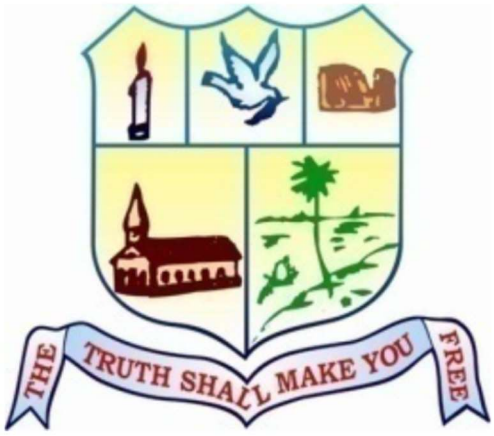
# SCOTT CHRISTIAN COLLEGE (AUTONOMOUS)

# NAGERCOIL




(Estd. 1893)

## CURRICULUM AND SYLLABUS

## DEPARTMENT OF COMPUTER APPLICATIONS

**(Approved by the Standing Committee of the Academic Councils held on 21.10.2023 & 13.01.2024)**

## UNDERGRADUATE PROGRAMME (BCA)

## CBCS-SEMESTER SYSTEM

**(For those who join from 2023 to 2026)**

**An evolution towards revolution …**

Education is crucial for attaining full human potential, developing an unbiased and evenhanded society and promoting national and global development. The education sector in India is witnessing a sweeping wave of change. The very first policy for education, *National Policy on Education* (NPE-1968) was promulgated in 1968, with the National Policy on Education (NPE-1986) following in 1986. The National Policy on Education (NPE- 1992) and the Programme of Action 1992 (POA-1992) refined and implemented the NPE-1986. The National Education Policy 2020 (NEP 2020) is a landmark document and an evolution towards revolution in the Indian educational sector. It presents the vision for greater access, equity, excellence, inclusion, multiple entry and exit and affordability to help India emerge as the global knowledge superpower.

Providing access to quality education is the key to the curriculum and syllabus of Scott Christian College (Autonomous), in terms of social justice and equality, scientific advancement, cultural preservation and national and global integration. Students should have the freedom and flexibility in choosing their courses, skills, and capacities to become moral, successful, innovative, adaptable, and productive human beings.

Higher education plays an important role in promoting human as well as societal wellbeing and in contributing towards sustainable livelihoods and economic development. The present Outcome-Based Education (OBE) curriculum and syllabus, provides valuable insights and recommendations on aspects of education that include moving towards multidisciplinary and holistic education, mastery and high-order learning and promotion of quality research.

The current curriculum has been designed based on NEP 2020, the National Credit Framework (NCrF), the National Higher Education Qualifications Framework (NHEQF) and Curriculum and Credit Framework for Undergraduate Programmes (CCFUP) which envisage that students must develop into good, thoughtful, well-rounded, creative individuals with a standard of achievement. The themed curriculum aims to support teachers and students in developing their understanding of the curriculum design and delivery process as per the requirement of the world of work.

Dr.Sidney Shirly
Dean of Arts
Scott Christian College
(Autonomous)
Nagercoil

Dr. V. Robin Perinba Smith
Dean of Science
Scott Christian College
(Autonomous)
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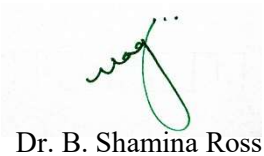

Dr. B. Shamina Ross
Dean of IT and Technical Education
Scott Christian College
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# DEPARTMENT OF COMPUTER APPLICATIONS

Bachelor of Computer Application is a three year undergraduate programme. It is extended over six semesters. The department has an excellent group of five dedicated faculty members who are highly motivated and enthusiastic in giving quality education.

The department was established in 2007 with 48 students and three faculty members. The programme is designed to give basic understanding of concepts, techniques and latest programming languages and to provide a strong foundation in all technical aspects of computer and their applications. An in-depth understanding of the basic subjects will facilitate the students when they persue higher education. The final semester has one internal project which gives hands on experience in software development.

## VISION

Envisions providing state of the art computer education to the community of learners to equip them with skills such that it shall prepare them for higher studies or contribute in the areas of private and public sectors in Computer Applications

## MISSION

- To get knowledge and understanding of the basic operations of computer systems and the inter-relationship among hardware, software and data
- To get knowledge and skills in using a range of applications software effectively, ethically and in a discriminatory manner to support information processing and problem solving
- To get an understanding and experience in the ways that information is logically and sensibly organized, processed and manipulated by a computer
- Togetknowledgeandskillsindatacommunicationsandnetworkdevelopment
- To get an understanding and appraisal of the social and ethical issues pertaining to computer technologies

| | |
|---|---|
| **Eligibility** | **:** 10+2 with Mathematics or equivalent. |
| **Duration of Course** | **:** 3 Years (6 Semesters) |
| **Min. Duration** | **:** 3 Years |
| **Medium of Instruction** | **:** English |

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# FACULTY MEMBERS

**1.** Mr.R.Shanthikaran, M. Sc.,P.G.D.C.A.,B.Ed.,M.C.A.,M.Phil.

**2.** Mrs.R.Suguna Jasmin, M.Sc.,M.Phil.

**3.** Dr.S.GnanaSophia,M.Sc.,M.Phil.PGDCA.,Ph.D(Head of the Department)

**4.** Dr.R.D. Seeja, M.CA.,M.Phil.,Ph.D.

**5.** Dr. D. Shiny, M.Sc.,M.Phil.,Ph.D**.**

**(Guest Lecturer)**

## MEMBERS OF THE BOARD OF STUDIES

**1.** Chairperson:
**Dr S.Gnana Sophia**
Head of the Department,
Department of Computer Applications,
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**2.** Faculty Members:
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**3.** Mrs. R. Suguna Jasmin
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**4.** Dr. R. D Seeja
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**5.** Dr. D. Shiny
Guest Lecturer,
Department of Computer Applications
Scott Christian College (Autonomous ), Nagercoil-3Mobile: 9488382437
E-Mail: shinyd328@gmail.com

**6.** Subject Expert 1:

**Dr. M.K.Jeyakumar** (from outside the parent university)Professor**,** Department of Computer Applications
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**7.** **Subject Expert 2:** (from outside the parent university)

Dr. R. Rakesh
Director
Department of Management and computer Science,CHMM College, Varkala
Affiliated to Kerala UniversityMobile : 9446208588
E-Mail : rakeshsudara@gmail.com

**8.** **Subject Expert** (Nominated by VC)

DR. G. Suganthi
Associate Professor
Department of Computer ScienceWomen's Christian College,
Nagercoil.
Mobile: 9488453297
E-Mail : dr_suganthi_wcc@yahoo.co.in

**9.** **Representative :** (from industry/corporate sector/allied area relating to placement)

**Mr. J. S. Franklin Jose** iDynamics Software Pvt Ltd.C-2, Thejaswini Building Phase I campus Technopark Thiruvananthapuram - 695581.
Mobile : 9946733354
E-Mail : franklin.jose@dynamics.com

**10.** Postgraduate meritorious alumnus

**A. Akshara**
Master of Computer Applications Thiagarajar College of Engineering, Madurai,Tamil Nadu –625 015.
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The Scott Christian College (Autonomous) defines the focus reinforcing its academic programmes and student life experience on campus through the Graduate Attributes (GA), that describe the knowledge, competencies, values and skills students imbibe for holistic development, multidisciplinary development and contribution to society. These attributes comprise characteristics that are transferable beyond the sphere of study into the national and international realm through curricular, co-curricular and extra-curricular engagements. They equip graduates for life long personal development and employment. Every Graduate of Scott Christian College (Autonomous) – (SCC) is desired to possess the following Graduate Attributes:

GA 1: Intellectual Competencies
Graduates of SCC

- have a comprehensive and incisive understanding of their domain of study as well as the ability for cross-disciplinary learning
- have the ability to apply the knowledge acquired through the curriculum as well as self-directed learning to a broad spectrum ranging from analytical thinking to synthesize new knowledge through research
- are able to have critical, independent and individual outlook regarding academic work and socially relevant issues

GA 2: Problem Solving
Graduates of SCC

- have the capacity to extrapolate from what has been learnt, translate concepts to real-life situations and apply acquired competencies in the required contexts to generate solutions to specific problems
- can view a problem or a situation from multiple perspectives and think 'out of the box'

and generate solutions to complex problems in unfamiliar contexts are effective problems-solvers, able to apply critical, creative and evidence-based thinking to conceive innovative responses to challenges

GA 3: Communication Skills

Graduates of SCC

- listen carefully, analyze texts and research papers, and present complex information in a clear and concise manner
- express thoughts and ideas effectively in writing and orally and communicate with others using appropriate media
- confidently express herself/himself and construct logical arguments using correct technical language related to a field of learning and area of professional practice

GA 4: Environmental Awareness

Graduates of SCC

- lessen the effects of environmental degradation, climate change, and pollution
- learn the nuances for cleanliness, conservation and wise use of resources so that itcan be used for generations
- know the nuances of waste management, conservation of biological diversity, management of biological resources and biodiversity, and sustainable developmentand living

GA 5: Professional Ethics

Graduates of SCC

- develop principled and expert behavior, and this will be showcased in their chosen careers and constructive roles as citizens of the world at large
- imbibe intellectual integrity and ethics in scholarly engagement and develop a spirit of inclusiveness through interactions with diverse people at all levels in life
- acquire new knowledge and skills, including 'learning how to learn' skills, for pursuing learning activities throughout life and adapting to changing demands of the workplace through knowledge, skill development and reskilling, ethically

GA 6: Leadership Qualities

Graduates of SCC

- inculcate leadership qualities and attitudes, and team behavior along autonomous lines through curricular, co-curricular and extra-curricular activities
- develop managerial and entrepreneurial skills to create new opportunities for diverse careers and gear up to take up competitive examinations
- acttogetherasagrouporateamintheinterestsofacommoncauseandworkefficientlyas

GA 7: Holistic Skill Development

Graduates of SCC

- develop critical thinking, problem-solving capacity, effective communication, and social skills
- are self-aware, flexible, resilient and have the capacity to accept and give constructive feedback and cope up with stress
- develop soft skills, e-skills and life skills to live, learn and work in the technically sound society globally and use appropriate digital methods for analysis of data

GA 8: Cross-Cultural Competencies

Graduates of SCC

- gain cross-cultural competencies through engaging with diverse linguistic, ethnic and religious communities and know how to understand, accept and appreciate individuals at local, national and international levels
- develop a global perspective through contemporary curriculum, culture, language and

international exchange programmes
- acquire knowledge of the values and beliefs of multiple cultures and a global perspective to honour diversity, gender sensitivity and adopt gender-neutral approach and show empathy to the less advantaged and the differently-abled

GA 9: Community Engagement

Graduates of SCC

- are sensitive to social concerns and have conviction toward social justice through active social engagement
- are endowed with a strong sense of environmental awareness through the curriculum and a friendly and serene campus eco-system.
- formulate an inspiring vision and build a team that can help achieve the vision, and motivate people to the right destination

GA 10: Value-Based Ethical Competency

Graduates of SCC

- are rooted in the principles of ethical responsibility and integrity permeated with Christian values leading to the building of character and constitutional values
- develop virtues such as truth, love, courage, unity, integrity, brotherhood, industry and uprightness
- practice responsible national and global citizenship required for responding to contemporary challenges, enabling learners to become aware of and understand global issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies

*Learning Outcomes Descriptors for Qualification at Level4.5 on the NHEQF*

An Undergraduate Certificate is awarded to students who have demonstratedthe achievement of the outcomes located at level4.5 on the NHEQF.

| **Element of the Descriptor** | **NHEQF level descriptors relating to undergraduate certificate** |
|---|---|
| Knowledge and Understanding | The graduates should be able to demonstrate the acquisition of:<br>• knowledge of facts, concepts, principles, theories, and processes in broad multidisciplinary learning contexts within the chosen fields of learning<br>• understanding linkages between the learning areas within andacross the chosen fields of study,<br>• procedural knowledge required for performing skilled tasks associated with the fields of learning. |
| General, Technical and Professional Skills | The graduates should be able to demonstrate the acquisition of:<br>• cognitive, rational and technical skills required to identify, analyze and synthesize information and to accomplish tasks relating to the fields of learning.<br>• Cognitive and technical skills required for selecting and using relevant methods, tools and materials<br>• apply the acquired technical and theoretical knowledge and use basic methods, tools, materials, and information to generate solutions to specific problems relating in the field of learning. |

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| Generic Learning Outcomes | The graduates should be able to demonstrate the ability to:<br>• listen carefully, read texts related to the chosen fields of study analytically, and present in formation in a clear and concise manner<br>• express thoughts and ideas effectively in writing and orally and present the results/ findings of the experiments carried out<br>• Make judgment and take decisions, based on analysis of data and evidence, for formulating responses to issues/problems associated with the chosen fields of learning |
| Constitutional, Humanistic, ethical, and moral values | The graduates should be able to demonstrate the willingness to:<br>• practice constitutional, humanistic, ethical, and moral values in real-life situations,<br>• put forward convincing arguments to respond to the ethical andmoral issues associated with the chosen fields of learning<br>• use reason and empathy, considering the consequences of human actions and the likely impact on other people and animals |
| Employability and Entrepreneurship Skills | The graduates should be able to demonstrate the acquisition of:<br>• knowledge and essential skills, required to perform effectively in a defined job relating to the chosen fields of study,<br>• ability to exercise responsibility for the completion of assigned tasks and for the outputs of own work, and to take some responsibility for group work and output as a member of the group<br>• Transferable skills and key personal attributes which are highly valued by employers and essential for effective performance in the workplace. |
| Credit Requirements | • The successful completion of the first year (two semesters) of the |
| | under-graduate programme of minimum 40 credit hours |
| Entry Requirements | • Certificate obtained after successful completion of Grade 12 or equivalent state of education. |

*Learning Outcomes Descriptors for Qualifications at Level 5 on the NHEQF*

An Undergraduate Diploma is awarded to students who have demonstrated theachievement of the outcomes located at level 5on the NHEQF.

| **Element of the Descriptor** | **NHEQF Level Descriptors** |
|---|---|
| Knowledge and Understanding | The graduates should be able to demonstrate the acquisition of:<br>• Theoretical and technical knowledge in multidisciplinary contexts<br>• Deeper knowledge and understanding of the learning areas and its underlying principles and theories<br>• Procedural knowledge required for performing skilled tasks |

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| Application of Knowledge and Skills | The graduates should be able to demonstrate the ability to:<br>• Apply the acquired specialized or theoretical knowledge, and arrange of cognitive and practical skills to gather quantitative and qualitative data,<br>• Select and apply basic methods, tools, materials, and informationto formulate solutions to problems related to the chosen field(s) of learning.<br>• analyze and synthesize ideas and information from a range of sources and act on information to generate solutions to problems |
| Generic Learning Outcomes | The graduates should be able to demonstrate the ability to:<br>• listen carefully, read texts and present complex information in a clear and concise manner in writing and orally<br>• Critically evaluate the essential theories, policies, and practices by following a scientific approach to knowledge development.<br>• make judgment and take decision, based on the analysis and evaluation of information, for determining solutions to a variety of unpredictable problems associated with the chosen fields of learning |
| Constitutional, Humanistic, Ethical,and Moral values | The graduates should demonstrate the willingness and ability to:<br>• embrace constitutional, humanistic, ethical, and moral values and practice these values in life<br>• ethically address issues relating to the chosen fields of learning, including environmental and sustainable development issues<br>• use reason and empathy, considering the consequences of human actions and the likely impact on other people and animals |
| Employability and Entrepreneurship Skills | The graduates should be able to demonstrate the acquisition of skills that are necessary to:<br>• take up employment relating to the chosen fields of study or professional practice<br>• exercise self-management within the guidelines of study and workcontexts.<br>• Take responsibility for the evaluation and improvement of work or study activities |
| Credit Requirements | The successful completion of the first two years (four semesters) of the |
| | under-graduate programe involving a minimum of 80 credit hours |
| Entry Requirements | Continuation of study or lateral entry in the second year of the undergraduate programme will be possible for those who have met the entrance requirements, including specified levels of attainment, specified in the programme regulations. |

*Learning Outcomes Descriptors for a Higher Education Qualification at Level*
***5.5 on the NHEQF***

The Bachelor's degree is awarded to students who have demonstrated theachievement of the outcomes located at level 5.5 on the NHEQF.

| Element of the Descriptor | NHEQF LevelDescriptors |
|---|---|
| Knowledge and Understanding | The graduates should be able to demonstrate the acquisition of:<br>• Comprehensive, factual, theoretical, and specialized knowledge in broad multidisciplinary contexts with depth in the underlying principles and theories relating to the fields of learning.<br>• Knowledge of the current and emerging issues and developments within the chosen field of learning.<br>• Procedural knowledge required for performing and accomplishing professional tasks in the chosen fields of learning. |
| General, Technical and Professional Skills | The graduates should be able to demonstrate the acquisition of:<br>• Cognitive and technical skills required for performing and accomplishing complex tasks<br>• Cognitive and technical skills required to evaluate and analyze complex ideas and generate solutions<br>• measurable abilities and knowledge that come through learning and canbe job or task-specific |
| Application of Knowledge and Skills | The graduates should be able to demonstrate the ability to:<br>• apply the acquired theoretical knowledge, and cognitive and practicalskills to gather and analyze quantitative and /or qualitative data<br>• employ the right approach to generate solutions to problems related tothe fields of learning<br>• develop through practice, experience, and the effective utilization ofacquired knowledge to perform specific tasks, solve problems, or exhibit competence |
| Generic Learning Outcomes | The graduates should be able to demonstrate the ability to:<br>• communicate in writing and orally the constructs and methodologies adopted for the studies undertaken relating to the chosen fields of learning,<br>• Make coherent arguments to support the findings /results of the study undertaken and pursue self-paced and self-directed learning to upgrade knowledge and skills and pursue higher level of education and training.<br>• make judgments and take decisions based on the analysis and evaluation of information for formulating responses to problems based on empirical evidence |
| Constitutional, Humanistic, Ethical, and | The graduates should be able to demonstrate the willingness and ability to:<br>• Embrace constitutional, humanistic, ethical, and moral values, and practice these values in life. |
| Moral Values | •Formulate coherent arguments about ethical and moral issues,including environmental and sustainable development issues,<br>• follow ethical practices in all aspects of research and development |

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| Employability and EntrepreneurshipSkills | The graduates should be able to demonstrate the acquisition of:<br>• knowledge and essential skills set and competence that are necessary totake up a professional job<br>• entrepreneurship skills required for setting up and pursuing self-employment<br>• The ability to exercise management and supervision in the contexts ofwork or study activities involving unpredictable work processes and<br>working environments. |
| Credit Requirements | The successful completion of the first three years (six semesters) of theundergraduate programme involving a minimum of 120 credit hours |
| Entry Requirements | Continuation of study or lateral entry into the third year of the undergraduate programme will be possible for those who have met the specified levels of attainment, specified in the programme admission regulations<br>. |

**PLO & GA Mapping**

| Programme Learning Outcome # | Programme Learning Outcome (PLO) | Description of PLO | PLO Mapped with GA# |
|---|---|---|---|
| PLO 1 | Language proficiency | Exhibit spoken and written skills for effective communication | GA 3 |
| | | Relate reading and listening skills to expedite access to knowledge resources and understanding | GA 3 |
| | | Combine two or more language abilities while interacting | GA 3 |
| PLO 2 | Critical thinking and domain knowledge | Acquire knowledge of basic concepts, theories and processes through study ofcore courses in respective programmes and have a critical outlook | GA 1<br>GA 2 |
| | | Critically relate and consider domain specific knowledge to emerging areas of academia | GA 1 |
| | | Evaluate, familiarize and develop domain specific transferrable skills to new and or unfamiliar contexts | GA 2 |
| | | Identify and determine connection across disciplines | GA 1<br>GA 8 |

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| PLO 3 | Interdisciplinary knowledge | Empower students to combine frameworks and concepts from multiple disciplines to examine and solve a problem from different perspectives | GA 1<br>GA 8<br>GA 2 |
| | | Procure and apply interdisciplinary knowledge for universal development | GA 1<br>GA 8 |
| PLO 4 | Digital competency | Acquire the ability to leverage digital technologies to communicate, collaborate, and analyze data | GA 7<br>GA 1<br>GA 2 |
| | | Get acquainted with software resources, computational skills and digital tools | GA 7<br>GA 1 |
| | | Ethically apply digital skills to confidently use technology for work, learning and daily life | GA 7<br>GA 10 |
| PLO 5 | Analytical skills | Develop the ability to think critically andrelate learning to academic, professional and real-life problem solving | GA 1<br>GA 10<br>GA 2 |
| | | Apply empirical knowledge and skills to identify and collect quantitative and qualitative data to analyze and formulate evidence-based suggestions and solutions | GA 7<br>GA 2 |
| | | Analyze problems and come out with | GA 2 |
| | | facts-based solutions | GA 7 |
| PLO 6 | Academic writing& presentation skills | Formulate and document results, case studies, project works, field works and internships | GA 2 |
| | | Present ideas, analyze research and construct an effective argument | GA 3 |
| | | Keep focused, planned and structured byusing effective methodologies and in formal presentations | GA 2<br>GA 1 |
| PLO 7 | Innovation and creativity | Validate convertible capabilities and entrepreneurial skills that are needed for employment opportunities | GA 2<br>GA 7 |
| | | Develop and generate intellectual property | GA 1 |
| | | Empower entrepreneurs to discover opportunities, solve problems, adapt to change, continuously improve, and drivebusiness growth | GA 2<br>GA 5 |
| PLO 8 | Social engagement and responsibility | Exhibit the ability to link classroom learning with social concerns and engagement through service learning and outreach programmes | GA 5<br>GA 9 |
| | | Enhance positive leadership qualities forpeaceful coexistence, general wellbeing and improved quality of life | GA 6<br>GA 10 |
| | | Have ethical responsibility, philanthropic responsibility and economic responsibility | GA 5<br>GA 9 |

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| PLO 9 | Environmental sensitization | Appreciate environmental consciousnessand sustainability | GA 4<br>GA 9 |
| | | Make students acquire sensitivity to the environment and its problems and help them to acquire a set of values for environmental protection | GA 4<br>GA 9 |
| | | Encourage students to acquire knowledgeof pollution and environmental degradation | GA 4 |
| PLO 10 | Autonomy and Responsibility | Demonstrate a sense of community service, be proactive and creative at work, committed to lifelong learning | GA 5<br>GA 10<br>GA 6 |
| | | Encourage independent thought, problem-solving, creative thinking and productive teamwork | GA 5<br>GA 1<br>GA 2 |
| | | Reflect the basic human need to havecontrol over our own lives both at work and in life | GA 7<br>GA 10 |

## CURRICULUM TABLE

| Year | Semester | Course No | Course | Lecture | Tutorial | Practical | Internship | Self-Learning | Demonstration | Research Project | Total Hours | Credits | Credit Points | Course Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I | 1.1 | Part I<br>MIL-1 Modern Indian Language | 6 | | | | | | | 6 | 3 | 13.5 | 23LT11 |
| | | 1.2 | Part II<br>CE-1Communicative English | 5 | | 1 | | | | | 6 | 3 | 13.5 | 23LE11 |
| | | 1.3 | Part III<br>CC-1:Python Programming | 5 | | | | | | | 5 | 5 | 22.5 | 23GR11 |
| | | 1.4 | CP-1 : Python Programming Lab | | | 5 | | | | | 5 | 3 | 13.5 | 23GRP1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | | 1.5 | CE-1(Elective):<br>1. Digital Logic Fundamentals<br>2. Computer System Architecture | 4 | | | | | | | 4 | 4 | 13.5 | 23GREA<br>23GREB |
| | | 1.6 | Part V<br>SEC-1:Fundamentals of InformationTechnology | 1 | | 1 | | | | | 2 | 1 | 4.5 | 23GRS1 |
| | | 1.7 | SEC-2:Structured Programming Language in C | 1 | | 1 | | | | | 2 | 1 | 4.5 | 23GRF1 |
| | II | 2.1 | Part I<br>MIL-2 Modern Indian Language | 6 | | | | | | | 6 | 3 | 13.5 | 23LT21 |
| | | 2.2 | Part II<br>CE-2Communicative English | 5 | | 1 | | | | | 6 | 3 | 13.5 | 23LE21 |
| | | 2.3 | Part III<br>CC-2 : Object Oriented Programming with C++ | 4 | | | | | | | 4 | 4 | 16.8 | 23GR21 |
| | | 2.4 | CC-3 : Cyber Security | 5 | | | | | | | 5 | 5 | 22.5 | 23GR22 |
| | | 2.5 | CP-2 : Object Oriented Programming with C++ Lab | | | 3 | | | | | 3 | 2 | 9 | 23GRP2 |
| | | 2.6 | Part IV<br>MS-1(Allied) : Web Design | 4 | | | | | | | 4 | 3 | 13.5 | 23AR01 |
| | | 2.7 | MSP-1 : Web Design Lab | | | 2 | | | | | 2 | 1 | 4.5 | 23ARP1 |
| II | III | 3.1 | Part I –MIL-3 : Modern Indian Language | 6 | | | | | | | 6 | 3 | 15 | 23LT31 |
| | | 3.2 | Part II –CE-3 : Communicative English | 5 | | 1 | | | | | 6 | 3 | 15 | 23LE31 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3.3 | Part III<br>CC-4 : Java Programming | 4 | | | | | | | 4 | 4 | 20 | 23GR31 |
| | | 3.4 | CC-5 : Operations Research | 5 | | | | | | | 5 | 5 | 25 | 23GR32 |
| | | 3.5 | CP-3 : Java Programming Lab | | | 3 | | | | | 3 | 2 | 10 | 23GRP3 |
| | | 3.6 | Part IV<br>MS-2(Allied) : Data Structures | 4 | | | | | | | 4 | 3 | 15 | 23AR02 |
| | | 3.7 | MSP-2 : Data Structures Lab | | | 2 | | | | | 2 | 1 | 5 | 23ARP2 |
| | | 3.8 | Part VI<br>VAC-1: Health and Fitness through Yogasanas (***Common to all***) | 0 | | | | | | | 0 | 1 | 5 | 23SE11 |
| | IV | 4.1 | Part I –MIL-4 : Modern Indian Language | 6 | | | | | | | 6 | 3 | 15 | 23LT41 |
| | | 4.2 | Part II –CE-4 : Communicative English | 5 | | 1 | | | | | 6 | 3 | 15 | 23LE41 |
| | | 4.3 | Part III<br>CC-6 : Dot Net Programming | 4 | | | | | | | 4 | 4 | 20 | 23GR41 |
| | | 4.4 | CP-4 : Dot Net Programming Lab | | | 3 | | | | | 3 | 2 | 10 | 23GRP4 |
| | | 4.5 | Part IV<br>MS-3(Allied) : Operating Systems | 4 | | | | | | | 4 | 3 | 15 | 23AR03 |
| | | 4.6 | MSP-3 : PHP Programming Lab | | | 3 | | | | | 3 | 2 | 10 | 23ARP3 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 4.7 | Part VI<br>VAC-2 : Digital Empowerment through AI, Multimedia and Cyber Security (***Common to all***) | 2 | | | | | | | 2 | 1 | 5 | 23SE21 |
| | | 4.8 | Part VII<br>NME-1: Basics of Internet | 2 | | | | | | | 2 | 2 | 10 | 23GRN1 |
| | | 4.9 | Part VIII Internship | | | | 0 | | | | | 1 | 5 | 23GRD1 |
| | | Industrial Visit | | | | | | | | | | | | |
| III | V | 5.1 | Part III<br>CC-7 : Machine Learning | 4 | | | | | | | 4 | 4 | 22 | 23GR51 |
| | | 5.2 | CC-8 : Artificial Intelligence | 4 | | | | | | | 4 | 4 | 22 | 23GR52 |
| | | | CC-9` : Project Work | | | 5 | | | | | 5 | 5 | 27.5 | 23GRD2 |
| | | 5.3 | CE-2(Elective)<br>1. Software Project Management<br>2. Software Engineering | 4 | | | | | | | 4 | 4 | 16.5 | 23GREC<br>23GRED |
| | | 5.4 | CP- 5: Machine learning Lab | | | 3 | | | | | 3 | 2 | 11 | 23GRP5 |
| | | 5.5 | Part IV<br>MS-4(Allied) Cloud Computing | 4 | | | | | | | 4 | 3 | 16.5 | 23AR04 |
| | | 5.6 | Part V<br>SEC-3 : Quantitative Aptitude | 2 | | | | | | | 2 | 1 | 5.5 | 23GRS2 |
| | | 5.7 | Part VI<br>VAC-3 : Indian Knowledge System and Human Rights (***Common to all***) | 2 | | | | | | | 2 | 1 | 5.5 | 23SE31 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5.8 | Part VII<br>NME-2 : Office Automation-I | 1 | | 1 | | | | | 2 | 2 | 11 | 23GRN2 |
| | | Study Tour | | | | | | | | | | | | |
| | VI | 6.1 | Part III<br>CC-10 : RDBMS & Oracle | 4 | | | | | | | 4 | 4 | 22 | 23GR61 |
| | | 6.2 | CC-11 : Computer Graphics | 4 | | | | | | | 4 | 4 | 22 | 23GR62 |
| | | 6.3 | CE-3<br>1. Computer Networks<br>2. Network security | 5 | | | | | | | 5 | 5 | 22 | 23GREE<br>23GREF |
| | | 6.4 | CE-4<br>1. Principles of management<br>2. Management Information System | 5 | | | | | | | 5 | 5 | 22 | 23GREG<br>23GREH |
| | | 6.5 | CP-6:RDBMS & Oracle Lab | | | 3 | | | | | 3 | 2 | 11 | 23GRP6 |
| | | 6.6 | CP-7 : Computer graphics Lab | | | 3 | | | | | 3 | 2 | 11 | 23GRP7 |
| | | 6.7 | Part V<br>SEC-4 : Logical Reasoning | 2 | | | | | | | 2 | 1 | 5.5 | 23GRS3 |
| | | 6.8 | Part VI<br>VAC-4 : Environment and Sustainable Development<br>***Common to all*** ) | 2 | | | | | | | 2 | 1 | 5.5 | 23SE41 |
| | | 6.9 | Part VII<br>NME-3 : OFFICE AUTOMATION -II | 1 | | 1 | | | | | 2 | 2 | 11 | 23GRN3 |
| **TOTAL** | | | | **137** | | **35** | | **1** | **6** | **1** | **180** | **136** | 663.3 | |

