CO5 | Design security applications in the field of Information technology. Identify some of the factors driving the need for network and system security |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|------|-----|
| CO1 | 1 | 3 | 2 | - | 1 | 2 | 3 |
| CO2 | 2 | 3 | 1 | - | -- | 3 | - |
| CO3 | 2 | 2 | 3 | 1 | - | 2 | 1 |
| CO4 | 3 | 3 | 3 | - | - | - | - |
| CO5 | 3 | 3 | 3 | - | - | 2 | 2 |
| Average | 2.2 | 2.6 | 2.4 | 1 | 1 | 2.25 | 2 |

3- Highly correlation, 2-medium correlation, 1-low correlation

SUBJECT: System Programming

Students will be able to

Co1: Understand the basic concepts of Machine structure, Machine language and Assembly Language

Co2: Familiar with various types of sorting methods like interchange sort, Shell Sort, Bucket Sort, Radix Exchange Sort and address calculation sort

Co3: Analyze the one pass, two pass design of assembler, Macro Processor and Loaders.

Co4: Describe the various phases of compiler design

Co5: Design and write computer programs that allow the computer hardware to interface with the programmer and the user.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---------|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 2 | 2 | 2 | 2 | - | 2 | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | 2 | 2 |
| CO3 | 3 | 3 | 3 | 2 | - | 2 | 2 |
| CO4 | 3 | 2 | 2 | 3 | - | 2 | 2 |
| CO5 | 2 | 3 | 3 | 1 | - | 3 | 3 |
| Average | 2.6 | 2.6 | 2.4 | 2 | - | 2.2 | 2 |

SUBJECT: Web Programming

The Student will be able to

CO 1: Develop web pages using HTML and Java scripting

CO 2: Able to use Dynamic Documents with JavaScript and Object Oriented concepts

CO 3: Develop Moving, locating, dragging and dropping elements.

CO 4: Apply Cascading style sheets and design project documents.

CO 5: Use of Selector forms, font properties, List properties, Color alignment and Images.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|----------------|------------|------------|------------|------------|------------|------------|------------|
| CO1 | 2 | 3 | 2 | 1 | - | 2 | 3 |
| CO2 | 3 | 3 | 2 | - | - | 1 | 2 |
| CO3 | 3 | 3 | 2 | - | 1 | 2 | 3 |
| CO4 | 3 | 2 | 1 | 1 | - | 3 | 3 |
| CO5 | 2 | 3 | 1 | 1 | 1 | 2 | 3 |
| AVERAGE | 2.6 | 2.8 | 1.6 | 1 | 1 | 2 | 2.8 |