**SEMESTER I**

| Course Title: MIL-1: Tamil | Course Type: Theory<br>Course Code:23LT11 |
|---|---|

| Total Hours: 90 Hours/Week: 6 Credits: 3 |
|---|

| Pass-Out Policy: Minimum Contact Hours: 54<br>Total Score %:100 40 Internal: 60 External:<br>Minimum Pass %: 40 [No Minimum for nternal] |
|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. D. Deva Sambath<br>Associate Professor<br>Mobile : 9994964710<br>devasambath013@gmail.com | Dr. S. Sujana Bai<br>Assistant Professor<br>Mobile: 9486758307<br>sujanabai@gmail.com | Dr. J. Kingsly<br>Assistant Professor<br>Mobile: 7871978855<br>kingslyphd@gmail.com |

| **CLO.** # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | பாரதியார் காலந்தொட்டு தற்காலப் புதுக்கவிதைகள் வரை கவிதை இலக்கியம் அறிமுகப்படுத்தப் படுவதால் கவியாக்கத் திறன் பெறுவர் | 1(8), 2(8), 6(4) | 1, 2, 3, | Ap | P |
| 2 | புதுக்கவிதை வரலாற்றினை அறிந்து கொள்வர். | 1(6), 2(8), 3(6) | 1, 2, 3, 8 | U | F |
| 3 | இக்கால இலக்கிய வகையினைக் கற்பதன் மூலம் படைப்பாக்கத் திறன் பெறுவர். | 1(8), 7(12) | 2, 3, 7 | An | M |
| 4 | மொழியறிவோடு சிந்தனைத் திறன் அறிவில் மேம்படுவர். | 1(10), 2(10) | 2, 3 | Ev | C |
| 5 | தமிழ்மொழியைப் பிழையின்றி எழுதவும், புதிய கலைச் சொற்களை உருவாக்கவும் அறிந்து கொள்வர். | 1(8), 3(6), 6(6) | 2, 3, 8 | C | P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|---|
| **அலகு I மரபுக்கவிதை** | | | | | | |
| 1.1 | தமிழ்த் தெய்வ வணக்கம் - மனோன்மணியம் பெ. சுந்தரனார் | 2 | 1[11] | GT | HrA | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1.2 | சிறுத்தையே வெளியில் வா- பாரதிதாசன் | 2 | 1[12] | Sem | CT | 1 |
| 1.3 | புத்தரும் சிறுவனும்- கவிமணி தேசிக விநாயகம் பிள்ளை | 4 | 1[22] | GD | CT | 1 |
| 1.4 | மொழி உணர்ச்சி -முடியரசன் | 2 | 1[11] | Lec | CA | 1 |
| 1.5 | ஆட்டனத்தி ஆதிமந்தி -ஆதிமந்தி புலம்பல் -கண்ணதாசன் | 4 | 1[22] | Lec | HoA | 1 |
| 1.6 | வினாத்தாள் -சுரதா | 2 | 1[11] | SI | ST | 1 |
| 1.7 | கடல் - தமிழ் ஒளி | 2 | 1[11] | ESS | SA | 1 |
| **அலகு II புதுக்கவிதை** | | | | | | |
| 2.1 | வீட்டுக்கொரு மரம் வளர்ப்போம் - அப்துல் ரகுமான் | 2 | 2[11] | Sem | HoA | 1 |
| 2.2 | சென்ரியூ கவிதைகள் -ஈரோடு தமிழன்பன் (ஏதேனும் ஐந்து கவிதைகள்) | 2 | 2[11] | Lec | Qui | 1 |
| 2.3 | பிற்சேர்க்கை -வைரமுத்து | 3 | 2[17] | Lec | CA | 1 |
| 2.4 | வாழைமரம் - மு. மேத்தா | 2 | 2[11] | GD | CT | 1 |
| 2.5 | வள்ளுவம்பத்து- அறிவுமதி | 2 | 2[11] | Lec | CT | 1 |
| 2.6 | ஆனந்தயழை மீட்டுகிறாய் - நா. முத்துக்குமார் | 3 | 2[17] | OO | ST | 1 |
| 2.7 | சபிக்கப்பட்ட முத்தம்- சுகிர்தராணி | 2 | 2[11] | Sem | SA | 1 |
| 2.8 | நீ எழுத மறுக்கும் எனது அழகு - இளம்பிறை | 2 | 2[11] | Sem | HoA | 1 |
| **அலகு III சிறுகதைகள்** | | | | | | |
| 3.1 | வாய்ச்சொற்கள்- ஜெயகாந்தன் | 2 | 3[11] | Lec | HoA | 9 |
| 3.2 | கடிதம் -புதுமைப்பித்தன் | 1 | 3[6] | Lec | CT | 10 |
| 3.3 | கரு- உமா மகேஸ்வரி | 2 | 3[11] | GD | HrA | 9 |
| 3.4 | முள்முடி தி. -ஜானகிராமன் | 2 | 3[11] | Sem | CT | 9 |
| 3.5 | சிதறல்கள்- விழி.பா. இதயவேந்தன் | 2 | 3[11] | Lec | SA | 10 |
| 3.6 | காகித உறவு - சு. சமுத்திரம் | 3 | 3[17] | Lec | ST | 10 |
| 3.7 | வீட்டின் மூலையில் ஒரு சமையலறை- அம்பை | 4 | 3[22] | GD | Ess | 9 |
| 3.8 | நாய்க்காரச் சீமாட்டி -ஆண்டன் செக்காவ் | 2 | 3[11] | Lec | SA | 4 |
| **அலகு IV இலக்கிய வரலாறு** | | | | | | |
| 4.1 | மரபுக்கவிதை | 6 | 4[33] | Lec | MCQ | 3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4.2 | புதுக்கவிதை | 6 | 4[33] | Lec | SA | 3 |
| 4.3 | சிறுகதை | 6 | 4[34] | Sem | Ess | 3 |
| **அலகு V மொழித்திறன் போட்டித்தேர்வு** | | | | | | |
| 5.1 | பொருள் பொதிந்த சொற்றொடர் அமைத்தல் | 3 | 5[16] | RF | Qui | 6 |
| 5.2 | ஒரெழுத்து ஒரு மொழி | 3 | 5[16] | Sem | MCQ | 6 |
| 5.3 | வேற்றுமை உருபுகள் | 3 | 5[17] | Lec | Ess | 4 |
| 5.4 | திணை, பால், எண், இடம் | 3 | 5[17] | Lec | MCQ | 5 |
| 5.5 | கலைச்சொல்லாக்கம் | 3 | 5[17] | RF | CA | 6 |
| 5.6 | மொழிபெயர்ப்பு | 3 | 5[17] | Ess | CA | 8 |

**Reference Books**


1. பொதுத்தமிழ் -முதற்பருவம், தமிழ்த்துறை வெளியீடு, ஸ்காட் கிறிஸ்தவக் கல்லூரி (தன்னாட்சி), நாகர்கோவில்.
2. தமிழ் இலக்கிய வரலாறு சிற்பி. பாலசுப்பிரமணியன், கவிதா பதிப்பகம், சென்னை
3. புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு - தமிழண்ணல், மீனாட்சி புத்தக நிலையம், மதுரை.
4. ஆண்டன் செகாவ் கதைகள் எம். கோபாலகிருஷ்ணன், நூல்வனம் பதிப்பகம், சென்னை.
5. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு முனைவர் பாக்யமேரி, நியூசெஞ்சுரி புக்ரவுஸ் (பி) லிட், சென்னை.
6. நன்னூல் - சொல்லதிகாரம், மணிவாசகர் பதிப்பகம், சென்னை
7. தொல்காப்பியம் - சொல்லதிகாரம், சாரதா பதிப்பகம், சென்னை
8. அடிப்படைத் தமிழ் இலக்கணம் -எம்.ஏ.நுஃமான், அடையாளம் பதிப்பகம், புத்தாநத்தம்
9. 100 சிறந்த சிறுகதைகள் பாகம் (1) எஸ். ராமகிருஷ்ணன், தேசாந்திரி பதிப்பகம், சென்னை.
10. 100 சிறந்த சிறுகதைகள் எஸ். ராமகிருஷ்ணன், தேசாந்திரி பதிப்பகம், சென்னை பாகம்(2).


**SEMESTER I**

| | |
|---|---|
| Course Title: MIL-1:**Malayalam** | Course Type: Theory<br>Course Code:23LT11 |

| | | |
|---|---|---|
| Total Hours:90 | Hours/Week: 6 | Credits:3 |

| | |
|---|---|
| Pass-Out Policy : | Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.Jisha.S.K | Dr.Pramod Kumar D.N | Dr.R.Sreejasankar |
| Assistant Professor | Associate Professor | Designation : Assistant Professor |
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| jisha@scottchristian.org | pramodrds@gmail.com | sreejavijayan77@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to:* | % of PLO Mappig with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | understand the word level and sentence level translation and ob the proverb narrative techniques | 1(10), 2(10) | 1, 8 | U | M, C |
| 2 | evaluate the Malayalam Novel of different eras and getting life awareness and obtain the | 1(10), 2(5), 5(5) | 1, 2, 3, 6, 8 | U, An | M,F |
| 3 | analyse the Malayalam Short story of different eras and getting life awareness and obtain the riddle's moral value | 5(10), 9(10) | 6, 7 | An, E | M,P |
| | evaluate the Malayalam autobiography of different eras and getting life awareness | 9(10), 10(10) | 1, 3, 7 | An, E | M,F, C |
| 5 | evaluate the Malayalam Travelogue. of different eras and getting life awareness and obtain the moral value | 5(10), 9(10) | 1, 2 | U, E | M, C, P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|---|
| **Vivarthanam** | | | | | | |
| 1.1 | Malayala Vivarthana Charithram | 1 | 1[10] | Lec | CA | 14 |
| 1.2 | Vivarthanathinte Prayojanam | 1 | 1[15] | Lec | CA | 14 |
| 1.3 | Vivarthakanate Gunangal | 1 | 1[12] | Lec | HrA | 14 |
| 1.4 | Vivarthanathinte Parimithikal | 1 | 1[13] | Lec | CT | 14 |
| 1.5 | Englishil Ninnum Malayalathilekku Vivarthanam | 4 | 1[12] | Lec | ST | 14 |
| 1.6 | Malayalathil NinnumEnglishilekku Vivarthanam | 4 | 1[13] | Lec | CT | 14 |
| 1.7 | Sailikalum Pazhanchollukalum | 3 | 1[12] | Lec | ST | 14 |
| 1.8 | Aasayavipulanam | 3 | 1[13] | Lec | CT | 14 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Malayalanovel** | | | | | | |
| 2.1 | Malayalanovel Charithram | 2 | 2[10] | Lec | OT | 1,4,6, |
| 2.2 | M.D.yude Novalukal | 1 | 2[10] | Lec | OB | 1,4,6 |
| 2.3 | Naalukettu Samagra avalokanam (Visada PadanamAadyathe 5 Adhyayangal) | 3 | 2[20] | Lec | Qui | 1,4,6 ,7,8, |
| 2.4 | Adyayam 1 | 3 | 2[10] | Lec | Ho | 1,4,6 |
| 2.5 | Adyayam 2 | 3 | 2[20] | Lec | MC | 1,4,6 |
| 2.6 | Adyayam 3 | 3 | 2[10] | Lec | Qui | 1,4,6 |
| 2.7 | Adyayam 4 | 3 | 2[20] | Lec | Ho | 1,4,6 |
| **Malayala Cherukadha** | | | | | | |
| 3.1 | Malayala Cherukadha Charithram | 3 | 3[20] | GD | SA | 1,2,3 |
| 3.2 | Karoorinte Cherukadhakal | 3 | 3[10] | CS | ESS | 1,2,3 |
| 3.3 | Marappavakal- Kaaroor | 3 | 3[20] | Lec | CA | 1,2,3 |
| 3.4 | Uthuppante Kinar - Kaaroor | 3 | 3[10] | Lec | HrA | 1,2,3 |
| 3.5 | Kalchakaram - Kaaroor | 3 | 3[20] | Lec | CT | 1,2,3 |
| 3.6 | Poovamabhazham - Kaaroor | 3 | 3[20] | Lec | CT | 1,2,3 |
| **Athmakadha Saahithyam** | | | | | | |
| 4.1 | Malayala AathmakadhaSaahithyaCharithram | 3 | 4[20] | Sem | ST | 1,12 |
| 4.2 | Joseph Mundasseri | 3 | 4[20] | Sem | OT | 1,12 |
| 4.3 | Kozhinja Elakal Samagra avalokanam (Visada Padanam Aadya Naalu Adhyayangal ) | 3 | 4[20] | CS | OBT | 1,12 |
| 4.4 | Adyayam 1 | 3 | 4[10] | Lec | Qui | 1,12 |
| 4.5 | Adyayam 2 | 3 | 4[20] | Lec | Ho | 1,12 |
| 4.6 | Adyayam 3 | 3 | 4[10] | Lec | Qui | 1,12 |
| **Yaathravivaranam** | | | | | | |
| 5.1 | Malayala Yaathra vivarana Charithram | 3 | 5[20] | Ess | MC | 1 |
| 5.2 | Raajan Kaakkanadan | 3 | 5[10] | GD | SA | 1 |
| 5.3 | Himavante Mukal Thattil - Raajan Kaakkanadan Samagra avalokanam (Visada Padanam Aadya moonnu | 3 | 5[20] | SP | CA | 1 |
| 5.4 | Adyayam 1 | 3 | 5[10] | SP | HrA | 1 |
| 5.5. | Adyayam 2 | 3 | 5[20] | GL | CT | 1 |
| 5.6 | Adyayam 3 | 3 | 5[20] | GL | CT | 1 |

**Reference Books**


1. K.M.George, Aadgunika Malayala Sahithya Charithram Prasthanangalilude, Kottayam, D.C.Books, 1998.
2. M.Achuthan, Cherukadha Innale Innu, D.C Books,2007
3. N.Prabhakaran, Kadha Thedunna Kadha,
4. Tharakan K.M. Malayala Novel Saahithya Charithram, Karala Saahithya Accademy Thichur, D.C.Books,1978
5. K.S.Ravikumar, Kadhayum Kalavum,
6. E. V. Ramkrishnan ,Malayala Novalinte Desakaalangal, Mathrbhoomi Books,2017.
7. K.P. Appan, Maranunna Malayala Noval, , D.C Books, 2015
8. P.K.Rajasekharan , Andhanaya Daivam, D.C Books,,1970
9. Dr.K.M. Prabhakara Varir , Shylee shilppam,
10. Kaaroor Neelakanda Pillai,Kaaroor Kadhakal Sampoornam, NBS Kottayam 2004,
11. Karur Kadha patanam- M.M.Basheer,NBS Kottayam, 1980

12. Gopalakrishnan Naduvattom, Aathmakadhasaahithyam Saahithyam, Kerala Bhasha Institute
13. Thiruvananthapuram, 1990
14. Tharakan K.M., Aadhunika Novel Dersanangal, N.B.S. Kottayam, 1980.
15. Dr. N.E.Viswanadhan, Vivarthana Vicharam, D.C Books, 2004

## SEMESTER I

| | |
|---|---|
| Course Title: MIL-1: **General Hindi** | Course Type: Theory<br>Course Code:23LT11 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs. Josy Vincent | Dr.Sreedevi S | Dr.Jayasree Kr |
| Assistant Professor | Assistant Professor | Assistant Professor |
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| josysam2020@gmail.com | sdtvpm@yahoo.com | Jayasree8262@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | • Understand the concepts of Hindi sounds | 1(10), 2(10) | 1, 8 | U | M,F,C |
| 2 | • Understand and analyze Sentence formation in Hindi | 2(10), 3(5), 5(5) | 1,2, 3, 5 | U,An | M,C |
| 3 | Remember Hindi vocabulary | 2(10), 9(5), 10(5) | 1, 3, 7, 8, | An, E | M,C,P |
| 4 | • Understand and analyze stories and other passages | 9(10), 10(10) | 3, 7, 9 | An, E | M,C,P |
| 5 | Evaluate Language ability | 1(10), 5(5), 9(5) | 1, 6, | U, E | M,C,P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **Learning Activities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|---|
| **Buniyadi Hindi** | | | | | | |
| 1.1 | Swar | 3 | 1[10] | Lec | CA | 2,3,4,5,6, 8 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1.2 | Vyanjan | 4 | 1[15] | Lec | CA | 2,3,4,5,6, 8 |
| 1.3 | BarahKhadi | 3 | 1[25] | Lec | HrA | 2,3,4,5,6, 8 |
| 1.4 | Shabdh | 2 | 1[25] | Lec | CT | 2,3,4,5,6, 8 |
| 1.5 | Vakyarachana | 3 | 1[25] | Lec | ST | 1 |
| Hindi shabdhavali | | | | | | |
| 2.1 | Risthom ke naam | 3 | 2[50] | Lec | OT | 2,3,4,5,6, 8 |
| 2.2 | Gharelu Padharthom ke naam | 3 | 2[50] | Lec | OBT | 2,3,4,5,6, 8 |
| Vyakaran | | | | | | |
| 3.1 | Sadharan vakya our sangya | 3 | 3[25] | GD | SA | 2,3,4,5,6, 8 |
| 3.2 | Sarvanaam | 3 | 3[25] | CS | ESS | 2,3,4,5,6, 8 |
| 3.3 | Visheshan | 3 | 3[25] | Lec | CA | 2,3,4,5,6, 8 |
| 3.4 | Kriya aadi shabdhom ka prayog | 3 | 3[25] | Lec | HrA | 2,3,4,5,6, 8 |
| Chote Gadhyamsh ke patan | | | | | | |
| 4.1 | Bachom ki kahaniyam | 3 | 4[50] | Lec | CT | 7 |
| 4.2 | Pathr pathrkaom mem Prakashith Gadyamsh ka patan | 3 | 4[50] | Sem | OT | 2,3,4,5,6, 8 |
| Nibandh | | | | | | |
| 5.1 | Sant. Thiruvalluvar | 3 | 5[25] | Ess | MCQ | 9 |
| 5.2 | EVR Thandai Periyar | 3 | 5[25] | GD | SA | 9 |
| 5.3 | Naari Saktheekaran | 3 | 5[25] | SP | CA | 9 |
| 5.4 | Paravaran Samrakshan | 3 | 5[25] | SP | HrA | 9 |

**Reference Books**


1. Hindi ke avyay vakyamsh – Chaturbuj Sahay
2. Subodh Hindi vyakaran – Phoochand Jain
3. Sanshipt Hindi Vyakaran – Vyavaharic Hindi – Nagappa
4. Abhinav Hindi vyakaran – Nagappa
5. Saral Hindi Vyakaran – Syamachandra Kapur
6. Vyakaran Pradeep – Ramdev
7. Lakhu Balkadhayem – Ramashankar
8. Hindi Grammar – Edwin Greeves
9. Hindi Nibandh

## SEMESTER I

| Course Title: CE-1: Communicative English | Course Type: Theory & Practical<br>Course Code:23LE11 |
|---|---|
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. V Brinsley | Dr. L. Judith Sophia | Dr. Sheni D. L. Singh |
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| vbrinsley@gmail.com | judithsophia24@gmail.com | shenisingh1984@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | % of PLO mapping with CLO | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| CLO-1 | Develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing | 1 (10)<br>6 (7)<br>7 (3) | 2, 3 | E,Ap, C | C, M |
| CLO-2 | Examine and present material of the prescribed texts and other texts | 2 (8)<br>5 (12) | 1, 2 | U, An E | C, M |
| CLO-3 | Identify cross cutting issues like, Human values, (Professional, Personal and Domestic) ethics and environmental sustainability and practise them | 3 (8)<br>8 (6)<br>9 (6) | 1, 4, 8, 9 | An E, Ap | C, P |
| CLO-4 | Present and differentiate various cultures and civilizations of the Globe and distinguish Indian traditional Knowledge | 1 (10)<br>8 (5)<br>10 (5) | 5, 6, 10 | U,Ap | P, M |
| CLO-5 | Relate the textual content and underlying meaning of the context to the real life situations | 5 (6)<br>8 (8)<br>10 (6) | 1, 2, 5, 7 | U, AP | F,P |

| Module | Course Description | Hours | % of CLO mapping with Module | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|---|
| 1 | **PROSE** | | | | | |
| 1.1 | **JRD - Harish Bhat** | | | | | |
| 1.1.1 | Introduction to the Author, essay & Textual analysis | 3 | 2 [4], 4 [4] | L | HoA | 1 |
| 1.1.2 | Human values to be imbibed from the life of Tata | 1 | 2 [4], 3 [5], 5 [5] | L, GD | SA | 1 |
| 1.1.3 | Professional and Personal ethics revealed in "JRD" | 2 | 2 [4], 3 [5], 5 [5] | L, GD | Ess | 1 |
| 1.2 | **Us and Them - David Sedaris** | | | | | |
| 1.2.1 | Introduction to the Author, essay & Textual Analysis | 3 | 2 [4], 4 [8] | L | HoA | 2 |
| 1.2.2 | Thematic discussion: Self-centred attitude & Social media influence | 2 | 2 [4], 3 [5] 5 [5] | L, GD | MCQ HoA | 2 |
| 1.2.3 | Human Values (Empathy) reflected in "Us and Them" | 1 | 2 [4], [4], 5 [5] | L, GD | SA Ess | 2 |
| 1.3 | **Uncle Podger Hangs a Picture - Jerome K Jerome** | | | | | |
| 1.3.1 | Introduction to the Author & essay Textual Analysis | 3 | 2 [4], 4 [6] | L | HoA | 3 |
| 1.3.2 | Thematic Discussion: Comic attitude of Patriarchal Dominance in the domestic context | 2 | 2 [4], 3 [5], | L, GD | Ess HoA | 3 |
| 1.3.3 | Uncle Podger- Character analysis | 1 | 5 [6] | RP | MCQ | 3 |
| **2** | **POETRY** | | | | | |
| 2.1 | **A Patch of Land - Subramania Bharati** | | | | | |
| 2.1.1 | Introduction to the poet and the poem | 1 | 2 [2], 4 [8] | L | HoA | 4 |
| 2.1.2 | Poetry Analysis- Discussion on themes & Techniques | 2 | 2 [3], 5 [5] | L, GD | HrA | 4 |
| 2.1.3 | Connection between Land and Poetic creation: A Reflection on Indian Knowledge | 1 | 4 [6] | GD | Ess | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2.2 | **The Sparrow - Paul Laurence Dunbar** | | | | | |
| 2.2.1 | Introduction to the poet and the poem | 1 | 2 [3], 4[4] | L | HoA | 5 |
| 2.2.2 | Poetry Analysis- Discussion on themes and Techniques | 3 | 2 [4], 5 [3] | GD CCC | HrA | 5 |
| 2.2.3 | Human - Environment Interaction and Sustainability implied in "The Sparrow" | 1 | 2 [4], 3[5], 5 [5] | L, GD | Essay | 5 |
| 2.3 | **A Nation's Strength – Ralph Waldo Emerson** | | | | | |
| 2.3.1 | Introduction to the poet and the poem | 1 | 2 [4], 4 [4], | L | HoA | 6 |
| 2.3.2 | Poetry Analysis- Discussion on themes - Nation building & Techniques | 3 | 2 [4], 4 [4] | L, GD | HoA | 6 |
| 2.3.3 | Democratic values and Universalism in "A Nation's Strength" | 1 | 4 [4] 5 [3] | PT | MCQ | 6 |
| 2.4 | **Love Cycle - Chinua Achebe** | | | | | |
| 2.4.1 | Introduction to the Poet and the poem | 1 | 2 [4], 4 [4] | L, CCC | HoA | 7 |
| 2.4.2 | Poetry Analysis- Discussion on themes - Connection between Land/Nature and human life and human values (tolerance) | 2 | 2 [4], 3 [4], 5 [5] | PT, GD | HoA | 7 |
| 2.4.3 | Analysis of Techniques & Poetic devices in "Love Cycle" | 1 | 2 [4] | PT | MCQ | 7 |
| 3 | **SHORT STORIES** | | | | | |
| 3.1 | **The Faltering Pendulum- Bhabani** | | | | | |
| 3.1.1 | Introduction to the author and the short story | 1 | 2 [4], 4 [8] | L | HoA | 8 |
| 3.1.2 | Plot & Character Analysis | 3 | 2 [4], 5 [3] | TPS, GD | HrA HoA | 8 |
| 3.1.3 | Nature- Human Interaction and Human rights in "Faltering Pendulum" | 2 | 2 [4], 3[5], 5[5] | L, GD | HrA | 8 |
| 3.2 | **How I Taught my Grandmother to Read- Sudha Murthy** | | | | | |
| 3.2.1 | Introduction to the author and the short story | 1 | 2 [4], 4[8] | L, GD | HoA | 9 |
| 3.2.2 | Plot & Character Analysis | 3 | 2 [4], 5 [5] | CCC | HrA CT | 9 |
| 3.2.3 | Thematic discussion: Lifelong learning & Human value of perseverance | 2 | 2 [4], 3 [10], 5 [10] | L, GD | HoA, CT | 9 |
| 3.3 | **The Gold Frame- R.K. Laxman** | | | | | |
| 3.3.1 | Introduction to the author and the short story | 1 | 2 [4], 4 [4] | L | HoA, CT | 10 |
| 3.3.2 | Plot & Character Analysis | 3 | 2 [4], | L, | Ho A, | 10 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 5 [3] | CCC | CT | |
| 3.3.3 | Themes & Techniques | 2 | 2 [4], 5[3] | PT, GD | Hr A | 10 |
| 4 | **LANGUAGE COMPETENCY** | | | | | |
| 4.1 | **Vocabulary: Synonyms, Antonyms & Word Formation** | 5 | 1[32], | CCC | HrA | 11, 12 |
| 4.2 | **Appropriate use of Articles** | 2 | 1[24], | CCC | HrA | 11, 12 |
| 4.3 | **Parts of Speech** | 7 | 1[24], | CCC | HrA | 11, 12 |
| 4.4 | **Error correction** | 4 | 1[20], | CCC | HrA | 11, 12 |
| 5 | **ENGLISH FOR WORKPLACE** | | | | | |
| 5.1 | **Self - introduction, Greetings** | 5 | 1[28], | GT, GD | Viva | 13 |
| 5.2 | **Introducing others** | 4 | 1[20] | GT, GD | Viva | 13 |
| 5.3 | **Listening for General and Specific Information** | 5 | 1[24] | GD | Viva | 13 |
| 5.4 | **Listening to and Giving Instructions Directions** | 4 | 1[28] | GD | Viva | 13 |

**Text books** (Latest Editions)


1. https://www.tata.com/newsroom/heritage/coffee-tea-jrd-tata-stories
2. https://legacy.npr.org/programs/morning/features/2004/jun/sedaris/usandthem.html
3. http://rosyhunt.blogspot.com/2013/01/uncle-Podger-hangs-picture.html
4. https://books.google.co.in/books?id=iSHvOmXuvLMC&printsec=frontcover&dq=subramania+ bharati+poems&hl=en&newbks=1&newbks_redir=0&source=gb_mobile_search&sa=X&redir_esc=y#v=onepage&q=subramania%20bharati%20poems&f=false
5. https://poets.org/poem/sparrow-0
6. https://poets.org/poem/nations-strength
7. https://www.best-poems.net/chinua-achebe/love-cycle.html
8. *Steel Hawk and Other Stories* by Bhattacharya, Bhabani, New Delhi Sahitya Akademi, 1967
9. *How I Taught my Grandmother to Read and Other Stories*, Murthy, Sudha, Penguin Books, India, 2004
10. https://fybaenglish.blogspot.com/2018/12/the-gold-frame-r-k-laxman.html
11. *English in Use - A Textbook for College Students* (English, Paperback, - T.Vijay Kumar, K Durga Bhavani, YL Srinivas)
12. *Practical English Usage* - 4th Edition By Michael Swan
13. *The Art of Civilized Conversation: A Guide to Expressing Yourself with Style and Grace* -Margaret Shepherd, Penny Carter, (Illustrator), Sharon Hogan, 20


## SEMESTER I

| Course Title: CC-1: Python Programming | Course Type: Theory<br>Course Code:23GR11 |
|---|---|

| Total Hours:75 | Hours/Week: 5 | Credits:5 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|


| Dr. S. Gnana Sophia | Dr. D. Shiny | Dr. R.D. Seeja |
|---|---|---|
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| CLO. # | **Course Learning Outcomes** *Upon completion of this course, students willbe able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the basics of python. | 1,2 | R | F |
| 2 | Create programs using Loops. | 1,2 | C | P |
| 3 | Analyze the concept of function, strings, Modules and functions, | 1,2 | An | P |
| 4 | Work with List, tuples and dictionary. | 2 | E | C |
| 5 | Apply File handlings to develop programs | 1,2 | Ap | C |

| **Module** | **Course Description** | **Hours** | Learning Activities | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | History of Python- Features of Python | 3 | Lec | CA | 1 |
| 1.2 | Literal-Constants-Variables - Identifiers– Keywords-Built-in Data Types | 4 | Lec | CA | 1 |
| 1.3 | Output Statements – Input Statements. | 3 | Lec | HrA | 1 |
| 1.4 | Comments –Indentation- Operators-Expressions-Type conversions | 2 | Lec | CT | 1 |
| 1.5 | **Python Arrays:** Defining and Processing Arrays–Array methods | 3 | Lec | ST | 1 |
| 2.1 | **Control Statements:** Selection/Conditional Branching statements | 3 | Lec | OT | 2 |
| 2.2 | if, if-else, nested if and if-else statements | 3 | Lec | OBT | 2 |
| 2.3 | Iterative Statements: while loop | 3 | Lec | Qui | 2 |
| 2.4 | for loop, else suite in loop and nested loops | 3 | Lec | HoA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.5 | **Jump Statements:** break, continue and pass statements**.** | 3 | Lec | MCQ | 1 |
| 3.1 | **Functions:** Function Definition – Function Call – VariableScope and its Lifetime-Return Statement | 3 | GD | SA | 1 |
| 3.2 | **Function Arguments**: Required Arguments, KeywordArguments, Default Arguments and Variable Length Arguments | 3 | CS | ESS | 1 |
| 3.3 | Recursion. **Python Strings:** String operations-ImmutableStrings - Built-in String Methods and Functions | 3 | Lec | CA | 1 |
| 3.4 | . String Comparison. **Modules**: import statement- The Python module – dir() function | 3 | Lec | HrA | 1 |
| 3.5 | Modules and Namespace – Defining our own modules. | 3 | Lec | CT | 1 |
| 4.1 | **Lists:** Creating a list -Access values in List-Updating values in Lists | 3 | Sem | ST | 1 |
| 4.2 | Nested lists -Basic list operations-List Methods. Tuples: Creating, Accessing, Updating and Deleting Elements ina tuple | 3 | Sem | OT | 1 |
| 4.3 | Nested tuples– Difference between lists and tuples | 3 | CS | OBT | 1 |
| 4.4 | Dictionaries: Creating, Accessing, Updating and DeletingElements in a Dictionary - Functions and Methods | 3 | Lec | Qui | 1 |
| 4.5 | Difference between Lists and Dictionaries. | 3 | Lec | HoA | 1 |
| 5.1 | Python File Handling: Types of files in Python - Openingand Closing files- Reading and Writing files | 3 | Ess | MCQ | 2 |
| 5.2 | write() and writelines() methods - append() method | 3 | GD | SA | 2 |
| 5.3 | read() and readlines() methods – with keyword | 3 | SP | CA | 2 |
| 5.4 | Splitting words – File methods | 3 | SP | HrA | 2 |
| 5.5 | File Positions- Renaming and deleting files | 3 | GL | CT | 2 |

Reference Books


1. Reema Thareja, “Python Programming using problem solving approach”, First Edition, 2017,Oxford University Press.
2. Dr. R. Nageswara Rao, “Core Python Programming”, First Edition, 2017, Dream techPublishers.
3. Vamsi Kurama, “Python Programming: A Modern Approach”, Pearson Education.
4. Mark Lutz, ”Learning Python”, Orielly.
6. Fabio Nelli, “Python Data Analytics”, APress.


SEMESTER I

| Course Title: CP-1: Python Programming Lab | Course Type: Practical<br>Course Code:23GRP1 |
|---|---|

| Total Hours:75 | Hours/Week: 5 | Credits:5 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | **Expert 1** | Expert 2 |
|---|---|---|


| Dr. S. Gnana Sophia | Dr. D. Shiny | Dr. R.D. Seeja |
|---|---|---|
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9944281506 | Mobile: 9488382437 | Mobile:9942730217 |
| gnanasophias@gmail.com | shinyd328@gmail.com | sheejarufus.r.d@gmail.com |


| CLO. No. | **Course Learning Outcomes** *Upon completion of this course, students willbe able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create simple programs on python using arrays | 1,2,5,7 | C | P |
| 2 | Create program using selection statement,Loops and jump statements. | 1,2,5,7 | C | P |
| 3 | Create programs with the concept of function,function arguments, strings and Modules. | 1,2,5,7 | C | P |
| 4 | Create program using list, tuples and dictionary. | 1,2,5,7 | C | P |
| 5 | Create programs with File handling. | 1,2,5,7 | C | P |

| **Sl. No** | **Description** |
|---|---|
| Python Programs Implementing | |
| 1. | Control Structures. |
| 2. | Iteration –while Statement |
| 3. | Built-in Functions. |
| 4. | User Defined Functions |
| 5. | Recursion, Anonymous Functions |
| 7. | Scripts, String Handling, Arrays |
| 10. | Lists, Tuples, Dictionaries, File Operations, Exceptions. |
| 11. | Classes and Objects |
| 12. | Inheritance |
| 13. | Method Overloading |
| 14. | Data Hiding |
| 15. | Data Encapsulation |

Reference Books


1. Reema Thareja, “Python Programming using problem solving approach”, First Edition, 2017, Oxford University Press.
2. Dr. R. Nageswara Rao, “Core Python Programming”, First Edition, 2017, Dream tech Publishers.
3. VamsiKurama, “Python Programming: A Modern Approach”, Pearson Education.

SEMESTER I

| Course Title: CE-1(Elective):):Digital Logic Fundamentals | Course Type: Theory<br>Course Code:23GREA |
|---|---|
| Total Hours: 60 Hours/Week: 34 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr. R. Shanthikaran | Mrs. R. Suguna Jasmin | Dr. R.D. Seeja |
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| CLO No. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the Basic Computers. | 1,2,7,10 | U | F |
| 2 | Understand the Memory and Storage system. | 1,2,7,10 | U | F |
| 3 | Understand the Computer architecture. | 1,2,7,10 | U | C |
| 4 | Understand the Concepts of Digital Circuits. | 1,2,7,10 | U | C |
| 5 | Understand the Concepts of Networks. | 1,2,7,10 | U | C |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1 | **Understand the Computer:** Evolution, Generation, and Classification of Computers, Computer Concepts, The Computer System and its Applications. **Computer Organization and Architecture**: Introduction, Central Processing Unit, Internal Communication, MachineCycle, The Bus. | 12 | Lec | CA | 1 |
| 2 | **Memory and Storage System:** Introduction, Memory Representation, Random Access Memory, Read Only Memory, Storage Systems, Magnetic Storage systems, Optical Storage systems, Storage evaluation criteria . | 12 | GD | ST | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 3 | **Computer Code and Computer Architecture:** DigitalSystem, Binary system, Hexadecimal System, Octal System, Binary Addition, Binary Subtraction, Binary, Multiplication, Binary division, Laws of arithmetic | 12 | Lec | Qui | 2 |
| 4 | **Logic Gates and digital Circuits:** Introduction, Basic Logic Gates, Practical Logic Gates, Derived Logic Gates.**Computer Software**: Types of Software, System Management Programs, System Development Programs. | 12 | Lec | HoA | 1 |
| 5 | **Data Communication and Networks:** Introduction, Data Communication using MODEM, Computer Network, Network Topologies, Network Protocols and Software, Network Applications. | 12 | GL | MCQ | 1 |

**Reference Books**

1. E. Balagurusamy, *Fundamentals of Computers*, Tata McGrawHill EducationPrivateLimited,IIIEdition2019.
2. Peter Norton, *Introduction To Computers*, Seventh Edition, Tata GrawHillEducationPrivateLimited,2012.

SEMESTER I

| | |
|---|---|
| Course Title: CE-1(Elective):): Computer System Architecture | Course Type: Theory<br>Course Code:23GREB |
| Total Hours: 60 Hours/Week: 4 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr. R. Shanthikaran | Mrs. R. Suguna Jasmin | Dr. R.D. Seeja |
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| CLO. No. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Digital Logic Circuits | 1,2,7,10 | U | F |
| 2 | Understand Digital Components | 1,2,7,10 | U | F |
| 3 | Understand Functioning of Registers | 1,2,7,10 | U | C |
| 4 | Design Internal components | 1,2,7,10 | U | C |
| 5 | Understand the functioning of CPU | 1,2,7,10 | U | C |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | Digital Computers, Logic Gates, Boolean Algebra-Complement of a function, Map Simplification. | 4 | Lec | CA | 1 |
| 1.2 | Product-of-Sums Simplification, Don't Care Conditions, Combinational Circuits : Half-Adder – Full Adder, Flip-Flops : SR Flip-Flop- D Flip Flop – JK Flip-Flop, Edge-Triggered Flip-Flops - Excitation Tables. | 4 | Lec | CA | 1 |
| 1.3 | Sequential Circuits , Flip-Flop Input Equations, State Table, State Diagram. | 4 | Lec | HrA | 1 |
| 2.1 | Integrated Circuits, Decoders-NAND Gate Decoder-Decoder Expansion, Encoders, Multiplexers. | 4 | GD | ST | 1 |
| 2.2 | Registers: Register with Parallel Load, Shift Registers-Bidirectional shift Register with Parallel Load, Binary Counters- Binary Counters with Parallel Load. | 4 | Lec | OT | 2 |
| 2.3 | Complements: (r-1)'s- Complement-(r's) Complement-Subtraction of Unsigned Numbers, Fixed-Point Representation: Integer Representation,. Arithmetic Addition-Arithmetic Subtraction, Overflow-Decimal Fixed-Point Representation. | 4 | Sem | OBT | 2 |
| 3.1 | Register Transfer Language, Register Transfer, Bus and Memory Transfers, Three-State Bus Buffers, Memory Transfer. | 4 | Lec | Qui | 2 |
| 3.2 | Arithmetic Micro Operations, Binary Adder, Binary Adder-Subtractor, Binary Incrementer, | 4 | Lec | HoA | 1 |
| 3.3 | Arithmetic Circuit, Logic Micro Operations, List of Logic Micro Operations- Hardware Implementation, Shift Micro Operations- Hardware Implementation, Arithmetic Logic Shift Unit. | 4 | GL | MCQ | 1 |
| 4.1 | Instruction Codes, Stored Program Organization, Indirect Address, Computer Registers, Common Bus System, Computer Instruction, Instruction Set Completeness. | 4 | GD | SA | 1 |
| 4.2 | Timing and Control, Instruction Cycle: Fetch And Decode-Determine the Type of Instruction-Register-Reference Instructions. Memory-Reference Instructions: AND to AC-ADD to AC-LDA: Load to AC- STA: Store to AC- BUN: Branch Unconditionally- BSA: Branch And Save Return Address- ISZ: Increment And Skip if Zero-Control Flowchart. | 4 | CS | Ess | 1 |
| 4.3 | Input-Output Interrupt- Input-Output Configuration- Input-Output Instructions, Program Interrupt- Interrupt Cycle, Design AccumulatorLogic, Control of AC Register, Adder and Logic Circuit. | 4 | Lec | MCQ | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 5.1 | General Register Organization-Control Word, Stack Organization: Register Stack-Memory Stack- Reverse Polish Notation, Evaluation of Arithmetic Expressions. | 3 | Lec | CA | 1 |
| 5.2 | Instruction Formats, Three-Address instructions-Two-address Instructions-One-Address Instructions-Zero-Address Instructions. | 3 | Lec | HrA | 1 |
| 5.3 | Addressing Modes -Numerical Example, Data Transfer and Manipulation: Data Transfer Instructions -Data manipulation Instructions, Arithmetic Instructions-Logical and Bit Manipulation Instructions-Shift instructions, Program control. | 3 | GS | CA | 1 |
| 5.4 | Status Bit Conditions, Conditional Branch Instructions, Subroutine Call and Return, Program Interrupt. | 3 | Lec | MCQ | 1 |

**Reference Books**


1. M.Morris Mano, *Computer System Architecture*, Third Edition, Pearson
2. PrenticeHall,Sixteenth Impression, 2017
3. P.V.S.Rao, *Computer System Architecture*, P.H.I. Pvt. Ltd.
4. Alan Clements, *Computer Organization & Architecture: Themes and Variations, CengageLearning, 2013*


SEMESTER I

| | |
|---|---|
| Course Title: SEC-1: Fundamentals of Information Technology | Course Type: Theory<br>Course Code:23GRS1 |
| Total Hours:30 Hours/Week: 2 Credits:1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the basics of computer, Construct the structure of the required things in computer, learn how to use it. | 1,2,7,10 | U | F |
| 2 | Develop organizational structure using for the devices present currently under input or outputunit. | 1,2,7,10 | C | C |
| 3 | Understand RAM and ROM with different typesof ROM with advancement in storage basis. | 1,2,7,10 | U | F |
| 4 | Work with different software, Write program inthe software and applications of software. | 1,2,7,10 | C | P |

| | | | | |
|---|---|---|---|---|
| 5 | Analyze the usage of Operating system in information technology which really acts as ainterpreter between software and hardware. | 1,2,7,10 | AN | M |

| Module | Course Description | Hours | Learning Activities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1 | **Introduction to Computers** - Generations of Computer – Dataand Information – Components of Computer – Software –Hardware – Input Devices - Output Devices — Types ofOperating System. | **6** | Lec | CA | **W1** |
| 2 | **MS Word**: Introduction – Elements of Window – Files, Folders and Directories – Text Manipulating: Cut, Copy, Paste, Drag and Drop – Text Formatting: Font – Style, Size, Face and Colors – Alignment - Bullets and Numbering - Header and footer- watermark – inserting objects (images, otherapplication document) – Table creation – Mail merge. | **6** | GL | CA | **W2** |
| 3 | **MS Excel**: Introduction – Inserting rows and columns – Sizing rows and columns – Implementing formulas – Generating series - Functions in excel – Creation of Chart – Inserting objects – Filter – Sorting – Inserting worksheet. | **6** | GD | HrA | **W2** |
| 4 | **MS PowerPoint**: Introduction – Slides Manipulation (Inserting new, Copy, paste, delete and duplicate slides) – Slide show– Types of Views – Types of Animations – Inserting Objects – Implementing multimedia (Video and Audio) – Templates (Built-in and User-Defined). | **6** | CS | CT | **W2** |
| 5 | **Internet**: Introduction to Internet and Intranet – Services ofInternet - Domain Name – URL – Browser – Types of Browsers – Search Engine - E-Mail – Basic Components of E-Mail –.How to send group mail.<br>**E-Commerce**: Digital Signature – Digital Currency – Online shopping and transaction. | **6** | Lec | ST | **W1** |

**Reference Books**


**1.** Anoop Mathew, S. Kavitha Murugeshan (2009), " Fundamental of Information Technology", Majestic Books.

**2.** Alexis Leon, Mathews Leon," Fundamental of Information Technology", 2nd Edition.

**3.** S. K Bansal, "Fundamental of Information Technology".

**4.** BhardwajSushilPuneet Kumar, "Fundamental of Information Technology"

**5.** GG WILKINSON, "Fundamentals of Information Technology", Wiley-Blackwell

**6.** A Ravichandran , "Fundamentals of Information Technology", Khanna Book Publishing

**SEMESTER- I**

| Course Title: SEC-2:Structured Programming Language in C | Course Type: Theory<br>Course Code:23GRF1 |
|---|---|
| Total Hours:30 Hours/Week: 2 Credits:1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Mr. R. Shanthikaran | Dr. S. Gnana Sophia |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile:9942730217 | Mobile:9442304556 | Mobile: 9944281506 |
| sheejarufus.r.d@gmail.com | shanthikarans@gmail.com | gnanasophias@gmail.com |

| CLO. #. | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Remember the program structure of Cwith its syntax and semantics | 1,2 | R | F |
| 2 | Understand the programming principlesin C (data types, operators, branching and looping, arrays, functions, structures, pointers and files) | 1,2 | C | C |
| 3 | Apply the programming principles learntin real-time problems | 1,2 | Ap | P |
| 4 | Analyze the various methods of solving a problem and choose the best method | 1,2 | An | M |
| 5 | Analyze Code, debug and test the programs with appropriate test cases | 1,2 | An | M |

| **Module** | **Course Description** | **Hours** | **LearningActivity** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Overview of C: Importance of C, sample C program, C programstructure, executing C program. Constants, Variables, and Data Types: Character set, C tokens, keywords and identifiers, constants, variables, data types | 3 | Lec | CA | 1 |
| 1.2 | Declaration of variables, Assigning values to variables, Assignment statement, declaring a variable as constant, as volatile. Operators and Expression. | 3 | GL | CA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | Decision Making and Branching: Decision making with If, simple IF, IF ELSE, nested IF ELSE, ELSE IF ladder, switch,GOTO statement. | 3 | GD | HrA | 1 |
| 2.2 | Decision Making and Looping: While, Do-While, For, Jumps in loops. | 3 | CS | CT | 1 |
| 3.1 | Arrays: Declaration and accessing of one & two-dimensionalarrays | 3 | Lec | ST | 1 |
| 3.2 | Initializing two-dimensional arrays, multidimensional arrays. | 3 | Lec | CA | 1 |
| 4.1 | Functions: The form of C functions, Return values and types,calling a function, categories of functions, Nested functions, | 3 | GL | CA | 1 |
| 4.2 | Recursion, functions with arrays, call by value, call by reference, storage classes-character arrays and strings functions | 3 | GD | HrA | 1 |
| 5.1 | Pointers: definition, declaring and initializing pointers, accessing a variable through address and through pointer, pointer expressions, | 3 | CS | CT | 1 |
| 5.2 | Pointer increments and scale factor, pointers and arrays, pointers and functions, pointers and structures. | 3 | Lec | ST | 1 |

Reference Books


1. E. Balagurusamy, Programming in ANSI C, Fifth Edition, Tata McGraw-Hill, 2010.
2. Byron Gottfried, Schaum's Outline Programming with C, Fourth Edition, Tata McGraw-Hill, 2018.
3. Kernighan and Ritchie, The C Programming Language, Second Edition, Prentice Hall, 1998
4. Yashavant Kanetkar, Let Us C, Eighteenth Edition, BPB Publications,2021


## SEMESTER II

| | |
|---|---|
| Course Title: MIL-2 Tamil | Course Type: Theory<br>Course Code:23LT21 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. D. Deva Sambath | Dr. S. Vaila Baby | Dr. V.Christal. |
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| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும் சமய நல்லிணக்கத்தையும் தெரிந்து கொள்வர். | 1(8), 3(12) | 1, 3, 8 | U | F |
| 2 | உரைநடை இலக்கியத்தைக் கற்பதன் மூலம் சமுதாயத்தில் மனிதர்கள் வாழும் முறைகளை அறிந்து கொள்வர். | 3(11), 3(9) | 1, 2, 8 | Ap | C |
| 3 | நாடக இலக்கியத்தை கற்பதன் மூலம் நாடக உத்தி முறைகளையும், நாடகம் எழுதும் திறனையும், கதைக் கூறுகளையும் அறிவர். | 9(12), 10(8) | 4, 5, 6, 10 | R | F |
| 4 | போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்கு உரிய பயிற்சியைப் பெறுவர் | 6(13), 7(7) | 1, 3, 7 | An | P |
| 5 | தமிழ் வரலாற்றினை சமூகப் பண்பாட்டு இலக்கியங்கள் வாயிலாக அறிவர். | 8(10), 9(10) | 4, 9 | C | P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **LearningActivity** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|---|
| **Unit I செய்யுள் -பக்தி இலக்கியம், சிற்றிலக்கியம்** | | | | | | |
| 1.1 | பக்தி இலக்கியம், சிற்றிலக்கியம் விளக்கம் மற்றும் வகைகள் | 2 | 1[11] | Lec | Qui | 1 |
| 1.2 | தேவாரம் திருநாவுக்கரசர் (மறுமாற்றத் திருத்தாண்டகம்) | 2 | 1[11] | Lec | SA | 1 |
| 1.3 | திருப்பாவை ஆண்டாள் (முதல் 10 பாகம்) | 2 | 1[11] | Lec | Qui | 1 |
| 1.4 | அருள் விளக்க மாலை வள்ளலார் (முதல் 10 பாடல்கள்) | 2 | 1[11] | Lec | Qui | 1 |
| 1.5 | இரட்சணிய மனோகரம் எச்.எ. கிருட்டினப்பிள்ளை (பால்ய பிரார்த்தனை) | 2 | 1[11] | Lec | Sem | 1 |
| 1.6 | பராபரக்கண்ணி குணங்குடி மஸ்தான் சாகிபு (முதல் 10 கண்ணிகள்) | 2 | 1[11] | Lec | SA | 1 |
| 1.7 | தமிழ் விடு தூது (முதல் 20 கண்ணிகள்) | 2 | 1[11] | Lec | Qui | 1 |
| 1.8 | திருக்குற்றாலக் குறவஞ்சி (நாட்டுவளம் | 2 | 1[11] | Lec | Qui | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | கூறுதல்) | | | | | |
| 1.9 | முக்கூடற் பள்ளு (குமுறல் கொடுமை) | 2 | 1[12] | Lec | Qui | 1 |
| **Unit II உரைநடை** | | | | | | |
| 2.1 | உரைநடை பொதுவான விளக்கம் | 1 | 2[6] | Lec | Qui | 2 |
| 2.2 | சேமித்துப் பழகுவோம் அகிலன்; | 3 | 2[17] | Lec | Qui | 2 |
| 2.3 | பெண்மக்கள் கடமை மறைமலை அடிகள் | 1 | 2[6] | Sem | Sem | 2 |
| 2.4 | மூன்றாம் உலகப்போர் முனைவர் தே. ஞானசேகரன் | 1 | 2[6] | Lec | SA | 2 |
| 2.5 | நடுநிலைமை மு. வரதராசன் | 2 | 2[11] | Sem | CT | 2 |
| 2.6 | வாழ்வியல் நீதி - புலவர் செந்துறை முத்து | 2 | 2[11] | Lec | Sem | 2 |
| 2.7 | கல்வியும் சமுதாய நலனும் - முனைவர் க. நஞ்சையன் | 2 | 2[11] | Lec | SA | 2 |
| 2.8 | தென்றல் வீசுகிறது கி.வா. ஜகந்நாதன் | 2 | 2[11] | Lec | Qui | 2 |
| 2.9 | தமிழின் தொன்மையும் சிறப்பும் | 2 | 2[11] | Lec | OT | 2 |
| 2.10 | இலை முதல் இ மெயில் வரை இ ஸ்டான்லி | 2 | 2[12] | Lec | Qui | 2 |
| **Unit III –நாடகம்** | | | | | | |
| 3.1 | நாடகம் பற்றிய அறிமுகம் | 1 | 3[6] | Lec | Qui | 3 |
| 3.2 | ஆசிரியர் அறிமுகமும் படைப்புகளும் | 1 | 3[6] | Lec | SA | 3 |
| 3.3 | இராவணன் மாளிகை | 2 | 3[11] | Sem | Qui | 3 |
| 3.4 | நீதிதேவன் மாளிகை | 2 | 3[11] | Lec | Qui | 3 |
| 3.5 | தவச்சாலை | 2 | 3[11] | Lec | SA | 3 |
| 3.6 | தேவலோகம்- அறமன்றம் | 2 | 3[11] | Lec | GD | 3 |
| 3.7 | இராவணன் நீதிதேவன் வருகை | 2 | 3[11] | Sem | Qui | 3 |
| 3.8 | கோபமாக கம்பர் வருகை | 2 | 3[11] | Sem | Qui | 3 |
| 3.9 | அறநெறி கூறுவோர் அறுவர் | 2 | 3[11] | Lec | QA | 3 |
| 3.10 | நீதி கூறல் | 2 | 3[11] | Lec | GD | 3 |
| **Unit IV –இலக்கணம்** | | | | | | |
| 4.1 | தொடர் வகைகள் | 3 | 4[17] | Lec | Qui | 4 |
| 4.2 | மரபுத் தொடர் | 2 | 4[11] | Lec | SA | 5 |
| 4.3 | பழமொழிகள் | 2 | 4[11] | Lec | CT | 5 |
| 4.4 | பிறமொழி சொற்களைக் களைதல் | 2 | 4[11] | Lec | Qui | 5 |
| 4.5 | வழுச்சொற்கள் நீக்குதல் | 2 | 4[11] | Lec | GD | 5 |
| 4.6 | இலக்கண குறிப்பு அறிதல் | 2 | 4[11] | Lec | GD | 4 |
| 4.7 | தொடர் வகைகளை உருவாக்கி எழுத மாணவர்களிடம் கூறல் | 2 | 4[11] | Lec | CT | 4 |
| 4.8 | மரபுத்தொடர் பற்றி வகுப்பறையில் விவாதித்தல் | 1 | 4[6] | Lec | Qui | 5 |
| 4.9 | இலக்கணக் குறிப்புகளைக் குறித்த பயிற்சி கொடுத்தல் | 1 | 4[6] | Lec | Qui | 5 |
| 4.10 | பழமொழிகள் இடத்திற்கு இடம் மாறும் முறையினைக் கலந்து பேசுதல் | 1 | 4[6] | Lec | GD | 5 |
| **Unit V - இலக்கிய வரலாறு** | | | | | | |
| **I. பக்தி இலக்கியம்** | | | | | | |
| 5.1.1 | பக்தி இலக்கியம் அறிமுகம் | 1 | 5[6] | Lec | Qui | 6 |
| 5.1.2 | சைவமும் தமிழும் | 2 | 5[11] | Lec | SA | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5.1.3 | வைணவமும் தமிழும் | 2 | 5[11] | Lec | CT | 6 |
| 5.1.4 | சமணமும் தமிழும் | 2 | 5[11] | Lec | Qui | 6 |
| 5.1.5 | இஸ்லாமும் தமிழும் | 2 | 5[11] | Lec | GD | 6 |
| 5.1.6 | கிறிஸ்தவமும் தமிழும் | 2 | 5[11] | Lec | Qui | 6 |
| **II. சிற்றிலக்கியம்** | | | | | | |
| 5.2.1 | சிற்றிலக்கியம் தோற்றமும் வளர்ச்சியும் | 1 | 5[6] | Lec | SA | 6 |
| 5.2.2 | பரணி, பிள்ளைத்தமிழ் | 2 | 5[11] | Lec | Qui | 6 |
| 5.2.3 | கலம்பகம், குறவஞ்சி, உலா | 2 | 5[11] | Lec | Qui | 6 |
| 5.2.4 | பள்ளு, தூது | 2 | 5[11] | Lec | Qui | 6 |

**Reference Books**


1. தமிழ் இலக்கிய, வரலாறு சிற்பி. பாலசுப்பிரமணியன், சாகித்ய அகாதெமி, சென்னை 2013
2. பொதுத்தமிழ், தமிழ்த்துறை, ஸ்காட் கிறிஸ்தவக் கல்லூரி, நாகர்கோவில்
3. நீதிதேவன் மயக்கம், பேரறிஞர் அண்ணா, பூம்புகார் பதிப்பகம், சென்னை
4. நன்னூல், கழக வெளியீடு, சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை
5. தமிழ்நாடு பாடநூல், பொதுத்தமிழ் (6 முதல் 10 வரை)
6. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, முனைவர் பாக்ய மேரி, நியூ செஞ்சுரி புக் ஹவுஸ் (பி)லிட், அம்பத்தூர், சென்னை 2008.


**SEMESTER - II**

| | |
|---|---|
| Course Title: MIL-2: Malayalam | Course Type: Theory<br>Course Code:23LM21 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.Jisha.S.K | Dr.Pramod Kumar D.N | Dr. Suja S. |
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Understand and review Malayalam Poe different periods. | 1(10), 5(10) | 1, 6, 8 | 1,2,3 | U |
| 2 | Understand the impact of various theories. | 1(5), 2(5), 3(10) | 1, 2, 3, 5 | 1,3 | U, An |
| 3 | Evaluate the characteristics of Poetries and obtain the poetry narrative techniques. | 5(10), 10(10) | 1, 3, 7 | 1,2,5 | An, E |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Understand the word level and sentence level Poetry writing styles | 9(10), 10(10) | 3, 7 | 1, 9, 10 | An, E |
| 5 | Evaluate the different texts and obtain moral values. | 5(10), 9(10) | 6, 7 | 1,2,5 | U, E |

| Module | Course Description | Hours | % of CLO mapping with Module | LearningActivity | AssessmentTask | Reference |
|---|---|---|---|---|---|---|
| I | Pracheenakhattam | | | | | |
| 1.1 | Paattu | 1 | 1[15] | Lec | CA | 8,9,10,11,12 |
| 1.2 | Naadan Paattu | 1 | 1[20] | Lec | HrA | 8,9,10,11,12 |
| 1.3 | nalacharitham (Naadan Paattu) | 1 | 1[15] | Lec | CA | 8,9,10,11,12 |
| 1.4 | Gaadha | 1 | 1[15] | Lec | CA | 1 |
| 1.5 | Bhakthi Prasthaanam | 4 | 1[20] | Lec | HrA | 2,3, 11,12 |
| 1.6 | Poonthanam jnanappana | 10 | 1[15] | Lec | CA | 8,9,10,11,12 |
| 2 | Navodhanavum Navodhana anandara Pravanathakalum | | | | | |
| 2.1 | Kalpanikaprasthanam | 2 | 2[20] | GD | ST | 8,9,10,11,12 |
| 2.2 | Kumaranasan | 2 | 2[20] | GD | ST | 4,5,8,9 |
| 2.3 | Duravastha – kumaranasaan | 7 | 2[20] | GD | ST | 8,9,10,11,12 |
| 2.4 | Edasseri | 2 | 2[20] | ,kLec | OT | 8,9,10,11,12 |
| 2.5 | Karuththachettichikal – Edasseri | 5 | 2[20] | Sem | OBT | 8,9,10,11,12 |
| 3 | Aadhunika khattam | | | | | |
| 3.1 | Aatdhunika kavithayude saviseshathakal | 3 | 2[20] | Qui | MCQ | 8,9,10,11,12 |
| 3.2 | Kakkadinte kavyalokam | 3 | 2[20] | Qui | MCQ | 8,9,10,11,12 |
| 3.3 | Kakkadu – safalameeyaathra | 4 | 4[20] | Qui | MCQ | 8,9,10,11,12 |
| 3.4 | Ayyappanikkarude jeevithavum Kavithayum | 4 | 3[20] | Lec | HoA | 8,9,10,11,12 |
| 3.5 | Ayyappappanikkar – Kaadevide Makkale | 4 | 3[20] | GL | MCQ | 8,9,10,11,12 |
| 4 | Aadhunika Ananthara khattam | | | | | |
| 4.1 | Post Modernism | 2 | 4[10] | CS | Ess | 6,7 |
| 4.2 | Dalith vaadam, | 2 | 4[15] | Lec | MCQ | 6,7 |
| 4.3 | Paristhithivaadam | 2 | 4[15] | GD | SA | 6,7 |
| 4.4 | Sthreevaadam | 3 | 4[20] | CS | Ess | 6,7 |
| 4.5 | Bhaagavatham – Vijayalekshmi | 3 | 4[10] | Lec | MCQ | 6,7 |
| 4.6 | Malayala kavithaykku oru kaththu | 3 | 4[20] | CS | Ess | 6,7 |
| 4.7 | Uththamapurushan Kadha parayumpol | 3 | 4[10] | Lec | MCQ | 6,7 |
| 5 | Cyber Kavitha | | | | | |
| 5.1 | Digital Saangethikathayude Saadhyathakal Parimithikal | 2 | 5[15] | Lec | HrA | 7.,11,12 |
| 5.2 | Printing Meedia | 2 | 5[15] | GS | CA | 7.,11,12 |
| 5.3 | Kavithaapooranam | 2 | 5[10] | GS | MCQ | 7.,11,12 |
| 5.4 | Chithrarechana | 2 | 5[10] | Lec | HrA | 7.,11,12 |
| 5.5. | Inter Active Poetry | 2 | 5[10] | GS | CA | 7.,11,12 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5.6 | hyper Text | 4 | 5[10] | Lec | MCQ | 7.,11,12 |
| 5.7 | Game – Viswaprasaad | 2 | 5[15] | Lec | HrA | 7.,11,12 |
| 5.8 | Blog – ottamazha 2010 | 2 | 5[15] | Lec | MCQ | 7.,11,12 |

**Reference Books**


1. Gadha, keralabhasha Institute: Thiruvananthapuram, 2013.
2. Ezhuthachan, Ramayanam Kilipattu, N.B.S: Kottayam, 2012
3. Mukundhan N, Kilippattu, Keralabhasha Institute, Thiruvananthapuram, 2013
4. Kumaranashan ,veenapovu, D.C.Books: Kottayam, 1988
5. Susheelan K. P, Kumaranashane orkkumbol, Keralabhasha Institute, Thiruvananthapuram, 2013
6. P.P.K Pothuvaal, Paristhithi kavithaykkoraamukham, D.C Books, Kottayam 1995.
7. Balachandran Vadakkedath, Aadhunikathaykkum Utharaadhunikaykkum edayil, Pranatha Books , Cochin
8. Leelavathy.M, Kavithasahithya charithram, Keralanbhasha Institute: Thiruvananthapuram, 2013
9. George K.M, Aadhunika Malayala sahithya Charithram prasthanagaliloode, Kottayam :DC books.
10. George.K.M, Sahithya Charithram prasthanagaliloode, Kottayam , Sahithya Pravarthaka sahakarana Sangam, 1958.
11. Krishna Pilla N, Kairaliyude kadha, D.C. Books, Kottayam, 1958.
12. Venugopan Nair. S. V., Malayala Bhasha Charitram, Maluben publications, Thiruvananthapuram. 2000.


**SEMESTER - II**

| | |
|---|---|
| Course Title: MIL-2: **General Hindi** | Course Type: Theory<br>Course Code:23LT21 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | • Understand Hindi Fiction | 1(5), 2(10), 5(5) | 1, 2, 5, 6, 8, 10 | U | M,F, C |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Evaluate social values through stories | 2(10), 3(10) | 1, 2, 3, | U, An | M,C |
| 3 | Remember cultural values through reading passages | 2(5), 5(5), 10(10) | 1, 2, 3, 6, 7 | An, E | M,P |
| 4 | • Apply practical grammar | 9(10), 10(10) | 8, 3, 7 | An, E | M,C |
| 5 | Evaluate modules related to fiction based on competitive examinations | 1(5), 5(10), 9(5) | 1, 7, 8 | U,E | M,C,P |

| Module | Course Description | Hours | % of CLO mapping with Module | LearningActivity | AssessmentTask | Reference |
|---|---|---|---|---|---|---|
| 1 | Hindi Katha sahithya Parichay | | | | | |
| 1.1 | Kahani ke thathva | 6 | 1[20] | Lec | CA | 1,2,3 |
| 1.2 | Hindi ke Pramukha kahaanikarom ka parichay | 4 | 1[30] | Lec | CA | 1,2 |
| 1.3 | Ekanki ke Thathva | 5 | 1[25] | Lec | HrA | 1,2 |
| 1.4 | Hindi ke Pramukha ekankikarom ka parichay | 3 | 1[25] | Lec | CA | 1,2 |
| 2 | Hindi Kahaniyaam | | | | | |
| 2.1 | Bade ghar ki betti – Premchand | 6 | 2[30] | Lec | CA | 1,2 |
| 2.2 | Vo thera ghar Yah Mera ghar – Malathi Joshi | 6 | 2[30] | Lec | HrA | 1,2 |
| 2.3 | Pita – Gyanarenjan | 6 | 2[40] | Lec | CA | 1,2 |
| 3 | Hindi Ekanki | | | | | |
| 3.1 | Lekshmi ka Swagath – Upendranath ashk | 6 | 3[30] | Lec | CA | 1,2 |
| 3.2 | Vibhajan – vushnu prabhakar | 6 | 3[40] | Lec | HrA | 1,2 |
| 3.3 | Maa Baap – Srivishnu | 6 | 3[30] | Lec | CA | 1,2 |
| 4 | vyakaran | | | | | |
| 4.1 | Kriya visheshan | 6 | 4[25] | Lec | CA | 1,2 |
| 4.2 | Sambatha Bodhak | 4 | 4[25] | Lec | CA | 1,2 |
| 4.3 | Samuchay Bodhak | 5 | 4[25] | Lec | HrA | 1,2 |
| 4.4 | Vismaya Bodhak | 3 | 4[25] | Lec | CA | 1,2 |
| 5 | Thakaneeki shabdh our anuvaad | | | | | |
| 5.1 | Thakaneeki Shabdh | 9 | 5[50] | Lec | HrA | 1,2 |
| 5.2 | Chotte Chotte anuvaad | 9 | 5[50] | Lec | CA | 1,2 |

Reference Books

1. Aath Ekanki natak – Ed. Dr.Ramkumar Varma
2. Das Ekanki

**SEMESTER I1**

| Course Title: CE-2: Communicative English | Course Type: Theory & Practical<br>Course Code:23LE21 |
|---|---|
| Total Hours: 90 Hours/Week: 6 Credits: 3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. L. Judith Sophia | Dr. A. Belinda Asir | Mrs. P. Jemimma |
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| CLO # | **Course Learning Outcomes**<br>*Upon completion of this course, students will be able to:* | % of PLO mapping with CLO | CLO & PLO Mapping with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing | 1 (10)<br>6 (7)<br>7 (3) | 2, 3 | U<br>AP | F<br>P |
| 2 | Examine and present material of the prescribed texts and other texts | 2 (8)<br>5 (12) | 1, 2 | U, An<br>E | C<br>M |
| 3 | Identify cross cutting issues like, Human values, (Professional, Personal and Domestic) ethics and environmental sustainability and practise them | 3 (8)<br>8 (6)<br>9 (6) | 1, 4, 8, 9 | An<br>E, Ap | C<br>P |
| 4 | Present and differentiate various cultures and civilizations of the Globe and distinguish Indian traditional Knowledge | 1 (10)<br>8 (5)<br>10 (5) | 5, 6, 10 | U,<br>Ap | P<br>M |
| 5 | Relate the textual content and underlying meaning of the context to the real life situations | 5 (6)<br>8 (8)<br>10 (6) | 1, 2, 5, 7 | E,<br>Ap, C | C<br>M |

| Module | Course Description | Hours | % of CLO mapping with Module | LearningActivity | AssessmentTask | Reference |
|---|---|---|---|---|---|---|
| **1** | **PROSE** | | | | | |
| **1.1** | **When You Dread Failure (1952)- A. J. Cronin** | | | | | |
| **1.1.1** | Introduction to the author & the Essay | 1 | 2 [4], 4 [10] | L | HoA | 1 |
| **1.1.2** | Textual Analysis | 2 | 2 [4] | L, GD | SA | 1 |
| **1.1.3** | Thematic analysis: Developing positive mindset Discussion on Human values, Personal and Professional ethics | 3 | 2 [4], 3[5], 5[7] | L,GD | Essay | 1 |
| **1.2** | **I Have a Dream (1963) - Martin Luther King** | | | | | |
| **1.2.1** | Introduction to the author & the Essay | 1 | 2 [4], 4 [10] | L | HoA | 1 |
| **1.2.2** | Textual Analysis | 2 | 2 [4] | L, GD | MCQ | 1 |
| **1.2.3** | Themes: Sensitizing towards equality and liberty & Discussion on racial discrimination- reflection of Human values | 3 | 2 [4], 3[5], 5[7] | L, GD | Ess | 1 |
| **1.3** | **I Plead that You Read- Shashi Tharoor** (2023) | | | | | |
| **1.3.1** | Introducing the author & Essay | 1 | 2 [4], 4 [8] | L | HoA | 1 |
| **1.3.2** | Textual analysis | 2 | 2 [4] | L, GD | S A | 1 |
| **1.3.3** | Thematic analysis: The need for critical reading | 3 | 2 [4], 3[5], 5[7] | L, GD | Ess | 1 |
| **2** | **POETRY** | | | | | |
| **2.1** | **Solitary Reaper - Wordsworth** | | | | | |
| **2.1.1** | Introducing the poet & the poem | 1 | 2[4] 4[5] | L | HoA | 1 |
| **2.1.2** | Analysis of the poem | 2 | 2[4] | L, GD | S A | 1 |
| **2.1.3** | Theme: Work is worship- work ethics & Soothing effect of Music, Art & communication | 2 | 2 [4], 3[4], 5[5] | GD,TPS | Ess | 1 |
| **2.2** | **Telephone Conversation - Wole Soyinka** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **2.2.1** | Introducing the poet & the poem | 1 | 2[4]<br>4[5] | L | HoA | 1 |
| **2.2.2** | Analysis of the poem | 2 | 2[4] | L, GD | MCQ | 1 |
| **2.2.3** | Themes of the poem- Injustice; racial discrimination and Human values | 2 | 2 [4], 3[4], 5[5] | GD, TPS | Ass | 1 |
| **2.3** | **On Killing a Tree- Gieve Patel** | | | | | |
| **2.3.1** | Introducing the poet & the poem | 1 | 2[10] | L | HoA | 1 |
| **2.3.2** | Analysis of the poem | 2 | 2[10] | L, GD | S A | 1 |
| **2.3.3** | Themes: Creating awareness to protect trees; Environmental issues | 1 | 2[10] | L, GD | Ess | 1 |
| **2.4** | **Still I Rise - Maya Angelou** | | | | | |
| **2.4.1** | Introducing the poet & the poem | 1 | 2[10] | L | HoA | 1 |
| **2.4.2** | Analysis of the poem | 1 | 2[5] | L,GD | S A | 1 |
| **2.4.3** | Human Values & gender issues in "Still I Rise" | 2 | 2[5] | L, GD | Ess | 1 |
| **3** | **FICTION** | | | | | |
| **3** | ***The Lion, the Witch and the Wardrobe***- C. S. Lewis | | | | | |
| **3.1** | Plot & Character analysis | 7 | 3[20] | L,GD | MCQ | 2 |
| **3.2** | Compare and contrast the characters | 3 | 3[20] | GD | S A | 2 |
| **3.3** | Thematic analysis: Conflict between Good and Evil | 4 | 3[20] | L,GD | Ess | 2 |
| **3.4** | Human Values reflected in *The Lion, the Witch and the Wardrobe* | 2 | 3[20] | GD CCC | Ass | 2 |
| **3.5** | Ethical issues presented in *The Lion, the Witch and the Wardrobe* | 2 | 3[20] | GD CCC | S A | 2 |
| **4** | **LANGUAGE STUDY** | | | | | |
| **4.1** | **Grammar Units 26-53** (*Essential English Grammar* by Raymond Murphy) | 18 | 4[100] | CCC | HrA | 3 |
| **5** | **LANGUAGE IN PRACTICE** | | | | | |
| **5.1** | **Vocabulary: One Word Substitutes**<br>**One Word substitutes for Person**:<br>1.Anthropologist, 2. Anchor, 3. Celebrity<br>4. Extrovert, 5. Humanitarian, 6. Hypocrite,<br>7. Optimist, 8. Philanthropist, 9. Philatelist,<br>10. Teetotaller.<br>**One Word substitutes for Generic terms**:<br>1. Almanac, 2. Axiom, 3. Biopsy, 4. Chronology, 5. Extempore, 6. Integrity, 7. Panacea,<br>8. Plagiarism, 9. Souvenir, 10. Utopia.<br>**One Word Substitutes for Venue/ Spot**: | 5 | 5[20] | CCC | CT | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1. Archives, 2. Aviary, 3. Aquarium, 4. Arena, 5. Burrow, 6. Cemetery, 7. Gymnasium, 8. Kennel, 9. Orchard, 10. Wardrobe. | | | | | |
| **5.2** | Taking and Making Notes | 3 | 5[20] | ABL | CT | 4 |
| **5.3** | Writing Paragraphs | 3 | 5[20] | ABL | CT | 4 |
| **5.4** | Reading for General and Specific Information (Only for- Viva/Practical purpose) [Interpreting Charts, Tables, Schedules, Graphs, Maps etc.] | 3 | 5[20] | ABL PL | Practi cal | 4 |
| **5.5** | Spoken English (Practical)<br>Situational Conversations:<br>● At the Booking counter in a Bus Stand and Railway Station<br>● At the reception counter to book a room<br>● At restaurant ordering food<br>At the bank to open an account | 4 | 5[20] | PL | practi cal | 4 |

**References:**


1. *Orchard: Semester 11 Prose and Poetry.* Edited by the Department of English, 2024.
2. Lewis, C. S. (1950). *The Chronicles of Narnia: The Lion, the Witch and the Wardrobe*. Harpercollins Children's Book, 2009.
3. *Essential English Grammar* by Raymond Murphy
4. Language in Use: Work Book 11. Edited by the Department of English


SEMESTER II

| Course Title: CC-2 : Object Oriented Programming with C++ | Course Type: Theory<br>Course Code:23GR21 |
|---|---|
| Total Hours: 60 Hours/Week: 4 Credits: 4 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO. No. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the principles of oops & Control Structures. | 1,2 | U | F |

| | | | | |
|---|---|---|---|---|
| 2 | Create Programs using Functions, Classes& Objects. | 1,2 | C | P |
| 3 | Analyze the Differences of Constructors and Destructors, Operator overloading . | 1,2 | An | C |
| 4 | Analyze the Types of Inheritance, Differences of Virtual Constructors and destructors, Pointers, Virtual functions and Polymorphism. | 1,2 | An | M |
| 5 | Understand Console I/O Operations and Files | 1,2 | U | F |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | **Principles of object oriented programming:** Basic Concepts ofObject Oriented Programming, Benefits of OOP, and Applications of OOP. | 2 | Lec | CA | 1 |
| 1.2 | **Tokens, Expressions and Control Structures:** Tokens, Keywords, Identifiers and Constants, Basic data types, Userdefined data types, Storage classes, Derived data types. | 2 | GL | Qui | 1 |
| 1.3 | Symbolic constants, Type compatibility, Declaration of Variables, Dynamic initialization of variables, Referencevariables. | 3 | GT | HrA | 1 |
| 1.4 | Operators in C++, Scope resolution operator, Member dereferencing operator, Memory management operator, Manipulators, Type cast operator. | 2 | Lec | CT | 1 |
| 1.5 | Expressions and their types, Special Assignment expressions, Implicit conversions, Operator overloading, Operator precedence,Control structures. | 3 | Lec | ST | 1 |
| 2.1 | **Functions in C++:** The main function, Function prototyping, Call by reference, Return by reference, Inline function, Defaultargument, const arguments. | 3 | Lec | HoA | 1 |
| 2.2 | Recursion, function overloading, Friend and virtual functions,Math library functions. | 2 | GL | OBT | 1 |
| 2.3 | **Classes and objects:** Specifying a class, Defining member function, Making an outside function inline, Nesting of memberfunctions, Private member functions. | 3 | GD | HrA | 1 |
| 2.4 | Arrays within a class, Memory allocation for objects, Static datamembers, static member functions. | 2 | Lec | CT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.5 | Array of objects, Objects as function argument, Friendly function, Returning objects, constant Member functions, Pointerto members, Local classes. | 2 | Lec | SA | 1 |
| 3.1 | **Constructors and Destructors:** Constructors, Parameterized constructors, Multiple constructors,Constructors with default argument. | 3 | Lec | OBT | 1 |
| 3.2 | Dynamic initialization of objects, Copy constructors, Dynamic constructors, Constructing two dimensional arrays, const objects,Destructors. | 3 | GL | CA | 1 |
| 3.3 | **Operator overloading and Type conversion:** Defining operator overloading, Overloading unary operators, Overloadingbinary operators. | 3 | GD | HrA | 1 |
| 3.4 | Overloading binary operators using friends, Manipulating stringusing operator, overloading, Rules for overloading operators. | 3 | CS | Qui | 1 |
| 4.1 | **Inheritance: Extending classes:** Defining derived classes,Single inheritance, Making a private member Inheritable, Multilevel inheritance. | 3 | Lec | ST | 1 |
| 4.2 | Multiple Inheritance, Hierarchical inheritance, Hybrid inheritance, Virtual base classes, Abstract classes | 3 | Lec | CA | 1 |
| 4.3 | **Pointers, Virtual functions and Polymorphism** Pointers,Pointers to objects, this Pointer. | 3 | GL | OBT | 1 |
| 4.4 | Polymorphism, Pointers to derived classes, Virtual Functions,Virtual Constructors and destructors. | 3 | Ess | HrA | 1 |
| 5.1 | **Managing Console I/O Operations:** C++ Streams, C++ StreamClasses, Unformatted I/O operations, Formatted Console I/O Operations. | 3 | Sp | CT | 1 |
| 5.2 | **Working with files :** Classes for file stream operations, Openingand closing a file ,Detecting end of file | 3 | Lec | Ess | 1 |
| 5.3 | File modes, File Pointers and their manipulations, SequentialInput/output operations. | 3 | Lec | HoA | 1 |
| 5.4 | Updating a file: Random access, Error handling during fileoperations, Command line argument. | 3 | Lec | CA | 1 |

**Reference Books**


**1.** E. Balaguruswami, *Object Oriented Programming with C++,* Seventh edition 2018 , TATA McGraw Hill Publication.

**2.** D.Ravichandran, *Programming with C++,*Third edition, TATA McGraw Hill Publication.

**3.** Robert Lafore, *Object Oriented Programming in C++,* Third edition , The Waite Groups, Galgotia Publication Schildt , 2000.

**4.** *The Complete Reference C++,* Third edition , TATA McGraw Hill Publication, 1999.

**5.** Sourav Sahay, *Object Oriented Programming with C++*, Oxford HigherEducation, Edition 2006.

SEMESTER II

| Course Title: CC-3 : Cyber Security | Course Type: Theory<br>Course Code:23GR22 |
|---|---|

| Total Hours: 75 Hours/Week: 5 Credits: 5 |
|---|

| Pass-Out Policy : Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] |
|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| Assistant Professor | Assistant Professor | Assistant Professor |
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Various Types of Cyber-Attacks. | 1,2,7,8,10 | U | F |
| 2 | Understand Cyberspace and the Law & Cyber Forensics. | 1,2,7,8,10 | U | C |
| 3 | Understand Cyber-Crimes. | 1,2,7,8,10 | U | F |
| 4 | Analyze the Organizational Implicationsof Cyber Security. | 1,2,7,8,10 | An | M |
| 5 | Understand Privacy Issues in Cyber Security. | 1,2,7,8,10 | U | C |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Introduction to Cyber Security:** Cyber Security Concepts,layers of Security, Vulnerability, Threat, Harmful Acts. | 5 | Lec | CA | 1 |
| 1.2 | Internet Governance, Challenges and Constraints, ComputerCriminals, CIA Triad, Assets and Threat, Motive of Attackers, Active Attacks, Passive Attacks, Software Attacks,and Hardware Attacks. | 5 | GL | Qui | 1 |
| 1.3 | Cyber Threats – Cyber Warfare, Cyber Crime, Cyber Terrorism., Cyber Espionage etc., Comprehensive CyberSecurity Policy . | 5 | GT | HrA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | **Cyberspace and the Law & Cyber Forensics:** Introduction,Cyber Security Regulations, Roles of International Law. The Indian Cyberspace, National Cyber Security Policy. | 5 | Lec | ST | 1 |
| 2.2 | Introduction, Historical Background of Cyber forensics, Digital Forensics Science, The Need for Computer Forensics,Cyber Forensics and Digital Evidence. | 5 | Lec | HoA | 1 |
| 2.3 | Forensics Analysis of Email, Digital Forensics Lifecycle, Forensics Investigation, Challenges in Computer Forensics. | 5 | GL | OBT | |
| 3.1 | **Cybercrime: Mobile and Wireless Devices:** Introduction,Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit and Frauds in Mobile and WirelessComputing Era. | 5 | Lec | HoA | |
| 3.2 | Security Challenges Posed by Mobile Devices, RegistrySettings for Mobile Devices | 5 | Lec | CT | 1 |
| 3.3 | Authentication Service Security, Attacks on Mobile/ Cell Phones, Organizational Security Policies and Measures in Mobile Computing Era, Laptops. | 5 | Lec | SA | 1 |
| 4.1 | **Cyber Security: Organizational Implications:** Introduction, Cost of Cyber Crimes and IPR Issues, Web Threats for Organizations, Security and Privacy Implications. | 7 | Lec | OBT | 1 |
| 4.2 | Social Media Marketing: Security Risks and Perils forOrganizations, Social Computing and the Associated Challenges for Organizations. | 8 | GL | CA | 1 |
| 5.1 | **Privacy Issues:** Basic Data Privacy Concepts: FundamentalConcepts, Data Privacy Attacks, Data Linking and profiling. | 8 | GD | Hr | 1 |
| 5.2 | Privacy Policies and their Specifications, Privacy PolicyLanguages, Privacy in Different Domains – Medical, Financial etc. | 7 | CS | Qui | 1 |

**Reference Books:**

1. Nina Godbole and Sunit Belpure, YBER Security Understanding Cyber Crimes, ComputerForensics and Legal Perspectives, Wiley
2. B.B.Gupta, D.P.Agrawal, Haoxiang Wang, Computer and Cyber Security: Principles,Algorithm, Applications and Perspectives, CRC Press , ISBN 9780815371335,2018
3. Cyber Security Essentials , James Graham, Richard Howard and Ryan Otson, CRC Press

| Course Title: CP-2 : Object Oriented Programming with C++ Lab | Course Type: Practical<br>Course Code:23GRP2 |
|---|---|

Total Hours: 45 Hours/Week: 3 Credits: 2

Pass-Out Policy : Minimum Contact Hours: 27
Total Score %:100 Internal: 40 External: 60
Minimum Pass %: 40 [No Minimum for Internal]

| Course Creator | Expert 1 | |
|---|---|---|


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|---|---|
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| CLO. # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create simple programs using arrays | 1,2,5,7 | C | P |
| 2 | Create program using selection statement, Loops and jump statements. | 1,2,5,7 | C | P |
| 3 | Create programs with the concept of function, function arguments, strings and Modules. | 1,2,5,7 | C | P |
| 4 | Create program using Pointers. | 1,2,5,7 | C | P |
| 5 | Create programs with Polymorphism, File handling. | 1,2,5,7 | C | P |

| **Sl. No** | **Description** |
|---|---|
| *C++ Programs Implementing* | |
| 1. | Control Structures |
| 2. | Functions |
| 3. | Lasses and Objects |
| 4. | Constructors and Destructors |
| 5. | Operator Overloading |
| 6. | Inheritance |
| 7. | Pointers |
| 8. | Virtual Functions and Polymorphism |
| 9. | Console I/O Operations |
| 10. | Files. |

**Reference Books**


**1.** E. Balaguruswami, *Object Oriented Programming with C++,* Seventh edition 2018 , TATA McGraw Hill Publication.

**2.** D.Ravichandran, *Programming with C++,*Third edition, TATA McGraw Hill Publication.

**3.** Robert Lafore, *Object Oriented Programming in C++,* Third edition , The Waite Groups, Galgotia Publication Schildt , 2000.

## SEMESTER II

| Course Title: MS-2(Allied) : Web Design | Course Type: Theory<br>Course Code:23AR01 |
|---|---|

| Total Hours: 60 Hours/Week: 4 Credits: 3 |
|---|

| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] |
|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs. R. Suguna Jasmin | Dr. D. Shiny | Dr. S. Gnana Sophia |
| Assistant Professor | Assistant Professor | Assistant Professor |
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| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mappedwith GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create Webpage using Physical Style,Logical Styles & Fonts. | 1,2,3 | C | P |
| 2 | Apply Lists, Tables & Images in Webpage. | 1,2,3 | Ap | M |
| 3 | Create Image Maps and Apply Links inWeb Pages. | 1,2,3 | C | C |
| 4 | Apply the Knowledge of Designing Forms in Web Pages and Divide the Display Window into Frames. | 1,2,3 | Ap | F |
| 5 | Create standard Web Pages by using CSS. | 1,2,3 | C | F |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | The First Web Page | 2 | Lec | CA | 1 |
| 1.2 | The Physical Style of Text | 4 | GL | Qui | 1 |
| 1.3 | The Logical Style of Text | 3 | GT | HrA | 1 |
| 1.4 | Fonts | 3 | Lec | CT | 1 |
| 2.1 | Lists | 4 | Lec | ST | 1 |
| 2.2 | Tables | 4 | Lec | HoA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.3 | Images | 4 | GL | OBT | 1 |
| 3.1 | Links | 4 | GD | HrA | 1 |
| 3.2 | Multimedia | 4 | Lec | CT | 1 |
| 3.3 | Image Maps | 4 | Lec | SA | 1 |
| 4.1 | Forms | 6 | Lec | OBT | 1 |
| 4.2 | Frames | 6 | GL | CA | 1 |
| 5.1 | Introduction to CSS | 4 | GD | HrA | 1 |
| 5.2 | Fonts in CSS | 4 | CS | Qui | 1 |
| 5.3 | Text in CSS | 4 | Lec | ST | 1 |

**Referenc Books.**


1. TeodoruGugoiu, *HTML, XHTML, CSS and XML by EXAMPLE A Practical Guide*,Laxmi Publications Pvt.Ltd..,New Delhi, First Edition,Reprint-2016
2. Daniel Gra, *Web Design Fundamentals Hand Book*, First Edition, Climatic Press, 2000.
3. Jennifer Niederst, *Web Design in a NetShell*, First Edition, SPD, January 1999.
4. Natanya Pitts-Moultis, *HTML style sheets design guide*, Coriolis Group Books, Edition 1998


## SEMESTER II

| | |
|---|---|
| Course Title: MSP-1 : Web Design Lab | Course Type: Practical<br>Course Code:23ARP1 |
| Total Hours: 30 Hours/Week: 2 Credits: 1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9486941443 | Mobile: 9488382437 | Mobile: 9944281506 |
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| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create Webpage using Physical Style, Logical Styles & Fonts. | 1,2,3,5,7 | C | P |
| 2 | Create Webpage using Lists, Tables & Images in Webpage. | 1,2,3,5,7 | C | P |
| 3 | Create Image Maps and Apply Links inWeb Pages. | 1,2,3,5,7 | C | P |
| 4 | Create Webpage using Forms andFrames. | 1,2,3,5,7 | C | P |
| 5 | Create standard Web Pages by using CSS. | 1,2,3,5,7 | C | P |

| S.No | Description |
|---|---|
| HTML – Webpages Implementing | |
| 1. | Physical Style of Text |
| 2. | Logical Style of Text |
| 3. | Fonts, Lists |
| 4. | Tables |
| 5. | Images |
| 6. | Links |
| 7. | Image Maps |
| 8. | Forms, Frames |
| 9. | CSS |

## Referenc Books.

1. TeodoruGugoiu, *HTML, XHTML, CSS and XML by EXAMPLE A Practical Guide*, LaxmiPublications Pvt.Ltd..,New Delhi, First Edition,Reprint-2016

## SEMESTER III

| Course Title: MIL-3 Tamil | Course Type: Theory<br>Course Code:23LT31 |
|---|---|
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. D. Deva Sambath | Dr. R. Josily | Dr. R.S. Rajasree |
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| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | காப்பியங்கள் | 2(8), 3(12) | **1, 2, 8** | U | P |
| 2 | அறிமுகப்படுத்தப்படுவதால் தமிழ் | 4(12), 6(8) | 1, 2, 7 | U | C |
| 3 | மொழியின் உயர்வையும் | 2(12), 3(8) | **1, 2, 8** | C | C |
| 4 | சிறப்பையும் உணர்தல் | 5(12), 6(8) | **1, 2, 3, 10** | E | F |
| 5 | தமிழ் புதினங்களின் வழி சமகாலப் படைப்புகளின் வாழ்வியல் சிந்தனையைப் பெறுவர் | 7(12), 8(8) | 2, 6, 7, 10 | E | C |

| Module | Course Description | Hours | % of CLO mapping with Module | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|---|
| **Unit I செய்யுள்** | | | | | | |
| 1.1 | சிலப்பதிகாரம் -வழக்குரைகாதை | 2 | 1[12] | Lec | MCQ | 1 |
| 1.2 | மணிமேகலை- ஆதிரை பிச்சையிட்ட காதை | 2 | 1[12] | Lec | CA | 1 |
| 1.3 | கம்பராமாயணம் -மந்தரை சூழ்ச்சிப் படலம் | 2 | 1[12] | Sem | SA | 1 |
| 1.4 | சீறாப்புராணம் - புலி | 2 | 1[12] | GD | HOA | 1 |
| 1.5 | வசனித்த படலம் | 2 | 1[12] | Sem | OBT | 1 |
| 1.6 | இரட்சணிய யாத்திரிகம் ஆரணிய பருவம்- விடாத கண்டப்படலம் | 2 | 1[12] | GL | Ess | 1 |
| 1.7 | பெரியபுராணம்- பூசலார் நாயனார் புராணம் | 3 | 1[14] | GD | CT | 1 |
| 1.8 | அரிச்சந்திர புராணம்- நகரச் சிறப்பு | 3 | 1[14] | Sem | HRA | 1 |
| | **Unit II நாவல்** | | | | | |
| 2.1 | வெ. இறையன்பு- சாகாவரம் | 18 | 2[100] | Lec | MCQ | 1 |
| **Unit III உரைநடை- றெக்கையில்லா தேவதைகள்** | | | | | | |
| 3.1 | றெக்கையில்லா தேவதைகள்- அரவாணிகள்; | 2 | 3[11] | Lec | SA | 2 |
| 3.2 | இயற்கையின் அதிசயம் | 2 | 3[11] | GD | HrA | 2 |
| 3.3 | கனவுலகம் | 2 | 3[11] | Sem | OBT | 2 |
| 3.4 | அஜ்னபி நாவலும் புலம்பெயர் மக்கள் வாழ்க்கையும்; | 2 | 3[11] | Lec | CT | 2 |
| 3.5 | நெஞ்சையள்ளும் சிலம்பு | 2 | 3[11] | GD | ESS | 2 |
| 3.6 | செம்மொழித் தமிழ் | 2 | 3[11] | GL | MCQ | 2 |
| 3.7 | புதுக்கவிதைகளில் வாழ்வியல் பதிவுகள்; | 2 | 3[12] | Lec | HOA | 2 |
| 3.8 | நாட்டுப்புற பண்பாட்டில் சடங்குகள் | 2 | 3[11] | Sem | MC | 2 |
| 3.9 | செவி வாயாக நெஞ்சு களனாக | 2 | 3[11] | GD | SA | 2 |
| **Unit IV இலக்கணம்** | | | | | | |
| 4.1 | யாப்பு (யாப்பின் உறுப்புக்கள் ஆறு) | 3 | 4[17] | Lec | Qui | 1 |
| 4.2 | அணியிலக்கணம்<br>(i)உவமையணி<br>(ii) சிலேடை அணி | 2 | 4[11] | Lec | CA | 1 |
| | (iii) தற்குறிப்பேற்றவணி | 2 | 4[11] | GD | HrA | 1 |
| | (iv) உருவக அணி | 1 | 4[6] | Sem | OBT | 1 |
| | (v) வேற்றுப்பொருள் வைப்பணி | 2 | 4[11] | Lec | CT | 1 |
| | (vi) பின்வருநிலையணி | 2 | 4[11] | GD | Qui | 1 |
| | (vii) தீவக அணி | 2 | 4[11] | Sem | MCQ | 1 |
| 4.3 | மொழிப் பயிற்சி | 2 | 4[11] | Lec | Qui | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4.4 | மொழிபெயர்ப்பு | 2 | 4[11] | Sem | SA | 1 |
| **Unit V இலக்கிய வரலாறு** | | | | | | |
| 5.1 | ஐம்பெருங் காப்பியங்கள் | 4 | 5[20] | Lec | Qui | 3,4,5 |
| 5.2 | ஐஞ்சிறுகாப்பியங்கள் | 4 | 5[20] | GD | HrA | 3,4,5 |
| 5.3 | பெரியபுராண சிறப்புகள்; | 4 | 5[20] | GD | CA | 3,4,5 |
| 5.4 | அரிச்சந்திர புராணம் | 4 | 5[20] | Lec | CT | 3,4,5 |
| 5.5 | நளவெண்பா | 2 | 5[20] | Lec | CT | 3,4,5 |

**Text Books**

1. பொதுத்தமிழ், ஸ்காட் கிறிஸ்தவக் கல்லூரி, தமிழ்த்துறை வெளியீடு
2. றெக்கையில்லா தேவதைகள், ஜி. ஐசக் அருள்தாஸ், நியூ செஞ்சுரி புக் ஹவுஸ், திருநெல்வேலி.

**Reference Books**

1. தமிழ் இலக்கிய வரலாறு, சிற்பி. பாலசுப்பிரமணியன்
2. புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, தமிழண்ணல்
3. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, முனைவர். பாக்யமேரி
4. அமிர்த சாகர் இயற்றிய யாப்பருங்கலக் காரிகை, வேங்கடசாமி நாட்டார். கழகப் பதிப்பு, சென்னை 1997
5. தண்டியலங்காரம் சென்னை. இராமலிங்கதம்பி ரான், கழக வெளியீடு கெ.

**SEMESTER III**

| | |
|---|---|
| Course Title: MIL-3: Drisyakalasaahithyam | Course Type: Theory<br>Course Code:23LT31 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.Jisha.S.K | Dr. Suja S. | Name : Dr.R.Sreejasankar |
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| jisha@scottchristian.org | sujasdr@gmail.com | sreejavijayan77@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Understanding the visual arts and literature of Kerala and acquiring the ability to act by understanding the difference between characters, dialogues and context | 1(5), 2(10),5(5) | 1, 2, 3, 8 | 1,2,3 | M, F, C |
| 2 | increased ability to understand and entertained by visual Art | 2(10), 3(10) | 1, 2, 3, 5 | 1,2,3 | M, C |
| 3 | understand the Linguistic Characteristics of the visual arts of Attakkadha and Tullal | 2(5), 5(5), 10(15) | 1, 2, 3. 6, 7 | 1,2 | M,P |
| 4 | understands the tradition of drama in details and obtains play writing ability. | 9(10), 10(10) | 3, 7 | 1, 9, 10 | M, C |
| 5 | Realizing the uniqueness of the screenplay and acquiring writing skills. | 1(5), 5(10), 9(5) | 1, 2, 3, 8 | 1,2,3 | M, C, P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|---|
| 1 | **Aattakkadha**8 | | | | | |
| 1.1 | Kadhakaliyude aarambhavum valarchayum | 3 | 1[20] | CS | CT | 1 |
| 1.2 | Pradhaana Attakkadhakriththukal | 3 | 1[20] | GL | CA | 1 |
| 1.3 | Slokam, Padam, Dandakam | 4 | 1[20] | GD | HrA | 1 |
| 1.4 | Kadhakali chadangukal | 4 | 1[20] | CS | CT | 1 |
| 1.5 | Nalacharitham Aattakkadha randaam Divasam | 4 | 1[20] | GD | HrA | 1 |
| 2 | **Thullal** | | | | | |
| 2.1 | Thullalinte Aarambham Valarcha | 4 | 2[25] | GD | HrA | 14,15 |
| 2.2 | Kunchannampyarude Saahithyasambhaavanakal | 4 | 2[25] | CS | CT | 14,15 |
| 2.3 | Saamoohika Vimarsanam Haasyam | 5 | 2[25] | Lec | CA | 14,15 |
| 2.4 | Kalyana Saugandhikam (Enkilo pandu yudhishttiran ……muthal dharikka nee Mahaabhaage..) | 5 | 2[25] | Lec | CA | 14,15 |
| 3 | **Naadakam** | | | | | |
| 3.1 | Malayaala Naadakaththinte Aarambham Valarcha | 6 | 3[35] | Lec | CA | 2,3,4,5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3.2 | Paaschaththya Naadaka swadheenam | 6 | 3[35] | Lec | CA | 2,3,4,5 |
| 3.3 | Kudukka – P.M.Taaj | 6 | 3[30] | GL | CA | 2,3,4,5 |
| **4** | **Thirakkadha** | | | | | |
| 4.1 | Thirakkadha yude pothu Khadakangal | 6 | 4[30] | GL | CA | 6,7,8,9,10 |
| 4.2 | Pradhaana Malayaala Thirakkadhaakriththukkal | 6 | 4[35] | GL | CA | 6,7,8,9,10 |
| 4.3 | Oridaththoru Fayalvaan | 6 | 4[35] | GD | HrA | 6,7,8,9,10 |
| **5** | **Cinimayile Puthuvazhikal** | | | | | |
| 5.1 | Documentary, Short filims | 2 | 5[10] | GD | HrA | 11,12,13 |
| 5.2 | Webseries | 2 | 5[20] | GD | HrA | 11,12,13 |
| 5.3 | Editing Aappukal | 2 | 5[10] | CS | CT | 11,12,13 |
| 5.4 | Chilavukuranja Cinemanirmaanam | 2 | 5[20] | GD | HrA | 11,12,13 |
| 5.5 | YouTube videos | 2 | 5[10] | GD | HrA | 11,12,13 |
| 5.6 | Mobile phone kaalathe Cinema | 2 | 5[10] | GD | HrA | 11,12,13 |
| 5.7 | Nalacharitham Anchaam Divasam - Vinod | 3 | 5[10] | GD | HrA | 11,12,13 |
| 5.8 | Web Series - Karikku | 3 | 5[10] | Lec | ST | 11,12,13 |

**Reference Books**


1. Krishna Kaimal Imanam, Aattakadha Sahithyam, Keralabhasha institute, Thiruvananthapuram. 2002
2. Shankarapilla G, Nadakadharshanam, D.C.Books: Kottayam,1990
3. Dr. Vayalavasudevan Pilla (AD), Nadaka Sahityam, Sambhoorna Malayala Sahitya Charitram, current books, Kottayam, 2007.
4. Rajan Thiruvothu, Nadakacharithrathinte kanni Keralabhasha Institute: Thiruvananthapuram,2007.
5. Grama Prakash N. R., Nadakam padavum prayogavum, Keralabhasha institute Thiruvananthapuram 2009
6. Shankarapilla G, Nadakasahithyacharithram, Sathiyapravarthaga Sahakaranasangam: Kottayam,1968
7. Vijaya Krishnan, Chalachitrathinte Porul, Kerala Bhasha institute, Thiruvananthapuram , 2011.
8. Divakaran .R.V.M, Kathayum thirakkathayum DC books, Kottayam .2010

9. Vijaya Krishnan, Chalachitra Sameeksha, Kerala Bhasha institute, Thiruvananthapuram .2011
10. Tony Mathew, M.T . Yude Sarga Prabancham, Keralabhasha institute, Thiruvananthapuram .2013
11. V.K.Joseph, Cinemayum prathayashasthravum, keralasamsarika prasithikaranavagup.
12. Binu Kumar .P.M, Thirakkathayude reethi Sastram,(Compiled and Study) , Kerala Bhasha institute, Thiruvananthapuram , 2011.
13. Raveenthran, Cinema samuham prathayashasthram mathrubhumi books
14. Dr. Jose K. Manuval, kathayam thirakkathaiyum, kairali books, Kannur.
15. George K.M, Aadhunika Malayala sahithya Charithram prasthanagaliloode, Kottayam :DC books.
16. George.K.M, Sahithya Charithram prasthanagaliloode , Sahithya Pravarthaka sahakarana Sangam,1958

**SEMESTER - III**

| Course Title: MIL-3: Pracheen, Samakaaleen, Aadhunik Kavithayem, Letter writing | Course Type: Theory<br>Course Code:23LT31 |
|---|---|
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs. Josy Vincent | Dr. Sreedevi S | Dr.Jayasree K. |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Apply nuances of letter writing in Hindi | 1(10), 5(10) | 1, 3, 7 | 1,2,3 | M,F,C |
| 2 | Analyse the rules of official correspondence | 1(5), 2(5), 3(10) | 1, 2, 3, 5 | 1,3 | F,C |
| 3 | Understand Hindi poetry | 5(10), 10(10) | 3, 6, 7 | 1,2,5 | M,C |
| 4 | Evaluate the drafting of job application letter | 9(10), 10(10) | 1, 3, 7 | 1, 9, 10 | M,F,C |
| 5 | Understand official Hindi | 9(10), 5(10) | 3, 7, 8 | 1,2,5 | C |

| Module | Course Description | Hours | % of CLO mapping with Module | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|---|
| 1 | Niji Pathra lekhan | | | | | |
| 1.1 | Niji PthraLekhan Arth our Bhed | 6 | 1[50] | Lec | CA | 1 |
| 1.2 | Mithr our Bhai ke naam pathr | 12 | 1[50] | GD | ST | 1 |
| 2 | Noukari ke aavedhan Pathr | | | | | |
| 2.1 | Saamajik Pathr arth our bhedh | 9 | 2[50] | Lec | HoA | 1,2 |
| 2.2 | Avedhan Pathr noukari chutti aadi | 9 | 2[50] | GL | MCQ | 1 |
| 3 | Pracheen Kavithayem | | | | | |
| 3.1 | Kabeerdas | 6 | 3[35] | GL | CA | 2,3 |
| 3.2 | Rahim | 6 | 3[35] | GL | CA | 2,3 |
| 3.3 | Thulasi das | 6 | 3[30] | GL | CA | 2,3 |
| 4 | Samakaleena Kavithayem | | | | | |
| 4.1 | Dhoomil ki kavitha | 6 | 4[35] | GL | CA | 2,3 |
| 4.2 | Kedhaar Nath sing ki kavitha | 6 | 4[35] | GL | CA | 2,3 |
| 4.3 | Sarveshwar Thayaal Saksena ki kavitha | 6 | 4[30] | GL | CA | 2,3 |
| 5 | Aadhika Kavithaayem | | | | | |
| 5.1 | Maidhili saran Gupth ka Nirchar | 9 | 5[50] | GL | CA | 2,3 |
| 5.2 | Mahadevi Varma Ka Kah de maam ab Kya dhekhoom | 9 | 5[50] | GL | CA | 2,3 |

Reference Books


1. Alekhan our Tipan – Prof Viraj.
2. Aalekhan – Kichlu
3. Kaabya Tharang – Dr. Niranjan


**SEMESTER - I1I**

| Course Title: CE-3: Communicative English | Course Type: Theory & Practical<br>Course Code:23LE31 |
|---|---|

| Total Hours: 90 Hours/Week: 6 Credits: 3 |
|---|

| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] |
|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. A. Belinda Asir | Dr. T Sherin | Dr. L. Judith Sophia |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9486756827 | Mobile: 9487658971 | Mobile: 9486459061 |
| belinda.basewel@yahoo.com | staneytsherin@gmail.com | judithsophia24@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mappedwith GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing | 1 (10)<br>6 (7)<br>7 (3) | 2, 3 | U<br>AP | F<br>P |
| 2 | Examine and present material of the prescribed texts and other texts | 2 (8)<br>5 (12) | 1, 2 | U, An<br>E | C<br>M |
| 3 | Identify cross cutting issues like, Human values, (Professional, Personal and Domestic) ethics and environmental sustainability and practise them | 3 (8)<br>8 (6)<br>9 (6) | 1, 4, 8, 9 | An<br>E, Ap | C<br>P |
| 4 | Present and differentiate various cultures and civilizations of the Globe and distinguish Indian traditional Knowledge | 1 (10)<br>8 (5)<br>10 (5) | 5, 6, 10 | U,<br>Ap | P<br>M |
| 5 | Relate the textual content and underlying meaning of the context to the real life situations | 5 (6)<br>8 (8)<br>10 (6) | 1, 2, 5, 7 | E,<br>Ap, C | C<br>M |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|---|
| **1** | **PROSE** | | | | | |
| **1.1** | **My London Days (1929) - M. K. Gandhi** | | | | | |
| **1.1.1** | Introduction to the author & the Essay | 1 | 2 [4]<br>4 [10] | L | HoA | 1 |
| **1.1.2** | Textual Analysis | 2 | 2[4] | L, GD | SA | 1 |
| **1.1.3** | Thematic analysis: Developing responsibility & Human values | 3 | 2 [4], 3[8], 5[10] | L, GD | Ass | 1 |
| **1.2** | **Shooting an Elephant (1936)- George Orwell** | | | | | |
| **1.2.1** | Introduction to the author & the Essay | 1 | 2 [4]<br>4 [10] | L | HoA | 1 |
| **1.2.2** | Textual Analysis | 2 | 2 [4] | L, GD | Quiz | 1 |
| **1.2.3** | Human values and Human rights | 3 | 2 [4], 3[5], 5[6] | L, GD | Ass | 1 |
| **1.3** | **Yes We Can (2008) - Barack Obama** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1.3.1** | Introduction to the author & the Essay | 1 | 2 [4]<br>4 [5] | L | HoA | 1 |
| **1.3.2** | Textual Analysis | 2 | 2 [4] | L, GD | SA | 1 |
| **1.3.3** | Human Values | 3 | 2 [4], 3[5], 5[5] | L, GD | Ass | 1 |
| **2** | **POETRY** | | | | | |
| **2.1** | **A Poison Tree - William Blake** | | | | | |
| **2.1.1** | Introduction to the poet & the poem | **1** | 2[4]<br>4[5] | L | HoA | 1 |
| **2.1.2** | Poetry Analysis | **2** | 2[4] | L, GD | Quiz | 1 |
| **2.1.3** | Human Values | **2** | 2 [4], 3[6], 5[6] | L, GD | Ass | 1 |
| **2.2** | **Tear and Smile - Khalil Gibran** | | | | | |
| **2.2.1** | Introduction to the poet & the poem | 1 | 2 [4]<br>4[7] | L | HoA | 1 |
| **2.2.2** | Poetry Analysis | 2 | 2[4] | L, GD | SA | 1 |
| **2.2.3** | Human Values | 2 | 2 [4], 3[3], 5[3] | L, GD | Ass | 1 |
| **2.3** | **A Song of Hope- Oodgeroo Noonuccal** | | | | | |
| **2.3.1** | Introduction to the poet & the poem | **1** | 2 [4]<br>4[5] | L | HoA | 1 |
| **2.3.2** | Poetry Analysis | **2** | 2[4] | L, GD | Essa y | 1 |
| **2.3.3** | Human Values | **1** | 2 [4], 3[3], 5[3] | L, GD | Ass | 1 |
| **2.4** | **Night of the Scorpion- Nissim Ezekiel** | | | | | |
| **2.4.1** | Introduction to the poet & the poem | **1** | 2 [4]<br>4[5] | L | HoA | 1 |
| **2.4.2** | Poetry Analysis | **2** | 2[4] | L, GD | Essa y | 1 |
| **2.4.3** | Human Values and Indian Ethos -Domestic Values | **1** | 2 [4], 4[3], 5[3] | L, GD | Ass | 1 |
| **3** | **SCENES FROM SHAKESPEARE** | | | | | |
| **3.1** | ***The Merchant of venice* Act IV Scene i** | | | | | |
| **3.1.1** | Introduction to Shakespeare and the play | 1 | 2 [4]<br>4[5] | L, GD | HoA | 1 |
| **3.1.2** | Character analysis | 2 | 2[4] | L, RP | Essa y | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **3.1.3** | Reflection of Human values (mercy) | 3 | 2[4]<br>3[10] | TPS | Ass | 1 |
| **3.2** | ***Othello* Act IV Scene ii** | | | | | |
| **3.2.1** | Introduction to the play | 1 | 2 [4]. 4 [5] | L | HoA | 1 |
| **3.2.2** | Character Analysis Plot and Character analysis | 3 | 2[6]1 | L, RP | Essa y | 1 |
| **3.2.3** | Human Values | 2 | 2[6]<br>3[10] | L, GD | Ass | 1 |
| **3.3** | ***Julius Caesar* Act III Scene ii** | | | | | |
| **3.3.1** | Introduction to the play | 1 | 2[4] 4 [8] | L | HoA | 1 |
| **3.3.2** | Analysis of the scene | 3 | 2 [4] | L, RP | Essa y | 1 |
| **3.3.3** | Human Values | 2 | 3[14]<br>5[12] | L, GD | Ass | 1 |
| **4** | **LANGUAGE STUDY** | | | | | |
| **4.1** | Grammar: Units 53- 83 | 18 | 4[100] | ABL | HoA | 2 |
| **5** | **LANGUAGE IN PRACTICE** | | | | | |
| **5.1** | **Vocabulary: Phrases**<br>apart from, approve of, bear with, break down, call upon, calm down, carry on, come across, deal with, endowed with, give away, go through, hand over, hold on, look into, look up to, look after, keep on, passed away, put an end to,<br>in vain, inferior to, step down, take over, root out, see through, shut up, side with, try for, wipe out | 5 | 1[20] | CCC | CT MCQ | 3 |
| **5.2** | Writing Emails | | 1[10] | P L | Ass | 3 |
| **5.3** | Learning netiquette, email etiquette | 3 | 1[10] | PL | Ass | 3 |
| **5.4** | Messaging in Social Media Platform [blogs, twitter, instagram, facebook] (Experiential Learning- Practical) | 4 | 1[20] | PL | Pract ical | 3 |
| **5.5** | Data Interpretation and Presentation (Practical) | 4 | 1[20] | PL | Ass | 3 |
| **5.6** | **Spoken English (Viva alone)**<br>1.Dialogue between a Teacher and Student<br>2.Dialogue between a Doctor and Patient<br>Dialogue between Shop owner and Consumer | 2 | 1[20] | RP | Viva | 3 |

References:

1. *Semester 111 Prose, Poetry and Drama.* Edited by the Department of English.
2. *Essential English Grammar* by Raymond Murphy. Cambridge University Press
3. Language in Use: Workbook 111. Edited by the Department of English

SEMESTER III

| Course Title: CC-4 : Java Programming | Course Type: Theory<br>Course Code:23GR31 |
|---|---|
| Total Hours:60 Hours/Week: 4 Credits:4 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. D. Shiny | Dr. R.D. Seeja | Mrs. S. Gnana Sophia |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9488382437 | Mobile:9942730217 | Mobile: 9944281506 |
| shinyd328@gmail.com | sheejarufus.r.d@gmail.com | gnanasophias@gmail.com |

| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Remember the Primaries of JAVA; Understand OOP, Control Structure, andArrays &Methods. | 1,2 | R | F |
| 2 | Apply the Knowledge of classes & objects, Inheritance & Polymorphism inJAVA Programs. | 1,2 | Ap | M |
| 3 | Create Applets& Create Programs UsingInterfaces & packages. | 1,2 | C | F |
| 4 | Create Projects by Applying AbstractWindowing Toolkit. | 1,2 | C | C |
| 5 | Understand Exception handling & Multithreading. | 1,2 | U | F |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **OOP andJava** : Objects and Classes, Java Language | 1 | Lec | CA | 1 |
| 1.2 | **The Primaries**:Character Set, Tokens, Constants, Variables, Operators and Expressions, Library Methods, Strings, I/O (Input/Output), Formatting the Output Values,Sample Programs. | 3 | GL | Qui | 1 |
| 1.3 | **Control Statements:** 'if' Statement, Switch Statement, While Statement, Do. While Statement,For Statement. | 4 | GT | HrA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 1.4 | **Arrays and Methods:** One Dimensional Arrays, Two Dimensional Arrays, Methods, General Form of a Methods, Method of Invokinga Method, Method Overloading, Recursion. | 4 | Lec | CT | 1 |
| 2.1 | **Classes and Objects:** General Form of a class, Creation of | 4 | Lec | ST | 1 |
| | Objects, 'this' keyword, Constructor, Overloading, Copy Constructors. | | | | |
| 2.2 | Static Data Members, Static Methods, 'finalize ()' Method,Inner Classes and Anonymous Inner Classes. | 4 | Lec | HoA | 1 |
| 2.3 | **Inheritance and Polymorphism:** Inheriting the Variablesin a Class, Inheriting the Methods in a class, Inheritance and Constructors, Abstract Classes, Final Classes. | 4 | GL | OBT | 1 |
| 3.1 | **Interfaces and packages:** Interfaces, Structure of an Interface, Implementation of an Interface, Interface Inheritance, Packages, The Package Statement, Placing theClasses in a Package, Package Hierarchy. | 4 | GD | HrA | 1 |
| 3.2 | Import Statement, Hiding the Classes in a Package, AccessControl Modifiers | 4 | Lec | CT | 1 |
| 3.3 | **Applets:** The Life Cycle of an Applet, The Applet Class, Development and execution of a simple , Applet, Syntax ofApplet tag, Method in the graphics class. | 4 | Lec | SA | 1 |
| 4.1 | **Abstract Windowing Toolkit - I :** Events, Listeners, Event Handling Methods, Inheritance Hierarchy of ControlClasses, Labels, Button control, Checkbox control, Radio Button control. | 6 | Lec | OBT | 1 |
| 4.2 | Choice control – List control, Scrollbars, Flow layout, Border layout, Grid layout, Card layout, Grid bag layout, panels | 6 | GL | CA | 1 |
| 5.1 | **Exception handling:** Default, Exception Handling, User defined exception handling Mechanism, Exception and error classes, catch block searching pattern, 'throw' Statement, 'throws' clause, Custom exceptions. | 6 | CS | Qui | 1 |
| 5.2 | **Multi-Threading:** Life cycle of a thread, Creating and running threads, Methods in the Thread lass, Setting the Priority of a Thread. | 6 | Lec | ST | 1 |

**Reference Books**


1. P.Muthu, *Programming with Java*, Tata McGraw Hill, V Ed., 2009.
2. Herbert Schildt, *The Complete Reference JAVA 2*, Tata McGraw Hill, V Ed., New Delhi,2004.
3. Peter Norton, *Guide to JAVA programming*, Tech Media, I Ed., New Delhi,1997.
4. P. Radha Krishna, *Object Oriented Programming through Java*, University Press, 2011.
5. K. Rajkumar, *Java Programming*, Pearson India, 2013.

## SEMESTER III

| | |
|---|---|
| Course Title: CC-5 : Operations Research | Course Type: Theory<br>Course Code:23GR32 |
| Total Hours:75 Hours/Week: 5 Credits:5 | |
| Pass-Out Policy : Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs.R.Suguna Jasmin | Dr.D. Shiny | Dr. R.D. Seeja |
| Assistant Professor | Assistant Professor | AssistantProfessor |
| Mobile: 9486941443 | Mobile: 9488382437 | Mobile:9942730217 |
| suguna.jasmin@gmail.com | shinyd328@gmail.com | sheejarufus.r.d@gmail.com |

| CLO. #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Apply real-world problem as a mathematical programming model. | 1,2,8 | Ap | P |
| 2 | Understand the relationship between a linear program and its dual, including strong duality and complementary slackness | 1,2,8 | U | P |
| 3 | Understand the workings of the simplemethod for linear programming and perform iterations. | 1,2,8 | U | P |
| 4 | Evaluate specialized linear programmingproblems like transportation and assignment problems | 1,2,8 | E | P |
| 5 | Evaluate network models like shortestpath, minimum spanning tree, and maximum flow problems. | 1,2,8 | E | P |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Operations Research: An overview, Applications of Operations Research, | 2 | Lec | CA | 1 |
| 1.2 | Linear programming: Simplex method, Degenerate solution, Non degenerate solution, Basic Feasible solution.. | 4 | PF | Qui | 1 |
| 1.3 | The computational procedure, determining saddle | 4 | PF | HrA | |

| | | | | | |
|---|---|---|---|---|---|
| | point. | | | | |
| 1.4 | The simplex table | 5 | Lec | CT | |
| 2.1 | Replacement problem and system reliability: Replacement of equipment/ asset that deteriorates gradually- when value of money does not change withtime. | 4 | Lec | ST | 1 |
| 2.2 | Replacement policy when value of money changes withtime | 4 | Lec | HoA | 1 |
| 2.3 | Replacement of equipment that fails suddenly, Groupreplacement theorem. | 4 | PF | OBT | 1 |
| .4 | Recruitment and promotion problem. | 3 | PF | HrA | 1 |
| 3.1 | Games and strategies: Two person zero-sum games, somebasic terms. | 1 | Lec | CT | 1 |
| 3.2 | The Maxmin- Minimax principle. | 4 | Lec | SA | 1 |
| 3.3 | Games without saddle points- Mixed strategies. | 2 | Lec | OBT | 1 |
| 3.4 | Games against passivity, Dominance property | 4 | PF | CA | 1 |
| 3.5 | General solution of rectangular games: Linear programming method, iterative method. | 4 | PF | Qui | |
| 4.1 | Transportation problem : The transportation table, loops intransportation table, | 3 | Lec | ST | 1 |
| 4.2 | Solution of a transportation problem, Finding an initialbasic feasible solution – North-West Corner method | 4 | Lec | CA | 1 |
| 4.3 | Least-cost method, Vogel's approximation method. | 4 | PF | Qui | 1 |
| 4.4 | Transportation algorithm : MODI method. | 4 | PF | HrA | 1 |
| 5.1 | Network scheduling by PERT/CPM: Network : Basiccomponents, Logical sequencing, Rules of network construction. | 2 | Lec | CT | 1 |
| 5.2 | Concurrent activities | 2 | Lec | ST | 1 |
| 5.3 | Critical path analysis | 4 | PF | Qui | 1 |
| 5.4 | Float of an Activity and Event | 4 | Lec | HrA | 1 |
| 5.5 | Difference between PERT and CPM. | 3 | Lec | CT | 1 |

**Reference Books**


1. Kantiswarup, P.k.Gupta, Manmohan, *Operations Research*, Thirteenth edition, Sultan chand & sons, New Delhi, 2007.
2. R.Panneerselvam, *Operations research*, Second edition, PHI, 2011
3. Nita H.Shah, Ravi M.Gor, hardikSoni , *Operations Research*, PHI, 2007
4. K.S.Ganapathy Subramaniam , K.Ganesan*, Operations Research*, June 2000
5. H.A.Taha, *Operation Research An introduction*, Mac Millan Publication 1982

## SEMESTER III

| Course Title: CP-3 : Java Programming Lab | Course Type: Practical<br>Course Code:23GRP3 |
|---|---|
| Total Hours:45 Hours/Week: 3 Credits:2 | |
| Pass-Out Policy : Minimum Contact Hours: 27<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.D. Shiny | Dr. R.D. Seeja | Dr.S.Gnana Sophia |
| Assistant Professor | AssistantProfessor | Assistant Professor |
| Mobile: 9488382437 | Mobile:9942730217 | Mobile: 9944281506 |
| shinyd328@gmail.com | sheejarufus.r.d@gmail.com | gnanasophias@gmail.com |
| | | |

| CLO. #. | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Remember the Primaries of JAVA; Understand OOP, Control Structure, andArrays &Methods. | 1,2 | R | F |
| 2 | Apply the Knowledge of classes & objects, Inheritance & Polymorphism inJAVA Programs. | 1,2 | Ap | M |
| 3 | Create Applets & Create Programs Using Interfaces & packages. | 1,2 | C | F |
| 4 | Create Projects by Applying Abstract Windowing Toolkit. | 1,2 | C | C |
| 5 | Understand Exception handling & Multithreading. | 1,2 | U | F |

| **Sl. No** | **Practical List** |
|---|---|
| JAVA Programs Implementing | |
| 1. | Control Statements |
| 2. | Arrays and Methods |
| 3. | Classes and Objects. |
| 4. | Inheritance and Polymorphism. |
| 5. | Interfaces and Packages |
| 6. | Applets |

Reference Books:


1. P.Muthu, *Programming with Java*, Tata McGraw Hill, V Ed., 2018.
2. Herbert Schildt, *The Complete Reference JAVA 2*, Tata McGraw Hill, V Ed., New Delhi,2004.
3. Peter Norton, *Guide to JAVA programming*, Tech Media, I Ed., New Delhi, 1997.
4. P. Radha Krishna, *Object Oriented Programming through Java*, University Press, 2011.
5. K. Rajkumar, *Java Programming*, Pearson India, 2013.

| Course Title: MS-2(Allied) : Data Structures | Course Type: Theory<br>Course Code:23AR02 |
|---|---|

| Total Hours:60 | Hours/Week: 4 | Credits:3 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|


| Dr. S. Gnana Sophia |
|---|
| Assistant Professor |
| Mobile: 9944281506 |
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| Mrs.R.Suguna Jasmin |
|---|
| Assistant Professor |
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| CLO. #. | **Course Learning Outcomes**<br>*Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Array Representation of Data & Analyze the Sorting Techniques. | 1,2,7,10 | An | C |
| 2 | Apply Stack, Queues & Linked Lists Structures Data & Analyze the Representations. | 1,2,7,10 | Ap | C |
| 3 | Apply Binary Tree Structure to Data , Evaluate the Time & Space Complexity. | 1,2,7,10 | Ap | M |
| 4 | Apply & Analyze Heap, Selection Treeand Forest Structures of Data. | 1,2,7,10 | An | M |
| 5 | Apply & Analyze the Graph Structures. | 1,2,7,10 | Ap | M |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Arrays and structures:** Arrays: Dynamically allocatedarrays Structures and union: Structures, Unions. | 2 | Lec | CA | 1 |
| 1.2 | Polynomials: The abstract data type, Polynomial Addition | 3 | GL | Qui | 1 |
| 1.3 | Sparse Matrices: The Abstract data type Sparse MatrixRepresentation Transposing a Matrix. | 3 | GT | HrA | 1 |
| 1.4 | **Sorting:** Insertion Sort, Quick Sort , Iterative Merge Sort,Heap Sort, Sorting on Several Keys List and Table Sort. | 4 | Lec | CT | 1 |
| 2.1 | **Stack and Queues**: Stacks, Stacks using dynamic arrays. | 2 | Lec | ST | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.2 | Queues, Circular Queue representation using dynamicallyallocated arrays | 3 | Lec | HoA | 1 |
| 2.3 | Evaluation of Expressions: Expressions, Evaluating Postfixexpression, Infix to postfix | 2 | GL | OBT | 1 |
| 2.4 | **Linked lists :** Singly linked list and chains, Representingchains in C. | 2 | GD | HrA | 1 |
| 2.5 | Polynomials: Polynomial representation, Adding polynomials, Erasing polynomials, Circular list representation of polynomials, Additional list operations:Operations for chains. | 3 | Lec | CT | 1 |
| 3.1 | **Trees:** Terminology , Representation of trees: List Representation, Left Child-Right Sibling Representation, and Representation as Degree-two Tree. | 3 | Lec | SA | 1 |
| 3.2 | Binary Trees: The abstract data type, Properties of binarytrees, Binary tree representation: Array Representation, Linked Representation. | 3 | Lec | OBT | 1 |
| 3.3 | Binary tree traversals: In order traversal, preorder traversal,<br>Post order traversal, Additional binary tree operations: -<br>Copying Binary trees, Resting Equality. | 3 | GL | CA | 1 |
| 3.4 | Threaded binary trees: Threads, In order traversal of threaded binary trees, Inserting a node into a threaded binarytree. | 3 | CS | Qui | 1 |
| 4.1 | Heaps: Priority queues, Definition of a max heap Insertion into a max heap, Deletion from a max heap. | 6 | Lec | ST | 1 |
| 4.2 | Binary search trees: Definition, searching a binary searchtree, Inserting a node into a binary Search tree, Deletion from a binary search tree, Joining and Splitting Binary<br>search tree , Height of a binary search tree | 6 | Lec | CA | 1 |
| 5.1 | **Graphs**: The Graph abstract data type – Definition, Graphrepresentation. | 3 | GL | Qui | 1 |
| 5.2 | Elementary graph operations: Depth first search, Breadthfirst search | 3 | GT | HrA | 1 |
| 5.3 | Connected components, Spanning treeBi Connected components. | 3 | Lec | CT | 1 |
| 5.4 | Minimum cost spanning trees - Kruskal's algorithm, Prim'salgorithm, Sollin’s algorithm. | 3 | Lec | ST | 1 |

**Reference Books**

*1.* Ellis Horowitz, Sahni, Anderson, *Fundamentals of data structures in C,* Universal Press, Second edition, 2018

2. GilbergeForouzan, *Data Structures A Pseudocode approach with C*, Tata McGraw Hill, Fifth Edition 2004.

## SEMESTER III

| Course Title: MSP-2 : Data Structures Lab | Course Type: Theory<br>Course Code:23ARP2 |
|---|---|

| Total Hours:30 | Hours/Week: 2 | Credits:1 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %: Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs.S.Gnana Sophia | Dr.D. Shiny | Mrs.R.Suguna Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9944281506 | Mobile: 9488382437 | Mobile: 9486941443 |
| gnanasophias@gmail.com | shinyd328@gmail.com | suguna.jasmin@gmail.com |

| CLO. #. | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Array Representation of Data& Analyze the Sorting Techniques. | 1,2 | An | C |
| 2 | Apply Stack, Queues & Linked Lists Structures Data & Analyze the Representations. | 1,2 | Ap | C |
| 3 | Apply Binary Tree Structure to Data; Evaluate the Time & Space Complexity. | 1,2 | Ap | M |
| 4 | Apply & Analyze Heap, Selection Treeand Forest Structures of Data. | 1,2 | An | M |
| 5 | Apply & Analyze the Graph Structures. | 1,2 | Ap | M |

| **Sl.No** | **Practical List** |
|---|---|
| C programs Implementing | |
| 1. | Sorting Techniques |
| 2. | Stack/Queues |
| 3. | Linked List. |
| 4. | Polynomial Addition |
| 5. | Tree traversal |
| 6. | Applets |

**Reference Books**

*1.* Ellis Horowitz, Sahni, Anderson, *Fundamentals of data structures in C,* Universal Press, Second edition, 2018

2. GilbergeForouzan, *Data Structures A Pseudo code approach with C*, TataMcGraw Hill, Fifth Edition 2004.

## SEMESTER -III

| Course Title: V AC- I :Health and Fitness through Yogasanas | Course Type: Theory<br>Course Code:23SE11 |
|---|---|
| Total Notional Hours: 30 (Hours/Week: 2 Credit: 1 | |

| Course Creator | Expert 1 | Expert II |
|---|---|---|
| Dr.C.Samson<br>Assistant Professor<br>Mobile: 9080025484<br>samson@scottchristian.org | Dr.N.Aseer Rufuss<br>Associate Professor<br>Mobile: 9865187847<br>aseerrufs@ gmail.com | Dr. B. Benitto Anand<br>Associate Professor<br>Mobile:9443204442<br>anandbenit@gmail.com |

| CLO. #. | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | analyze their body physically and mentally for the integration of physical, mental and spiritual fitness | 1, 2, 4, 5, 6, 7, 9, 10 | U | M |
| 2 | evaluate mental health | 1, 2, 4, 5, 6, 7, 9, 10 | An, Ap | C, P |
| 3 | apply co-ordination in sports | 1, 2, 4, 5, 6, 7, 9, 10 | C | P |
| 4 | understand oneself with basic knowledge about one's personality | 1, 2, 4, 5, 6, 7, 9, 10 | Ap, C | C, P |
| 5 | evaluate themselves and become healthier, saner and more integrated members of the society and of the nation | 1, 2, 4, 5, 6, 7, 9, 10 | An, E | C, F, M |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Asanas, Procedure for doing asanas | 2 | Lec | HrA | 1 |
| 1.2 | Asanas in Long sitting position | 1 | BS | Qui | 1 |
| 1.3 | Padmasana, Chin Mudra | 1 | OT | CA | 1 |
| 1.4 | Sugasana, Vajrasana | 2 | Sem | SA | 1 |
| 2.1 | Prone position Asanas | 2 | SI | HoA | 2 |
| 2.2 | Makrasana | 1 | WSQ | CT | 2 |
| 2.3 | Dhanurasana | 1 | FC | CA | 2 |
| 2.4 | Bujankasana | 2 | OO | SA | 2 |
| 3.1 | Supine position Asanas - Sava asana | 2 | TPS | Ess | 2 |
| 3.2 | Sarvaangasana | 1 | KWL | HA | 2 |

| | | | | | |
|---|---|---|---|---|---|
| 3.3 | Vibareethakarani | 1 | OO | MCQ | 2 |
| 3.4 | Halasana | 2 | Soc | CA | 2 |
| 4.1 | Standing position Asanas - Thirikonasana | 2 | Sem | HA | 3 |
| 4.2 | Thadasana | 1 | GT | MCQ | 3 |
| 4.3 | Veerapathrasana | 1 | Lec | HrA | 3 |
| 4.4 | Bathahasthasana | 2 | BS | Qui | 3 |
| 5.1 | Kneeling position Asanas | 2 | OT | CA | 3 |
| 5.2 | Mayoorasana | 1 | Sem | SA | 3 |
| 5.3 | Artha sirasana | 1 | SI | HoA | 3 |
| 5.4 | Sirasana | 2 | WSQ | CT | 3 |

**Reference Books**


1. K. Chandrasekaran, "Sound Health through Yoga" Prem Kalian Publication, Sedapatti, 1999.
2. Yogeshwar, "Textbook of Yoga", Madras Yoga Centre, 2004.
3. Kumaresan P. “Yogasanam”, Abinaya Publications, 2002.


## SEMESTER IV

| | |
|---|---|
| Course Title: MIL-4 Tamil | Course Type: Theory<br>Course Code:23LT41 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | தொன்மையான தமிழ் இலக்கியங்களின் சிறப்பினை அறிவர் | 1(11), 2(9) | **1, 2, 3** | R | F |
| 2 | கட்டுரைகளின் வழி தமிழறிஞர்களின் சிந்தனைகளைக் கற்றறிவர் | 3(8), 4(12) | **1, 2, 7, 8** | U | C |
| 3 | இலக்கியங்களைத் தமிழர்கள் உருவாக்குவதற்கு வகுத்துள்ள வரை முறைகளை இலக்கணங்கள் வழி அறிந்து கொள்வர் | 3(13), 4(7) | **1, 2, 7, 8, 10** | An | C |

| | | | | | |
|---|---|---|---|---|---|
| 4 | தமிழறிஞர்களின் வாழ்வியல், இலக்கிய பணி பற்றி அறிந்த கொள்வர் | 5(8), 7(12) | **1, 2, 5, 10** | U | C |
| 5 | தமிழ் இலக்கியங்களின் வரலாற்றுப் பின்புலத்தை அறிந்து கொள்வர் | 1(11), 2(9) | **1, 2, 3** | Ap | F |

| Module | Course Description | Hours | % of CLO mapping with Module | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|---|
| **அலகு I செய்யுள்** | | | | | | |
| 1.1 | நற்றிணை (10, 14, 16 பாடல்கள் | 2 | 1[11] | Lec | CA | 1 |
| 1.2 | குறுந்தொகை (16, 17, 19, 20, 25, 29, 38, 44 பாடல்கள்) | 3 | 1[17] | GD | HrA | 1 |
| 1.3 | கலித்தொகை (38, 51 பாடல்கள்) | 1 | 1[6] | Sem | OBT | 1 |
| 1.4 | அகநானூறு (15, 33, 55 பாடல்கள்) | 2 | 1[11] | Lec | CT | 1 |
| 1.5 | புறநானூறு (37, 86, 112 பாடல்கள்) | 2 | 1[11] | GD | Quiz | 1 |
| 1.6 | பரிபாடல் 55 பாடல் | 1 | 1[6] | Sem | MCQ | 1 |
| 1.7 | நெடுநல்வாடை முழுவதும் | 7 | 1[38] | GL | SA | 2 |
| **அலகு II உரைநடை** | | | | | | |
| 2.1 | கல்வி அழகே அழகு -மயில்வாகனன் | 2 | 2[11] | Lec | CA | 4 |
| 2.2 | பரிமேலழகர் த. இயேசு தாஸ் | 2 | 2[11] | GD | HrA | 4 |
| 2.3 | பரிசில் வாழ்க்கை-மு. வரதராசன் | 2 | 2[11] | Sem | OBT | 4 |
| 2.4 | குறள் விளக்கம்- வ.சு.ப. மாணிக்கம் | 2 | 2[11] | GL | CT | 4 |
| 2.5 | தலைமைப் பொறுப்பு -அகிலன்; | 2 | 2[11] | GD | Quiz | 4 |
| 2.6 | நகைச்சுவைப் பாடல்கள் - ஜே. ரோஸ்லெட் டானிபாய் | 2 | 2[11] | Lect | HOA | 3 |
| 2.7 | சுற்றுப்புறச் சூழல்- தே. தேவசம்பத் | 2 | 2[11] | GD | SA | 3 |
| 2.8 | சமய நல்லிணக்கம் கு.வெ. பாலசுப்பிரமணியன் | 2 | 2[11] | Sem | MCQ | 4 |
| 2.9 | விருந்தோம்பல் கி. இராசா | 2 | 2[12] | GL | Ess | 4 |
| **அலகு III வாழ்க்கை வரலாறு** | | | | | | |
| 3.1 | கல்வித் தந்தை காமராஜர் முனைவர் - ப. பாலசுப்பிரமணியன் | 18 | 3[100] | GD | CT | 6 |
| **அலகு IV இலக்கணம்** | | | | | | |
| 4.1 | அகப்பொருள் இலக்கணம் | 4 | 4[22] | Lec | CA | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4.2 | அகப்பொருள் துறைகள்<br>1. அறத்தொடு நிற்றல் (48)<br>2. வரைவு கடாதல் (165)<br>3. உடன்போக்கு (180)<br>4. பிரிவு (62)<br>5. பாங்கியிற் கூட்டம் வகை மடற் கூற்றும் மடல்விலக்கும் (145) | 4 | 4[22] | GD | HOA | 1 |
| 4.3 | புறப்பொருள் இலக்கணம் | 4 | 4[22] | Sem | OBT | 1 |
| 4.4 | புறப்பொருள் துறைகள் வெட்சிப்படலம்<br>1. விரிச்சி<br>2. செலவு<br>3. பாதீடு<br>4. உண்டாட்டு<br>5. வெறியாட்டு | 3 | 4[17] | Lec | CT | 1 |
| 4.5 | 6. போர் மலைதல்<br>7. புண்ணொடு வருதல்<br>8. பிள்ளைத் தெளிவு<br>9. பிள்ளையாட்டு<br>10. நெடுமொழி கூறல் | 3 | 4[17] | Sem | Quiz | 4 |
| **அலகு V இலக்கிய வரலாறு** | | | | | | |
| 5.1 | சங்க வரலாறு | 4 | 5[22] | Lec | MCQ | 1 |
| 5.2 | சங்கம் இருந்தமைக்கான சான்றுகள் | 4 | 5[22] | Sem | SA | 1 |
| 5.3 | எட்டுத்தொகை நூல்கள் | 5 | 5[27] | GD | Ess | 1 |
| 5.4 | பத்துப்பாட்டு நூல்கள் | 5 | 5[29] | GL | CT | 1 |

**Reference Books**


1. சங்க இலக்கியம், எட்டுத்தொகை, முனைவர் வி. நாகராசன் (உ.ஆ), நியூ செஞ்சுரி புக் ஹவுஸ் சென்னை 600 098..
2. சங்க இலக்கியம், பத்துப்பாட்டு, முனைவர் வி. நாகராசன் (உ.ஆ), நியூ செஞ்சுரி புக் ஹவுஸ் சென்னை 600 098
3. மணிச்சிகை, ஜே.ஜி. என் டாசன் (தொ. ஆ), தமிழாய்வு மையம், ஸ்காட் சிறிஸ்தவக் கல்லூரி, நாகர்கோவில் -3
4. பொதுத்தமிழ் (நான்காம் பருவம்), தமிழ்த்றை வெளியீடு, ஸ்காட் சிறிஸ்தவக் கல்லூரி, நாகர்கோவில் 2024
5. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, முனைவர் பாக்ய மேரி, நியூ செஞ்சுரி புக் ஹவுஸ் சென்னை - 600 098.
6. கல்வித் தந்தை காமராஜர், முனைவர் ப. பாலசுப்பிரமணியன், நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்., சென்னை -600 050.
7. தமிழ் இலக்கிய வரலாறு சிற்பி. பாலசுப்பிரமணியன்.
8. இராஜகோபாலாச்சாரியார், கே., அணியியல், கண்ணப்பன் பதிப்பகம், தி.நகர், சென்னை.


**SEMESTER IV**

| Course Title: MIL-4: Journalism and Composition | Course Type: Theory<br>Course Code:23LT41 |
|---|---|
| Total Hours:90 Hours/Week: 6 Credits:3 | |

| Pass-Out Policy : | Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Understand the history and necessity of Printing | 1(10), 2(10) | 1, 2, 3, 8 | 1,2,3 | M, F, C |
| 2 | Understand the linguistic features of Media | 2(5), 3(5),5(10) | 1, 2, 3, 5 | 1,2,3 | M, C |
| 3 | Understand different idioms and features of sentences | 2(5), 9(10), 10(5) | 1, 3, 7 | 1,2 | M, C, P |
| 4 | Understand the compositional features of official writing and | 9(10), 10(10) | 3, 7, 8 | 1, 9, 10 | M, C, P |
| 5 | Analyse social responsibility by learning essay writing based on | 1(5), 5(10), 9(5) | 1, 2, 8 | 1,2,3 | M, C, P |

| **Module** | **Course Description** | **Hours** | **% of CLO mapping with Module** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|---|
| **1** | **Achadi** | | | | | |
| 1.1 | Achadiyude Valarcha, Parinaamam | 2 | 1[15] | GL | Qui | 8 |
| 1.2 | Pressukal | 3 | 1[15] | GT | HrA | 8 |
| 1.3 | Pathramaasikakal | 2 | 1[15] | Lec | CT | 8 |
| 1.4 | Vidyavinidini | 3 | 1[15] | Lec | ST | 8 |
| 1.5 | Rasikarenjini | 3 | 1[15] | GL | Qui | 8 |
| 1.6 | Jnananikhepam | 3 | 1[15] | GT | HrA | 8 |
| 1.7 | Kavanakaumudi | 2 | 1[10] | Lec | CT | 8 |
| **2** | **Maadhyamabhaasha** | | | | | |
| 2.1 | Kambyutting | 4 | 2[30] | GL | OBT | 6 |
| 2.2 | Word document | 4 | 2[30] | GD | HrA | 6 |
| 2.3 | Malayalam DTP cheyyunnavidham | 10 | 2[40] | Lec | CT | 6 |
| **3** | **Bhaashayum Prayogavum** | | | | | |
| 3.1 | Padasudhi | 4 | 3[25] | Lec | OBT | 7 |
| 3.2 | Samgrahanam | 4 | 3[25] | GL | CA | 7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3.3 | Aasayavipulanam | 5 | 3[25] | GD | HrA | 7 |
| 3.4 | Vaakyarachana | 5 | 3[25] | CS | Qui | 7 |
| **4** | **Vividhatharam Ezhuththukal** | | | | | |
| 4.1 | Jolikkuvendiyulla Apekhakal | 3 | 4[15] | Lec | CA | 1,2 |
| 4.2 | Suparsakkaththukal | 3 | 4[15] | GL | OBT | 1,2 |
| 4.3 | Abhiprayamchodikkal | 3 | 4[10] | Ess | HrA | 1,2 |
| 4.4 | Sarkkular | 3 | 4[10] | Sp | CT | 1,2 |
| 4.5 | Vaanijyakkaththukal | 2 | 4[10] | Lec | Ess | 1,2 |
| 4.6 | Memorandum | 2 | 4[20] | Lec | HoA | 1,2 |
| 4.7 | Nivedanam | 2 | 4[20] | Lec | CA | 1,2 |
| **5** | **Upanyasa Rechana** | | | | | |
| 5.1 | Upanyasa Rechana Reethi | 2 | 5[20] | Sp | CT | 4 |
| 5.2 | Paristhithi vidyabhyaasam | 4 | 5[20] | Lec | Ess | 4 |
| 5.3 | Keraleeya Kalakal | 4 | 5[20] | Lec | HoA | 4 |
| 5.4 | Pusthaka Paaraayanam | 4 | 4[20] | Ess | HrA | 4 |
| 5.5 | Bharanabhaasha Malayalam | 4 | 5[20] | Sp | CT | 4 |

## Reference Books


1. George K.M, Aadhunika Malayala sahithya Charithram prasthanagaliloode, Kottayam :DC books, 1998.
2. George.K.M, Sahithya Charithram Prasthanagaliloode , Sahithya Pravarthaka Sahakarana Sangam Kottayam,1958
3. Krishna Pilla .N, Kairaliyude Katha, DC Books, Kottayam ,1958.
4. Rajendran , Upanyasanrachna, Sahitya Pravarthaga Sahakarana Sangam, Kottayam ,1997.
5. //ml.wikibooks.org/wiki/Malayalam_Computing
6. Gadyasilpam, C.V.Vasudeva Bhattathir,i Keralabkasha Institute, 1998
7. Malayalappacha ,Research Journal, vol – 7, no. 7, 2018


**SEMESTER IV**

| | |
|---|---|
| Course Title: MIL-4: Aadhunika Kavitha, Khandakaavya, Chand , Alankaar | Course Type: Theory<br>Course Code:23LT41 |
| Total Hours:90 Hours/Week: 6 Credits:3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO #. | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | % of PLO mapping with CLO | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Understand the history of | 1(10), 2(10) | 1,2, 3, 6, 8 | 1,2,3 | M, C |

| | | | | | |
|---|---|---|---|---|---|
| | modern Kavitha | | | | |
| 2 | Understand the value and Beauty of Modern Poetry | 1(5), 2(10), 5(5) | 1, 2, 3, 6 | 1,3 | M,F |
| 3 | Evaluate history of short Epic | 5(10), 9(10) | 6, 7 | 1,2,5 | M,P |
| 4 | Understand the usage of Chand our Alankaar in Poetry. | 9(10), 10(10) | 1, 3,7 | 1, 9, 10 | M,F, C |
| 5 | Evaluate and gain knowledge about Translation | 9(10), 5(10) | 1, 7 | 1,2,5 | M, C, P |

| Module | Course Description | Hours | % of CLO mapping with Module | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|---|
| **1** | **Aadhunika Kavitha** | | | | | |
| 1.1 | Aadhunik kavitha ke bare mem, kaviyom ke bare mem | 9 | 1[50] | Lec | CA | 1,2,3 |
| 1.2 | Gajanan Madhav Mukthi Bodh Kaa O Megh | 9 | 1[50] | Lec | CA | 1,2,3 |
| **2** | **Khanda Kavya** | | | | | |
| 2.1 | SreeNaresh Mehtha nakak kavi ka Parichay | 2 | 2[20] | GD | ST | 5 |
| 2.2 | Sabari ki Kahani | 2 | 2[10] | Lec | OT | 5 |
| 2.3 | Thretha - adhyayan | 2 | 2[10] | Sem | OBT | 5 |
| 2.4 | Pampasar - Adhyayan | 3 | 2[20] | Lec | Qui | 5 |
| 2.5 | Thapasya - adhyayan | 3 | 2[20] | Lec | HoA | 5 |
| 2.6 | Pareeksha - Adhyayan | 3 | 2[10] | GL | MCQ | 5 |
| 2.7 | Dharshan – Adhyayan | 3 | 2[10] | GD | SA | 5 |
| **3** | **Chand** | | | | | |
| 3.1 | Chand Parichay | 2 | 3[20] | Sem | OBT | 4 |
| 3.2 | Dhoha Chand Vishadeekaran | 4 | 3[20] | Lec | Qui | 4 |
| 3.3 | Sorata chand Vishadeekaran | 4 | 3[20] | Lec | HoA | 4 |
| 3.4 | Indhravajra - Vishadeekaran | 4 | 3[20] | GL | MCQ | 4 |
| 3.5 | Maalini - Vishadeekaran | 4 | 3[20] | GD | SA | 4 |
| **4** | **Alankaar8** | | | | | |
| 4.1 | Ardhaalankaar, shabdhalankaar, Ubhayalankar | 2 | 4[20] | Sem | OBT | 4 |
| 4.2 | Anupras Alankaar | 4 | 4[20] | Lec | Qui | 4 |
| 4.3 | Yamak Alankaar | 4 | 4[20] | Lec | HoA | 4 |
| 4.4 | Upama Alankaar | 4 | 4[20] | GL | MCQ | 4 |
| 4.5 | Roopak Alankaar | 4 | 4[20] | GD | SA | 4 |
| **5** | **Anuvad** | | | | | |
| 5.1 | Anuvad Ka Swaroop | 2 | 5[20] | Sem | OBT | 4 |
| 5.2 | Anuvad Vinjan Ya Kala | 4 | 5[20] | Lec | Qui | 4 |
| 5.3 | Anuvad Ki Prakriya | 4 | 5[20] | Lec | HoA | 4 |
| 5.4 | Anuvad Prayogikatha | 4 | 5[20] | GL | MCQ | 4 |
| 5.5 | Anuvad Abhyas | 4 | 5[20] | GD | SA | 4 |

## Reference Books


1. Kaavya Tarang – Dr. Niranjan
2. Aadhunik Hindi Kaavya our Kavi – Dr. Ramchandra thivaari
3. Aadhunik Hindi Kavitha – Vivid Aayam
4. Hindi vyakaran : ras, Chand, alankaar Sahith – 2019, Umesh Chandra Shulk, Hindi Sansthan, Nayidilli
5. Sabari – Sri Naresh Mehtha


**SEMESTER IV**

| | |
|---|---|
| Course Title: CE-4: Communicative English | Course Type: Theory & Practical<br>Course Code:23LE41 |
| Total Hours: 90 Hours/Week: 6 Credits: 3 | |
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40 [No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. Sheni D.L.Singh | Dr. A. Belinda Asir | Dr. L. Judith Sophia |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9487386706 | Mobile: 9486756827 | Mobile: 9486459061 |
| shenisingh1984@gmail.com | belinda.basewel@yahoo.com | judithsophia24@gmail.com |


| CLO #. | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | % of PLO mapping with CLO | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|---|
| 1 | Develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing | 1 (10)<br>6 (7)<br>7 (3) | 2, 3 | U<br>AP | F<br>P |
| 2 | Examine and present material of the prescribed texts and other texts | 2 (8)<br>5 (12) | 1, 2 | U, An<br>E | C<br>M |
| 3 | Identify cross cutting issues like, Human values, (Professional, Personal and Domestic) ethics and environmental sustainability and practise them | 3 (8)<br>8 (6)<br>9 (6) | 1, 4, 8, 9 | An<br>E, Ap | C<br>P |
| 4 | Present and differentiate various cultures and civilizations of the Globe and distinguish Indian traditional Knowledge | 1 (10)<br>8 (5)<br>10 (5) | 5, 6, 10 | U,<br>Ap | P<br>M |
| 5 | Relate the textual content and underlying meaning of the context to the real life situations | 5 (6)<br>8 (8)<br>10 (6) | 1, 2, 5, 7 | E,Ap, C | C<br>M |

| Module | Course Description | Hours | % of CLO mapping with Module | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|---|
| 1 | **PROSE** | | | | | |
| 1.1 | **Mother Teresa** - John Frazer | | | | | |
| 1.1.1 | Introduction to the Author and the essay | 1 | 2 [4], 4 [10] | L | HoA | 1 |
| 1.1.2 | Textual Analysis | 2 | 2 [4] | L, GD | SA | 1 |
| 1.1.3 | Human Values in "Mother Teresa" | 3 | 2 [4], 3[10], 5[7] | L, GD | Ass | 1 |
| 1.2 | **Anancy- Andrew Salkey** | | | | | |
| 1.2.1 | Introduction to the Author and the essay | 1 | 2 [4], 4 [10] | L | Ho A | 1 |
| 1.2.2 | Textual Analysis | 2 | 2 [4] | L, GD | Quiz | 1 |
| 1.2.3 | Reflection of Human Values in "Anancy" | 3 | 2 [4], 3[5], 5[7] | L, GD | Ass | 1 |
| 1.3 | **Dangers of Drug Abuse**- Hardin B. Jones | | | | | |
| 1.3.1 | Introduction to the Author and the essay | 1 | 2 [4], 4 [5] | L | HoA | 1 |
| 1.3.2 | Textual Analysis | 2 | 2 [4] | L, GD | SA | 1 |
| 1.3.3 | Human Values in "Dangers of Drug Abuse" | 3 | 2 [4], 3[5], 5[5] | L, GD | Ass | 1 |
| 2 | **POETRY** | | | | | |
| 2.1 | **Ode to the West Wind- P. B. Shelley** | | | | | |
| 2.1.1 | Introduction to the poet & the poem | **1** | 2 [4] 4[3] | L | HoA | 1 |
| 2.1.2 | Poetry Analysis | **2** | 2[4] | L, GD | Ess | 1 |
| 2.1.3 | Human Values reflected in "Ode to the West Wind" | **1** | 2 [4], 3[3], 5[5] | L, GD | Ass | 1 |
| 2.2 | **The Lotus- Toru Dutt** | | | | | |
| 2.2.1 | Introduction to the poet & the poem | **1** | 2 [4] 4[5] | L | HoA | 1 |
| 2.2.2 | Poetry Analysis | **2** | 2[4] | L, GD | Ess | 1 |
| 2.2. | Expressions of Indian Ethos in "The | **1** | 2 [4], | L, GD | Ass | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | lotus" and cultural exchange between East and West | | 4[5], 5[4] | | | |
| 2.3 | **Once Upon a Time -Gabriel Okara** | | | | | |
| 2.3.1 | Introduction to the poet & the poem | **1** | 2 [4]<br>4[5] | L | HoA | 1 |
| 2.3.2 | Poetry Analysis | **2** | 2[4] | L, GD | Ess | 1 |
| 2.3.3 | Human Values in "Once Upon a Time" | **1** | 2 [4], 3[3], 5[3] | L, GD | Ass | 1 |
| 2.4 | **Be the Best of Whatever You are- Douglas Malloach** | | | | | |
| 2.4.1 | Introduction to the poet & the poem | **1** | 2 [4]<br>4[5] | L | Ho A | 1 |
| 2.4.2 | Poetry Analysis | **2** | 2[4] | L, GD | Ess | 1 |
| | Human Values reflected in "Be the Best of Whatever You are" | **1** | 2 [4], 3[6], 5[5] | L, GD | Ass | 1 |
| 3 | **ONE ACT PLAYS** | | | | | |
| 3.1 | **A Marriage Proposal - Anton Chekov** | | | | | |
| 3.1.1 | Introducing the author and the play | 1 | 2 [4]. 4 [5] | L | HoA | 1 |
| 3.1.2 | Character and plot analysis | 3 | 2[4] | L, RP | Ess | 1 |
| 3.1.3 | Wealth, Love and Marriage in "A Marriage Proposal" | 2 | 2[4]<br>5[10] | L, GD | Ass | 1 |
| 3.2 | **A Bishop's Candlesticks - Norman McKinnel** | | | | | |
| 3.2.1 | Introducing the author and the play | 1 | 2 [4]. 4 [5] | L | HoA | 1 |
| 3.2.2 | Character and plot analysis | 3 | 2[9] | L, RP | Ess | 1 |
| 3.2.3 | Human Values in "A Bishop's Candlesticks" | 2 | 2[8]<br>3[10] | L, GD | Ass | 1 |
| 3.3 | **Chitra - Rabindranath Tagore** | | | | | |
| 3.3.1 | Introduction to Tagore and the play | 1 | 2 [8]. 4 [5] | L | Ho A | 1 |
| 3.3.2 | Textual analysis and character analysis | 3 | 2[4] | L, RP | Ess | 1 |
| 3.3.3 | Human Values reflected in "Chitra" | 2 | 2[10]<br>3[10] | L, GD | Ass | 1 |
| 4 | **LANGUAGE STUDY** | | | | | |
| 4.1 | **Grammar**: Units 84-114 | 18 | 1[100] | ABL | CT | 2 |
| 5 | **LANGUAGE IN PRACTICE** | | | | | |
| 5.1 | **Vocabulary: Idioms**<br>1. To smell a cat 2. To kill two birds with | 4 | 1[10] | ABL | CT | 3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | one stone 3. To cut a sorry figure 4. Gift of the gab 5. In the family way 6. To fish in troubled waters 7. Spick and span 8. Maiden speech<br>9. Through thick and thin 10. Beat around the bush 11. Elephant in room 12. Out of the blue<br>13. By hook or crook 14. A wolf in sheep's clothing 15. Between the devil and the deep sea 16. Better late than never 17. Blessing in disguise 18. Add fuel to the fire 19. Go the extra mile 20. Don't cry over spilled milk<br>21. Read between the lines 22. Turn a deaf ear 23. Look before you leap 24. Pour one's heart out 25. Pull one's leg 26. Break the ice 27. To bell the cat 28. Face the Music 29. Come out with flying colours 30. At face value | | | | | |
| 5.2 | **Job Applications, Covering Letters, CV & Resume** | 4 | 1[20] | ABL | Ass | 3 |
| 5.3 | **Circular, Notice, Agenda and Minutes** | 4 | 1[10] | ABL | Ass | 3 |
| 5.4 | **Interview Etiquettes** (Practical skills in Interviews -body language)- face to face - telephone and video conferencing) | 2 | 1[20] | ABL | Viva | 3 |
| 5.5 | **Power Point preparation** (Practical) | 2 | 1[10] | ABL | Ass | 3 |
| 5.6 | **Creating a Digital Profile- Linkedin** (Practical) | 1 | 1[10] | ABL | Ass | 3 |
| 5.7 | **Spoken English** (Practical)<br>Making suggestions & Responding to suggestions,<br>Asking for and giving Advice or Help | 1 | 1[20] | RP | Viva | 3 |

**Reference**


1. *Semester 1V: Prose, Poetry and One Act Plays.* Edited by the Department of English.
2. *Essential English Grammar* by Raymond Murphy. Cambridge University Press
3. Language in Use: Workbook 1V. Edited by the Department of English.


## SEMESTER IV

| | |
|---|---|
| Course Title CC-6 : Dot Net Programming | Course Type: Theory<br>Course Code:23GR41 |
| Total Hours: 60 Hours/Week: 4 Credits: 4 | |
| Pass-Out Policy : Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|


| Mrs.R.Suguna Jasmin | Dr.D. Shiny | Mrs.S.Gnana Sophia |
|---|---|---|
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| CLO. # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | CognitiveLevel (CL) | KnowledgeCategory (KC) |
|---|---|---|---|---|
| 1 | Understand the language constructs and exception handling. | 1,2 | U | F |
| 2 | Analyze the object-oriented programming techniques and use this to create applications. | 1,2 | An | P |
| 3 | Apply the web form controls to createweb pages. | 1,2 | Ap | P |
| 4 | Create web page using validation controls to validate the information. | 1,2 | C | P |
| 5 | Analyze data in a database, usingADO.NET. | 1,2 | An | P |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Introduction, Operators, Conditionals and Loops, Procedure, Scope and Exception Handling** The .Net Framework and The Common Language Runtime, The System Namespaces, Building VB.NET Applications. | 3 | Lec | CA | 1 |
| 1.2 | Option and Imports Statement, Declaring Constants, CreatingEnumerations, Declaring Variables, Data Types. | 3 | GL | Qui | 1 |
| 1.3 | Declaring Arrays and Dynamic Arrays, Handling Strings, Operators, Conditional Statements, Loop Statements. | 3 | GT | HrA | 1 |
| 1.4 | Sub Procedure and Function, Understanding Scope, HandlingException. | 3 | Lec | CT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | **Object Oriented Programming and Web Forms:** Class andObject, Fields, Properties Methods and Events Class vs. Objects Members. | 3 | Lec | ST | 1 |
| 2.2 | Abstraction, Encapsulation, Inheritance, Polymorphism Overloading, Overriding and Shadowing, Constructors and Destructors. | 3 | Lec | HoA | 1 |
| 2.3 | Structure And Modules, Working with Web Form, Working with Web Form Controls, Saving a Web Application State, Web Forms and HTML. | 3 | GL | OBT | 1 |
| 2.4 | Creating a Web Application, Adding Controls to a Web Form,Running a Web Application, Using the HTML Editor to Customize Web Pages, Creating a Multiform Web Project, Handling Client Event. | 3 | GD | HrA | 1 |
| 3.1 | **Web Forms: Buttons, Text Boxes, Labels, Literals, Place Holders, Checkboxes, Radio Button, Tables and Panels:** The Control Class, The Web Control Class. | 4 | Lec | CT | 1 |
| 3.2 | Creating Button, Creating Text Boxes, Label, Literals, Place Holders, Checkboxes, Check Box Lists. | 4 | Lec | SA | 1 |
| 3.3 | Radio Button, Radio Button Lists, Tables, Panel | 4 | Lec | OBT | 1 |
| 4.1 | **Web Forms: Images, Image Buttons, List Boxes, Drop Down Lists, Hyper Link, Link Button, Validation Controls, Calendars, and Ad Rotators:** Introduction, ImageControls, Image Buttons, List Boxes, Drop Down Lists. | 3 | GL | CA | 1 |
| 4.2 | Hyperlinks, Link Buttons. | 3 | CS | Qui | 1 |
| 4.3 | Validation Controls, Required Fields Validators, Comparison Validators, Range Validators, Regular Expression Validators,Custom Validators. | 3 | Lec | ST | 1 |
| 4.4 | Calendars, AdRotators | 3 | Lec | CA | 1 |
| 5.1 | **Data access with ADO.NET and Binding controls to Databases:** What are Databases? Accessing Data with the Server Explorer, Accessing Data with Data Adaptors and Datasets. | 2 | GL | Qui | 1 |
| 5.2 | Working with ADO.NET, Overview of ADO.NET objects, Simple binding, Complex Binding, Binding data to controls. | 2 | GT | HrA | 1 |
| 5.3 | Navigating in datasets, Creating Data Forms with the Data Form Wizard. | 2 | Lec | CT | 1 |
| 5.4 | Using the Data Grid class, Using Master/Detail Relationshipsand Data Relation Objects. | 3 | Lec | ST | 1 |
| 5.5 | Using the Error Provider class. | 3 | Lec | CA | 1 |

**Reference Books:**


1. Steven Holzner, *Visual Basic.NET programming Black Book*, New Edition,Dream Tech Press, Reprint 2012.
2. Harvey M. Deitel, Paul J. Deitel, Tem R. Nieto, *Visual Basic .NET How to Program*, 2nd Edition.

SEMESTER IV

| Course Title CP-3 : Dot Net Programming Lab | Course Type: Practical<br>Course Code:23GRP4 |
|---|---|

| Total Hours: 30 | Hours/Week: 3 | Credits: 2 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs.R.Suguna Jasmin | Dr..S.Gnana Sophia | Dr.D. Shiny |
| Assistant Professor | Assistant Professor | Assistant Professor |
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| Suguna.jasmin@gmail.com | gnanasophias@gmail.com | shinyd328@gmail.com |

| CLO #. | **Course Learning Outcomes**<br>*Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the language constructs and exception handling. | 1,2,5,7 | U | F |
| 2 | Analyze the object-oriented programming techniques and use this to create applications. | 1,2,5,7 | An | P |
| 3 | Apply the web form controls to createweb pages. | 1,2,5,7 | Ap | P |
| 4 | Create web page using validation controlsto validate the information. | 1,2,5,7 | C | P |
| 5 | Analyze data in a database,using ADO.Net. | 1,2,5,7 | An | P |

| **Sl.No** | **Description** |
|---|---|
| VB.NET Programs Implementing | |
| 1 | Exception handling |
| 2 | Console Application |
| 3 | Web Form Controls |
| 4 | Validation Control |
| 5 | Database using ADO.Net |

**Reference Books**

1. Steven Holzner, *Visual Basic.NET programming Black Book*, New Edition, Dream Tech Press, Reprint 2012.

SEMESTER IV

| Course Title MS-3(Allied) : Operating Systems | Course Type: Theory<br>Course Code:23AR03 |
|---|---|

| Total Hours: 60 | Hours/Week: 4 | Credits: 3 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %100: Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Dr.D. Shiny | Mrs.R.Suguna Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the Basics of Operating System &Memory Management. | 1,2,5,7 | U | F |
| 2 | Understand Virtual Memory and Processor Management. | 1,2,5,7 | U | F |
| 3 | Understand Deadlock s & Concurrent | 1,2,5,7 | U | F |
| | Process. | | | |
| 4 | Understand Device Management. | 1,2,5,7 | U | F |
| 5 | Understand File Management. | 1,2,5,7 | U | F |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Introducing Operating systems:** What is an operating system? Operating System Software. | 3 | Lec | CA | 1 |
| 1.2 | **Memory management:** Single User. Fixed Partitions. Dynamic partitions. Best –Fit Versus First-Fit Allocation. | 3 | GL | Qui | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | Deallocation. Joining Two Free Blocks. Joining Three FreeBlocks. Deallocating an Isolated Block. | 3 | GT | HrA | 1 |
| 1.4 | Relocatable dynamic partitions. | 3 | Lec | CT | 1 |
| 2.1 | **Memory management: Virtual memory:** Paged MemoryAllocation. Demand Paging. Page Replacement Policies and Concepts. | 3 | Lec | ST | 1 |
| 2.2 | Segmented Memory Allocation. Segmented /Demand Paged Memory Allocation. Virtual Memory. Cache memory. | 3 | Lec | HoA | 1 |
| 2.3 | **Processor management:** About multi-core technologies,Job Scheduling Versus Process Scheduling. Process Scheduler. Job and Process Status. | 3 | GL | OBT | 1 |
| 2.4 | Process Control Blocks. PCB s and Queuing. Process Scheduling Polices. Process SchedulingAlgorithms. | 3 | GD | HrA | 1 |
| 3.1 | **Process management:** Deadlock. Seven cases of Deadlock. Conditions for Deadlock. Modeling Deadlocks.Strategies for Handling Deadlocks. Starvation. | 3 | Lec | CT | 1 |
| 3.2 | **Concurrent processes:** What is parallel processing? Evolution of multi processors. Multi Core Processors. Typical Multiprocessing Configurations. | 3 | Lec | SA | 1 |
| 3.3 | Process Cooperation. Concurrent Programming | 3 | Lec | OBT | 1 |
| 3.4 | Threads and Concurrent Programming. Thread Status. Thread Control Blocks. | 3 | GL | CA | 1 |
| 4.1 | **Device management:** Types of Devices. Sequential AccessStorage Media. Direct Access Storage Devices. | 3 | CS | Qui | 1 |
| 4.2 | Fixed Head Magnetic Disk Storage. Movable Head Magnetic Disk Storage. Optical Disc Storage, | 3 | Lec | ST | 1 |
| 4.3 | CD, DVD and Blue- ray Disk Technologies. Flash memorystorage. Magnetic Disk drive. Access times. | 3 | Lec | CA | 1 |
| 4.4 | Fixed Head Devices. Movable Head Devices. Componentof the I/O Subsystem. | 2 | GL | Qui | 1 |
| 4.5 | Communication among Devices. Management of I/O Request. RAID. | 1 | GT | HrA | 1 |
| 5.1 | **File Management:** The File Manager. Interacting with the File Manager. File Organization | 3 | Lec | CT | 1 |
| 5.2 | Physical Storage Allocation. Contiguous Storage. Non Contiguous Storage. Indexed Storage. | 3 | Lec | ST | 1 |
| 5.3 | Access Methods. Levels in a File Management System. Access Control Verification Module. Access Control Matrix. Access Control Lists. | 4 | Lec | CA | 1 |
| 5.4 | Capability Lists. Data Compression. | 2 | Lec | CA | 1 |

**Reference Books**

1. Ida M. Flynn & Ann Mclver Mchoes “Understanding Operating Systems”CENGAGE

Learning Sixth Edition.
2. Achyut S Godbole, "*Operating Systems"*, Tata McGraw Hill Co Ltd.
3. Dietel," *An introduction to operating system"*, Addision Wesley

SEMESTER IV

| Course Title MSP-3 : PHP Programming Lab | Course Type: Practical<br>Course Code:23ARP3 |
|---|---|

| Total Hours: 30 | Hours/Week: 2 | Credits: 1 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Dr.S.Gnana Sophia | Dr.D. Shiny |
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| CLO. # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Apply Functions in Programs. | 1,2 | Ap | F |
| 2 | Apply Validation. | 1,2 | Ap | P |
| 3 | Create Programs implementing XML File | 1,2 | C | P |
| 4 | Create Programs implementing Databases,sessions, Cookies. | 1,2 | C | P |
| 5 | Create Programs implementing Files. | 1,2 | C | P |

| **Sl. No** | **Description** |
|---|---|
| PHP Programs Implementing | |
| 1. | User Defined Functions. |
| 2. | Built-in functions. |
| 3. | HTML Form Data |
| 4. | XML File |
| 5. | Validation report. |
| 6. | MySQL, Web Forms and Databases |
| 7. | Sessions. |
| 8. | Cookies. |
| 9. | Files. |
| 10. | Exception Handling. |

**Reference Books.**

1. Steve Suehring, Tim Converse, and Joyce Park, *PHP6 and MySQL Bible*,WILEY,Reprint 2016, Edition 2009.
2. Steven Holzner, *The Complete reference PHP*, Tata Mc-GrawHill Edition, Fifthreprint2011.

3. VikramVaswani, *PHP A Beginner's guide*, Tata Mc-GrawHill Edition, Fifthreprint2011.

## SEMESTER – IV

| | |
|---|---|
| Course Title: Value Added Course II :Digital Empowerment through AI, Multimedia and Cyber Security | Course Type: Theory |
| Total Hours: 30 Hours/Week: 2 Credit: 1 | Course Code: 23SE41 |
| Pass-Out Policy:<br>Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert II |
|---|---|---|
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| CLO# | **Course Learning Outcomes** *Upon completion of this course, students will be able to:* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | understand the evolution of computers, computing concepts and the various applications of computers | 1, 2, 7, 10 | R, U | F, C |
| 2 | understand Internet Application, World Wide Web, Web Browsers and e-mail service | 1, 2, 7, 10 | U | F, C, M |
| 3 | analyze features and types of E-commerce model and applications and Multimedia Technology concepts | 1, 2, 7, 10 | An | F, C |
| 4 | evaluate the basics of AI, Robotics and Computer Vision | 1, 2, 7, 10 | E | F, C, M |
| 5 | understand the basic concepts of Cyber Security, types of security threats and safety measures | 1, 2, 7, 10 | U | F, C, M |

| Module | Course Description | Hours | Learning Activities | Assessment Tasks | Reference |
|---|---|---|---|---|---|
| 1.1 | Introduction and Evolution of Computers | 2 | Lec | CA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 1.2 | Generations of Computers | 1 | FC | HrA | 1 |
| 1.3 | Computing Concepts, The Computer System | 2 | OO | OT | 1 |
| 1.4 | Applications of Computers | 1 | RF | SA | 1 |
| 2.1 | Introduction, Applications of Internet | 2 | Lec | HoA | 1 |
| 2.2 | Understanding the World Wide Web | 1 | Sem | ST | 1 |
| 2.3 | Web Browsers | 2 | SI | CA | 1 |
| 2.4 | E-mail Service | 1 | GT | OT | 1 |
| 3.1 | **E-Commerce:** Introduction, Features of E-Commerce | 1 | Lec | ST | 2 |
| 3.2 | Types of E-commerce Model, Business Application of E-commerce | 1 | Sem | CT | 2 |
| 3.3 | Uses of E-commerce, Traditional Commerce Vs E-Commerce, Advantages of E-Commerce, Disadvantages of E-Commerce | 2 | GT | CA | 2 |
| 3.4 | **Multimedia:** Introduction, Elements of Multimedia, Applications of Multimedia, Advantages of Multimedia and Disadvantages of Multimedia. | 2 | SI | HoA | 3 |
| 4.1 | Introduction, Goals of AI, History of AI, Applications of AI, Intelligence | 2 | GT | CT | 4 |
| 4.2 | Robotics: Robot Locomotion, Application of Robotics. | 2 | Sem | HrA | 4 |
| 4.3 | Computer Vision: Task of computer Vision | 1 | BS | CA | 4 |
| 4.4 | Application Domains of Computer Vision | 1 | SI | Qui | 4 |
| 5.1 | Introduction, Types of Cyber Security | 2 | Lec | SA | 5 |
| 5.2 | Importance of Cyber Security | 1 | GD | HrA | 5 |
| 5.3 | Types of Cyber Security Threats | 1 | FC | MCQ | 5 |
| 5.4 | Benefits of Cyber Security, Cyber Security Measures | 2 | GT | CT | 5 |

**Reference Books**


1. E. Balagurusamy, "*Fundamentals of Computers"*, Tata McGraw Hill Education, Private Limited, 2009. New Delhi.
2. David Whiteley, "*e-commerce-Strategy, Technology and Applications"*, Tata McGraw-Hill Publishing Company Limited, First Edition, Reprint 2007
3. Ralf Steinmetz, Klara Nahrstedt, "*Multimedia: Computing Communications & Applications"* Pearson Education, January, 2002
4. Eugene Charniak, Drew McDermott, "*Introduction to Artificial Intelligence*", Pearson Education, January, 2002.
5. Anad Shinde, "*Introduction to Cyber Security"*, Guide to the World of Cyber Security Paperback-5, February 2021.


## SEMESTER IV

| | |
|---|---|
| Course Title NME-1: Basics of Internet | Course Type: Theory<br>Course Code:23GRN1 |

| | | |
|---|---|---|
| Total Hours: 30 | Hours/Week: 2 | Credits: 2 |

| | |
|---|---|
| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| | | |
|---|---|---|
| Course Creator | Expert 1 | Expert 2 |

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| Mrs.R.Suguna Jasmin |
|---|
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| Mobile: 9486941443 |
| Suguna.jasmin@gmail.com |


| CLO .# | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the basic networks. | 1,2,8 | U | F |
| 2 | Understand Chat on the internet. | 1,2,8 | U | F |
| 3 | Understand Service providers and hardware used | 1,2,8 | U | F |
| 4 | Understand Browsing | 1,2,8 | U | P |
| 5 | Create Mail. | 1,2,8 | C | P |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | What is the Internet? - Introduction –The Internet Today -Types of Computer network – Servers and Clients. | 2 | Lec | CA | 1 |
| 1.2 | WWW – HTML - URL | 2 | GL | Qui | 1 |
| 1.3 | How is the Internet Used? - Introduction – FindingInformation Online – Intelligent Personal assistant. | 2 | GT | HrA | 1 |
| 2.1 | Using the Internet to Communicate - Chat and InstantMessaging – VoIP - Blogs | 2 | Lec | CT | 1 |
| 2.2 | Media on the Internet - Media Players and Embedded Media - Online Media on Your TV - Using Internet in the Future. | 2 | Lec | ST | 1 |
| 2.3 | Connecting to the Internet – Introduction – Best services – Choosing an Internet Service Provider - Hardware Needed. | 2 | Lec | HoA | 1 |
| 3.1 | Web Browsers - Setting Up Your Internet Connection -Internet on Mobile Devices | 2 | GL | OBT | 1 |
| 3.2 | Home Networking - Setting Up a Home Network | 2 | GD | HrA | 1 |
| 3.3 | Browser Basics - Common Web Browsers - Navigating to aWeb Site - Adding Bookmarks | 2 | Lec | CT | 1 |
| 4.1 | Browsing History - Tabbed Browsing | 2 | Lec | SA | 1 |
| 4.2 | Downloading Files - How to Download a File - SavingImages - Plug-ins | 2 | Lec | OBT | 1 |

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|---|---|---|---|---|---|
| 4.3 | Search Engines and Strategies - Performing a Search -Assessing the Search Results | 2 | GL | CA | 1 |
| 5.1 | Introduction to Email - Understanding Email Addresses -About Email Providers | 2 | CS | Qui | 1 |
| 5.2 | Email Productivity Features - Getting Started With Email - Understanding the Email Interface | 2 | Lec | ST | 1 |
| 5.3 | Common Email Terms and Actions | 2 | Lec | CA | 1 |

**Websites for Reference:**

1. www.ebpl.org/techtraining
2. www.LeamFree.org*

SEMESTER V

| | |
|---|---|
| Course Title CC-7 : Machine Learning | Course Type: Theory<br>Course Code:23GR51 |

| | | |
|---|---|---|
| Total Hours: 60 | Hours/Week: 4 | Credits: 4 |

Pass-Out Policy : Minimum Contact Hours: 36
Total Score %:100 Internal: 40 External: 60
Minimum Pass %: 40[No Minimum for Internal]

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs.R.Suguna Jasmin | Dr.D. Shiny | Mr.R.Shanthikaran |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9486941443 | Mobile: 9488382437 | Mobile: 9442304556 |
| Suguna.jasmin@gmail.com | shinyd328@gmail.com | shanthikarans@gmail.com |

| CLO # | **Course Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand What is Machine Learningand Descriptive Analytics | 1,2 | U | F |
| 2 | Apply Linear Regression andClassification Problem. | 1,2 | Ap | P |
| 3 | Understand Advanced Machine Learning | 1,2 | U | M |
| 4 | Analyze Clustering and Recommender Systems | 1,2 | An | P |
| 5 | Apply Text Analytics | 1,2 | Ap | F |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1.1 | **Introduction to Machine Learning:** Introduction to Analytics and Machine Learning, Why Machine Learning. | 3 | Lec | CA | 1 |
| 1.2 | Framework for Developing Machine Learning Models,Why Python? Python Stack for Data Science. | 3 | Lec | Qui | 1 |
| 1.3 | **Descriptive Analytics:** Working with Data Frames inPython, Handling Missing Vales, | 3 | GL | Qui | 1 |
| 1.4 | Exploration of Data Using Visualization, Exercises. | 3 | Lec | HoA | 1 |
| 2.1 | **Linear Regression:** Simple Linear Regression, Steps in Building a Regression Model, Building Simple Linear Regression Model. | 3 | Lec | HoA | 1 |
| 2.2 | Model Diagnostics, Multiple Linear Regressions,Exercises. | 3 | CS | Qui | 1 |
| 2.3 | **Classification Problem**: Classification, Binary LogisticRegression, Credit Classification. | 3 | GL | OBT | 1 |
| 2.4 | Classification Tree, Exercises | 3 | CS | Qui | 1 |
| 3.1 | **Advanced Machine Learning:** Overview, Gradient Descent Algorithm. | 4 | Lec | OBT | 1 |
| 3.2 | Scikit-Learn Library for Machine Learning Advanced Regression Models. | 4 | GL | CA | 1 |
| 3.3 | Advanced Machine Learning Algorithm, Exercises. | 4 | CS | Qui | 1 |
| 4.1 | **Clustering**: Overview, How does Clustering works, K-Means Clustering. | 3 | Lec | ST | 1 |
| 4.2 | Creating Product Segments Using Clustering, Hierarchical Clustering. | 3 | Lec | CA | 1 |
| 4.3 | **Recommender Systems**: Datasets, Association Rules. | 3 | Lec | CA | 1 |
| 4.4 | Collaborative Filtering, Matrix Factorization, Exercises. | 3 | GL | Qui | 1 |
| 5.1 | **Text Analytics**: Overview, Sentiment Classification, | 4 | GT | HrA | 1 |
| 5.2 | Naïve-Bayes Model for Sentiment Classification. | 4 | Lec | CT | 1 |
| 5.3 | Using TF-IDE Vectorizer, Challenges, Exercises. | 4 | Lec | ST | 1 |

**Reference Books**


1. Machine Learning using Python by Manaranjan Pradhan and U.Dinesh Kumar Wileypublications.
2. Tom M. Mitchell, ―Machine Learning‖, McGraw-Hill Education (India) Private Limited,2013.


## SEMESTER V

| | |
|---|---|
| Course Title CC-8 :Artificial Intelligence | Course Type: Theory<br>Course Code:23GR52 |

| | | |
|---|---|---|
| Total Hours: 60 | Hours/Week: 4 | Credits: 4 |

| | |
|---|---|
| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|

| Dr. R.D. Seeja | Dr.S.Gnana Sophia | Dr.D. Shiny |
|---|---|---|
| AssistantProfessor | Assistant Professor | Assistant Professor |
| Mobile:9942730217 | Mobile: 9944281506 | Mobile: 9488382437 |
| sheejarufus.r.d@gmail.com | gnanasophias@gmail.com | shinyd328@gmail.com |

| CLO. # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Artificial Intelligence concepts | 1,2,7,8 | U | F |
| 2 | Analyze heuristics search techniques and knowledge representation issues | 1,2,7,8 | An | P |
| 3 | Apply Predicate logic, resolution and representing knowledge using rules | 1,2,7,8 | Ap | M |
| 4 | Analyze Summarize Game playing and Understanding concepts | 1,2,7,8 | An | P |
| 5 | Understand Natural language processing | 1,2,7,8 | U | F |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Artificial intelligence:** The AI problems, What is an AItechnique, level of the model , Criteria for success | 4 | Lec | CA | 1 |
| 1.2 | **Problems, problem spaces and search:** Defining theproblem as a state space search , Production system | 4 | GL | Qui | 1 |
| 1.3 | Problem characteristics , Production system characteristics, Issues in the Design of Search Programs | 4 | GT | HrA | 1 |
| 2.1 | **Heuristic search techniques:** Generate and testHill climbing | 3 | Lec | CT | 1 |
| 2.2 | **Best first search** – OR Graphs , A*Algorithm **Problem reduction** –AND-OR Graphs, AO*Algorithm | 3 | Lec | ST | 1 |
| 2.3 | Constraint satisfaction , Means ends analysis. | 3 | Lec | HoA | 1 |
| 2.4 | **Knowledge representation Issues:** Representations and mappings , Approaches to knowledge representation, Issues in Knowledge Representation | 3 | GL | OBT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 3.1 | **Using predicate logic :** Representing simple facts in logic , Representing Instance and Isa Relationships , Computable Functions and Predicates | 4 | GD | HrA | 1 |
| 3.2 | **Resolution** - Conversion to Clause Form, Basis of Resolution, Resolution in Propositional Logic, Unification Algorithm, Resolution in Predicate Knowledge, Question Answering | 4 | Lec | CT | 1 |
| 3.3 | **Representing knowledge using rules:** Procedural versus declarative knowledge , Logic Programming Forward versus backward reasoning , Matching Control Knowledge | 4 | Lec | SA | 1 |
| 4.1 | **Game Playing:** The minimax search procedure , MINIMAX Algorithm, Adding alpha beta cutoffs | 4 | Lec | OB | 1 |
| 4.2 | Algorithm : MINIM AX-A-B, Waiting for Quiescence –Secondary Search, Using Book Moves –Alternatives toMinimax, Iterative deepening Algorithm: Depth-First Iterative Deepening ; Iterative-Deepening-A*, References in specific games. | 4 | GL | CA | 1 |
| 4.3 | **Understanding** : What is understanding, What makesunderstanding hard, Understanding a constraint satisfaction, Applying Constraints in Analysis ProblemsWaltz Algorithm. | 4 | CS | Qui | 1 |
| 5.1 | **Natural language processing**: Introduction , Syntacticprocessing , Grammars and Parsers, Unification Grammars | 4 | Lec | ST | 1 |
| 5.2 | Semantic Analysis , Semantic Grammars, Case Grammars, Conceptual Parsing, Approximately Compositional Semantic Interpretation | 4 | Lec | CA | 1 |
| 5.3 | Discourse and pragmatic processing. Using Focus in Understanding -Modeling Beliefs, Using Goals and Plans for Understanding ,Speech Acts – Conversational Postulates, Spell Checking | 4 | Lec | CA | 1 |

**Reference Books**


1. Elaine Rich, Kevin Knight and Shivashankar B. Nair, *Artificial Intelligence*, TataMcGraw Hill, III Ed., 2009.
2. P.H.Winston, *Artificial Intelligence*, Pearson Education, III Ed., 2001.
3. Patterson, *Introduction To Artificial Intelligence and Expert system*, PHI.
4. Girija N.Naveenkumar, *Artificial Engineering in the real world*, ICFAI universitypress, I Ed., 2006.
5. Nills J. Nilson, *Principles of Intelligence Artificial*, Narosa Publishing House,I Ed.,1998.


## SEMESTER V

| | |
|---|---|
| Course Title : CC-9 : Project | Course Type: Theory & Lab<br>Course Code:23GRD2 |

| | | |
|---|---|---|
| Total Hours: 90 | Hours/Week: 6 | Credits: 6 |

| |
|---|
| Pass-Out Policy : Minimum Contact Hours: 54<br>Total Score %:100 Internal: 40 External: 60 |

| Minimum Pass %: 40[No Minimum for Internal] |
|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|

| Mr.R.Shanthikaran | Mrs.R.Suguna Jasmin | Mrs.S.Gnana Sophia |
|---|---|---|
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9442304556 | Mobile: 9486941443 | Mobile: 9944281506 |
| shanthikarans@gmail.com | Suguna.jasmin@gmail.com | gnanasophias@gmail.com |

| CLO # | **Course Learning Outcomes** *Upson completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Analyze the Problem | 1,2,3,7,10 | An | P |
| 2 | Create Structure Chart, Databases and Dataflow Diagrams | 1,2,3,7,10 | C | P |
| 3 | Create Coding to Meet the Solution. | 1,2,3,7,10 | C | P |
| 4 | Create User Manual | 1,2,3,7,10 | C | P |
| 5 | Create Documentation. | 1,2,3,7,10 | C | P |

## SEMESTER V

| Course Title : CCE-2(Elective)Software Project Management | Course Type: Theory<br>Course Code:23GREC |
|---|---|

| Total Hours: 60 | Hours/Week: 4 | Credits: 3 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|

| Dr.D. Shiny | Mr.R.Shanthikaran | Mrs.R.Suguna Jasmin |
|---|---|---|
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9488382437 | Mobile: 9442304556 | Mobile: 9486941443 |
| shinyd328@gmail.com | shanthikarans@gmail.com | suguna.jasmin@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Basic Concepts of Software Project Management. | 1,2 | U | F |
| 2 | Understand Various Process Models. | 1,2 | U | F |

| | | | | |
|---|---|---|---|---|
| 3 | Analyze the Process Models and Select the Most Appropriate One. | 1,2 | An | C |
| 4 | Create Software Effort Estimation. | 1,2 | C | M |
| 5 | Evaluate Risk to Schedule & Schedule Resources. | 1,2 | E | C |

| Module | Course Description | Hours | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|
| 1.1 | **Introduction to Software Project Management:** Why isSoftware Project Management Important? What is a Project? Software Projects Versus Other Type of Project | 2 | Lec | CA | 1 |
| 1.2 | Contract Management and Technical Project Management. Activities Covered by Software Project Management. Plans, Methods and methodologies. | 2 | GL | Qui | 1 |
| 1.3 | Some ways of categorizing Software Projects. Project Charter. Stakeholders. Setting Objectives. | 2 | GT | HrA | 1 |
| 1.4 | The Business Case. Project success and Failure. | 3 | Lec | CT | 1 |
| 1.5 | What is management? Management Control. Project Management Lifecycle. Traditional versus ModernProject Management Practice. | 3 | Lec | ST | 1 |
| 2.1 | **An Overview of Project Planning:** Stepwise Project Planning. | 6 | Lec | HoA | 1 |
| 2.2 | **Selection of an Appropriate Project Approach**: Build or Buy. Choosing Methodologies and Technologies. Softwareprocesses and Process Models. Choice of Process Models. Structure versus Speed of Delivery. | 6 | GL | OBT | 1 |
| 3.1 | The Waterfall Model. The Spiral Model. Software Prototyping. Other Ways of CategorizingPrototypes. | 3 | GD | HrA | 1 |
| 3.2 | Incremental Delivery. Atern/Dynamic System Development Method. Rapid Application Development. | 3 | Lec | CT | 1 |
| 3.3 | Agile Methods. Extreme Programming. Scrum. | 3 | Lec | SA | 1 |
| 3.4 | Learn Software Development. Managing Iterative Process.Selecting the Most Appropriate Process Model. | 3 | Lec | OBT | 1 |
| 4.1 | **Software Effort Estimation.** Where are the Estimates Done? Problems with Over andUnder Estimates. The Basis for Software Estimating. | 3 | GL | CA | 1 |

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|---|---|---|---|---|---|
| 4.2 | Software Effort Estimation Techniques. Bottom-up Estimating. Top-down Approach and parametric models. | 3 | CS | Qui | 1 |
| 4.3 | Expert Judgment. Estimating by Analogy. Albrecht Function Point Analysis. Function Points Mark II | 3 | Lec | ST | 1 |
| 4.4 | COSMIC full function Points. COCOMO II: A ParametricProductivity Model. Cost estimation – Staffing Pattern. Effect of Schedule Compression – Capers Jones EstimatingRules of Thumb. | 3 | Lec | CA | 1 |
| 5.1 | **Risk Management:** Risk. Categories of Risk. Risk Management Approaches. AFramework for Dealing with Risk. Risk Identification. Risk Assessment. Risk Planning. Risk Management.Evaluating Risk to Schedule . | 4 | Lec | CA | 1 |
| 5.2 | Boehm's Top10 Risk and Counter Measures. Applying PERT technique. Monte Carlo Simulation. Critical chainconcepts. | 4 | Lec | CA | 1 |
| 5.3 | **Resource Allocation**: Nature of Resources.Identifying Resource Requirements. Scheduling Resources. | 4 | GL | Qui | 1 |

Reference Books:


**1.** Bob Hughes And Mike Cotterell,*Software Project Management Sixth Edition***,** Tata McGraw-Hill, 2018.

2. S.A.Kelkar*Software Project Management (A Concise Study),* Prentice Hallof India Private Limited, 2002.

3. Neal Whitten, *Managing Software Development Projects*, John Wiley & sons, 1995.


## SEMESTER V

| | |
|---|---|
| Course Title : CCE-2(Elective) :Software Engineering | Course Type: Theory<br>Course Code:23GRED |

| | | |
|---|---|---|
| Total Hours: 60 | Hours/Week: 4 | Credits: 3 |

| |
|---|
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.D. Shiny | Mr.R.Shanthikaran | Mrs.R.Suguna Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9488382437 | Mobile: 9442304556 | Mobile: 9486941443 |
| shinyd328@gmail.com | shanthikarans@gmail.com | suguna.jasmin@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1 | Understand Process & Process Models. | 1,2 | U | F |
| 2 | Remember Requirements Engineering & Build Analysis Models | 1,2 | R | F |
| 3 | Understand Modeling Component &Performing User Interface Design**.** | 1,2 | U | F |
| 4 | Apply the Knowledge of Testing Strategies & Testing Tactics in SoftwareTesting. | 1,2 | Ap | C |
| 5 | Understand Web Engineering & Cleanroom Software Engineering. | 1,2 | U | F |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | **A Generic View Of Process & Process Models:** Software Engineering-A Layered Technology. A process Framework.Task set. | 3 | Lec | CA | 1 |
| 1.2 | The Capability Maturity Model. Process Patterns. Process Assessment. | 3 | GL | Qui | 1 |
| 1.3 | Personal and Team Process Models: Personal Software Process-Team. Software Process. Process Technology. Product and Process. Prescriptive Models. The Waterfall Model. | 3 | GT | HrA | 1 |
| 1.4 | Incremental Process Models: Incremental Model-RAD Model, Evolutionary process Model: Prototyping-Spiral Model-Concurrent Development Model-Specialized ProcessModel - The Unified Process | 3 | Lec | CT | 1 |
| 2.1 | **Requirements Engineering & Building The Analysis Models:** Requirement Engineering Tasks. Initiating the Requirements Engineering Tasks. Eliciting Requirements. | 3 | Lec | ST | 1 |
| 2.2 | Developing Use-Cases. Building the Analysis Model. Negotiating Requirements. Validating Requirements. Requirements Analysis. | 3 | Lec | HoA | 1 |
| 2.3 | Analysis Modeling Approaches. Data Modeling Concepts. Object Oriented Analysis. | 3 | GL | OBT | 1 |
| 2.4 | Scenario-Based Modeling. Flow-Oriented modeling. Class-Based Modeling. Creating a Behavioral Model. | 3 | GD | HrA | 1 |
| 3.1 | **Modeling Component &Performing User Interface Design - Level Design:** What is a component? Designing Class-Based Components. Conducting Component-Level Design. Constraint language. Designing Conventional Components. | 3 | Lec | CT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 3.2 | Interface Analysis and Design Models. The Process. GoldenRules-User Interface Design Principles. User Interface Analysis and Design. | 3 | Lec | SA | 1 |
| 3.3 | Interface Analysis. Interface Design Steps. User Interface Design Patterns. | 3 | Lec | OBT | 1 |
| 3.4 | Design Issues. Characteristics of Good Error Message. Design Evaluation. | 3 | GL | CA | 1 |
| 4.1 | **Testing Strategies & Testing Tactics:** A Strategic Approach to Software Testing. Strategic Issues. Test Strategies for Conventional Software. Test Strategies for Object-oriented Software. | 3 | CS | Qui | 1 |
| 4.2 | Validation Testing-System Testing. The Art of Debugging.Software Testing Fundamentals. White-box testing. Basis path Testing. | 3 | Lec | ST | 1 |
| 4.3 | Control Structure Testing. Black-Box Testing. Object Oriented Testing methods. | 3 | Lec | CA | 1 |
| 4.4 | Testing Methods Applicable at the Class Level. Inter-ClassTest Case Design. Testing for Specialized Environments, Architectures and Applications- Testing Patterns. | 3 | Lec | CA | 1 |
| 5.1 | **Web Engineering & Cleanroom Software Engineering**: Attributes of Web-Based Systems and Applications. Web Application Engineering layers. Web Engineering Process. | 3 | Lec | CA | 1 |
| 5.2 | Defining the Framework. Refining the Framework. Web Engineering Best Practices. | 3 | GL | Qui | 1 |
| 5.3 | The Cleanroom approach. Cleanroom Strategy. Distinguishing Characteristics of Cleanroom Software. | 3 | Lec | CA | 1 |
| 5.4 | Functional Specification. Cleanroom design. Design Refinement and verification. Advantages of Design Verification. Cleanroom testing. Certification. | 3 | GL | Qui | 1 |

## Reference Books:


1. Roger S.Pressman, *Software Engineering A Practitioner's Approach*,(Sixth Edition), Tata McGraw-Hill Edition, 2010.
2. Ian Sommerville, *Software Engineering*, 6th Edition, Pearson EducationAsia, Fourth Indian Reprint.


SEMESTER V

| | |
|---|---|
| Course Title : CP- 5 : Machine Learning Lab | Course Type: Practical<br>Course Code:23GRP5 |

| | | |
|---|---|---|
| Total Hours: 45 | Hours/Week: 3 | Credits: 2 |

| | |
|---|---|
| Pass-Out Policy : | Minimum Contact Hours: 27<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mrs.R.Suguna Jasmin<br>Assistant Professor<br>Mobile: 9486941443<br>Suguna.jasmin@gmail.com | Dr.D. Shiny<br>Assistant Professor<br>Mobile: 9488382437<br>shinyd328@gmail.com | Mr.R.Shanthikaran<br>Assistant Professor<br>Mobile: 9442304556<br>shanthikarans@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create Regression Model and Regression Model Summary | 1,2,3,5,7 | C | P |
| 2 | Create Normal Distribution Cook's Distance | 1,2,3,5,7 | C | P |
| 3 | Create Programs to Predict the Sold Price,Test Data | 1,2,3,5,7 | C | P |
| 4 | Create Programs to Plot Customers withtheir Segments. | 1,2,3,5,7 | C | P |
| 5 | Create Programs to Building Decision Tree | 1,2,3,5,7 | C | P |

| **Sl.No** | **Course Description** |
|---|---|
| Machine learning Programs Implementing | |
| 1. | Summary of the Data Frame |
| 2. | Building Regression Model |
| 3. | Regression Model Summary |
| 4. | Normal Distribution |
| 5. | Cook's Distance |
| 6. | Predicting the Sold Price |
| 7. | Predicting on Test Data |
| 8. | Plotting Customers with their Segments. |
| 9. | Building Decision Tree |
| 10. | Optimal Criteria and Max Depth |

**Reference Books**

1. Machine Learning using Python by Manaranjan Pradhan and U.Dinesh Kumar Wiley publications.

2. Tom M. Mitchell, ―Machine Learning‖, McGraw-Hill Education (India) Private Limited,2013.

## SEMESTER V

| Course Title : MS-4(Allied) Cloud Computing | Course Type: Theory<br>Course Code:23AR04 |
|---|---|

| Total Hours: 60 | Hours/Week: 4 | Credits: 3 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Dr.S.Gnana Sophia | Dr.D. Shiny |
| AssistantProfessor | Assistant Professor | Assistant Professor |
| Mobile:9942730217 | Mobile: 9944281506 | Mobile: 9488382437 |
| sheejarufus.r.d@gmail.com | gnanasophias@gmail.com | shinyd328@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the Architecture of Cloud . | 1,2,7,10 | U | F |
| 2 | Understand Virtualization in Cloud, Security Issues. | 1,2,7,10 | U | F |
| 3 | Remember the Security and Privacy | 1,2,7,10 | R | M |
| 4 | Analyze the Service Oriented Architecture | 1,2,7,10 | An | P |
| 5 | Analyze the Applications of Cloud Computing | 1,2,7,10 | An | P |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Cloud Computing: An Overview:** Introduction , History of Cloud Computing, Characteristics of Cloud, Cloud ComputingModel, Deployment Model, Service Models. | 4 | Lec | CA | 1 |
| 1.2 | Issues and Challenges for Cloud Computing, Advantages andDisadvantages of Cloud Computing, Advantages, Disadvantages, Security, Privacy and Trust, Security, PrivacyTrust, Virtualization, Threats to Cloud Computing, Next Generation of Cloud Computing. | 4 | GL | Qui | 1 |
| 1.3 | **Cloud Computing Architecture :** Introduction, Cloud Architecture, Cloud Computing Models, Service Models, Comparisons of Service Models, Deployment Models, PublicCloud, Private Cloud, Community Cloud, Hybrid Cloud , Comparison of Public, Private and Hybrid Cloud, Identity as aService (IDaaS) | 4 | GT | HrA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | **Virtualization in Cloud :** Introduction, Virtualization, Implementation of Virtualization, Instruction Set ArchitectureLevel, Hardware Level, Operating System levels, Library Levels, Application level, Virtualization Support at the OS Level, Need of Operating System Level Virtualization,<br>Advantages and Disadvantages of Operating System Level Virtualization . | 4 | Lec | CT | 1 |
| 2.2 | Middleware Support for Virtualization, Advantages of Virtualization, Application of Virtualization, Virtualization Implementation techniques, Full Virtualization, Para Virtualization, Emulation Virtualization, Hardware Virtualization, Virtualized Networking ,Virtualized Storage -Guest Operating Systems Images, Types of Virtualization | 4 | Lec | ST | 1 |
| 2.3 | Load Balancing In Cloud Computing , Advanced Load Balancing, Load Balancing techniques, Logical Cloud Computing Model, Virtualization for Data-Centre, Server Consolidation, Virtual Storage, Operating System Support, Trust Management . | 4 | Lec | HoA | 1 |
| 3.1 | **Security Issues and Challenges in Cloud Computing :** Introduction, Security Challenges In Cloud Computing, Information Security In cloud Computing, Security, Privacy andTrust, Security, Privacy, Trust . | 4 | GL | OBT | 1 |
| 3.2 | **Security Management :** Introduction, Security Reference Architecture, Security Architecture, Security Issues In CloudComputing, Classification Of Security Issues, Types of<br>Attackers | 4 | GD | HrA | 1 |
| 3.3 | Security Risks In Cloud Computing , Security Threats Against Cloud Computing, Novel Security Approaches, Information,<br>centric Security, High-assurance Remote Server Attestation, Privacy-enhanced Business Intelligence, Emerging Trends inSecurity and Privacy | 4 | Lec | CT | 1 |
| 4.1 | **Data Security and Privacy :** Introduction, Data Security, Data Confidentiality, Data Integrity, Data Availability, Privacy, Challenges to Privacy | 3 | Lec | SA | 1 |
| 4.2 | Data Life-Cycle, Key Privacy Concerns in the Cloud, Responsibility of Protecting Privacy, Transformations to Privacy Risk Management, Privacy by Design | 3 | Lec | OBT | 1 |
| 4.3 | **Service Oriented Architecture :** Introduction, SOA Components, Design Principles of SOA, SOA Requirements,Benefits of SOA, Significance of SOA to Cloud Computing, Challenges Associated with SOA | 3 | GL | CA | 1 |
| 4.4 | -Enterprise Service Bus, Web Services, Web Service Architecture, Properties of Web Service, Web Services Standards, Publish/Subscribe, XML Security, Recurring Architectural Capabilities | 3 | CS | Qui | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 5.1 | **Migrating Applications To The Cloud Computing :** Introduction, Motivation for Migration, Issues in Migrating the Applications To The Cloud, Challenges in Migrating theApplications to the Cloud, Solutions for the Challenges in Migration of Application to | 3 | Lec | ST | 1 |
| 5.2 | Types of Migration, Planning for Migrating The Application tothe Cloud, Migration Roadmap, Cloud Bursting, Concerns of Cloud Bursting, Benefits And Challenges of Cloud Bursting- Disaster Recovery Using Hybrid Cloud. | 3 | Lec | CA | 1 |
| 5.3 | **Cloud Computing Applications:** Introduction, Business Applications, Benefits, Cloud Applications for Small Business - Finance and banking Applications, Challenges, Best Practices When Adopting Cloud, Benefits of Adopting Cloud,Legal and Compliance Issues, Reason For Adopting Cloud byFinancial and Banking Sectors | 3 | Lec | CA | 1 |
| 5.4 | Cloud Computing in Education, Current Education System, Implementation of Cloud technology in Education System, Benefits of Cloud Computing for Education, Services Available to Educational Institutions, Risks of Cloud Computing, Change in Education System using Cloud Computing | 3 | Lec | CA | 1 |

Reference Books:


1. V.K. Pachghare, "Cloud Computing ", PHI, New Delhi, 2016
2. Ray Rafaels, "Cloud Computing from Beginning to End Complete Guide on Cloud Computing Technology and Methodologies to Migrate to the Cloud", Create Space IndependentPublishing Platform, 2015.
3. Thomas Erl, "Cloud Computing: Concepts, Technology and architecture", Firstedition, PearsonEducation India, 2014.


## SEMESTER V

| | |
|---|---|
| Course Title : SEC-3 : Quantitative Aptitude | Course Type: Theory<br>Course Code:23GRS2 |
| Total Hours: 30 Hours/Week: 2 Credits: 1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr.R.Shanthikaran | Mrs.R.Suguna Jasmin | Dr. R.D. Seeja |
| Assistant Professor | Assistant Professor | AssistantProfessor |
| Mobile: 9442304556 | Mobile:9486941443 | Mobile:9942730217 |
| shanthikarans@gmail.com | suguna.jasmin@gmail.com | sheejarufus.r.d@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mappedwith GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Series completion , Analogy and Classification | 1,2,5,7 | U | P |
| 2 | Understand Coding-Decoding, Blood relation and Puzzle Test | 1,2,5,7 | U | P |
| 3 | Understand Alphabet Test , Alpha-Numeric Sequence Puzzle and Number, Ranking & Time Sequence Test | 1,2,5,7 | U | P |
| 4 | Understand Mathematical operations , Logical Sequence of Words and Arithmetical Reasoning | 1,2,5,7 | U | P |
| 5 | Understand Inserting the Missing character, Data Sufficiency and Eligibility Test | 1,2,5,7 | U | P |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Series completion | 2 | SP | HoA | 1 |
| 1.2 | Analogy | 2 | PF | CA | 1 |
| 1.3 | Classification | 2 | SP | CT | 1 |
| 2.1 | Coding-Decoding | 2 | PF | Qui | 1 |
| 2.2 | Blood relation | 2 | SP | HoA | 1 |
| 2.3 | Puzzle Test | 2 | PF | CA | 1 |
| 3.1 | Alphabet Test | 2 | SP | CT | 1 |
| 3.2 | Alpha-Numeric Sequence Puzzle | 2 | PF | Qui | 1 |
| 3.3 | Number, Ranking & Time Sequence Test | 2 | SP | HoA | 1 |
| 4.1 | Mathematical operations | 2 | PF | CA | 1 |
| 4.2 | Logical Sequence of Words | 2 | SP | CT | 1 |
| 4.3 | Arithmetical Reasoning | 2 | PF | Qui | 1 |
| 5.1 | Inserting the Missing character | 2 | SP | HoA | 1 |
| 5.2 | Data Sufficiency. | 2 | PF | CA | 1 |
| 5.3 | Eligibility Test | 2 | SP | CT | 1 |

**Reference Book.**

1. Dr.R.S.Aggarwal - “A Modern approach to Verbal and Non-Verbal Reasoning” – RevisedEdition – S.Chand & company Ltd – 2013.

## SEMESTER - V

| Course Title: VAC-3 Indian Knowledge System and Human Rights | Course Type: Theory<br>Course Code:23SE31 |
|---|---|

| Total Hours: 30 | Hours/Week: 2 | Credit: 1 |
|---|---|---|

| Pass-Out Policy: Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|

| Course Creator | Expert 1 | Expert2 |
|---|---|---|
| Dr. G. Anish S. Georshia | Dr. Sidney Shirly | Dr. Santhosha Kumari |
| Assistant Professor | Associate Professor | Assistant Professor |
| Mobile:9788822491 | Mobile:9488210754 | Mobile:9489001312 |
| anishgeorshia@scottchristian.org | drsidneyshirly@gmail.com | santhoshakumarai@gmail.com |

| CLO # | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | understand the diverse cultural heritage of India. | 1,2, 4, 5, 6, 7, 9, 10 | U | F |
| 2 | analyze the historical evolution of Indian society and the conservation of traditional knowledge in modern India. | 1,2,4, 5, 6, 7, 9, 10 | An | P |
| 3 | understand basic concepts and principles in Indian astrology and astronomy. | 1,2,4, 5, 6, 7, 9, 10 | C | C |
| 4 | apply principles of Ayurveda, Siddha and Unani to achieve a balanced lifestyle. | 1,2,4, 5, 6, 7, 9, 10 | Ap | P |
| 5 | analyze the duties and constitutional responsibilities of Indian citizens and human rights in India. | 1,2, 4, 5, 6, 7, 9, 10 | E | M |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **Assessment Tasks** | **Reference** |
|---|---|---|---|---|---|
| I | | | | | |
| 1.1 | Overview of India's diversity, languages, religions, and regional variations | 2 | AW | CA | 2 |

| | | | | | |
|---|---|---|---|---|---|
| 1.2 | Historical background and evolution of Indian society | 2 | Ess | ST | 2 |
| 1.3 | Conservation and Revival of Traditional Knowledge in Modern India | 2 | Rev | OT | 2 |
| II | | | | | |
| .1 | Traditional Arts and Crafts of India | 2 | TPS | OBT | 2 |
| 2.2 | Festivals and Celebrations in Indian Culture | 1 | PT | HoA | 2 |
| 2.3 | Classical Dance and Music Forms of India | 1 | GT | OBT | 1 |
| 2.4 | Culinary Traditions and Indian fashion | 2 | CW | HoA | 1 |
| III | | | | | |
| 3.1 | Basic Concepts and Principles in Indian Astrology | 2 | GD | SA | 1 |
| 3.2 | Zodiac Signs, Influence of Planetary Positions, Birth Charts and Horoscopes | 1 | KWL | Qui | 1 |
| 3.3 | Applications and Relevance of Indian Astronomy | 1 | Soc | ST | 2 |
| 3.4 | Ancient Indian Mathematics and Development of number systems | 2 | BS | CT | 2 |
| IV | | | | | |
| 4.1 | Introduction to Ayurveda: Principles and Doshas | 2 | Rev | OBT | 2 |
| 4.2 | Key Concepts of Ayurvedic Medicine | 2 | CW | MCQ | 2 |
| 4.3 | Importance of Siddha and Unani | 2 | Rep | Qui | 2 |
| V | | | | | |
| 5.1 | Human Rights: Definition and Evolution | 1 | Lec | Ess | 2 |
| 5.2 | Fundamental Human Rights and Constitutional Values in the Indian Constitution | 1 | KWL | HoA | 2 |
| 5.3 | Protection of Civil Liberties and Freedoms – Safeguarding Social and Economic Rights | 2 | Sem | OT | 2 |
| 5.4 | Women's and Children's Rights and Rights of Minorities | 2 | GT | HrA | 2 |

**Reference Books:**


1. Bhatia, Tej K. "Indian Culture and Heritage." New Delhi, Prabhat Prakashan, 2018.
2. Thapar, Romila. "The Penguin History of Early India: From the Origins to AD 1300." Penguin Books, 2003.
3. Choudhry, G.K. "How to Judge a Horoscope: Volume II." New Delhi, Sagar Publications, 2002.
4. Sarma, P.S. "Astronomy in India: A Historical Perspective." Springer, 2014.
5. Pingree, David. "Jyotihśāstra: Astral and Mathematical Literature." Otto Harrassowitz Verlag, 1981.

6. Raghavan, Sriram. “Music and Dance in Indian Art.” New Delhi, National Book Trust, 2009.
7. Frawley, David, and Vasant Lad. “The Yoga of Herbs: An Ayurvedic Guide to Herbal Medicine.” Lotus Press, 2001.
8. Gupta, L. C. “Fundamentals of Ayurvedic Medicine.” Chaukhamba Sanskrit Pratishthan, 2002.
9. Sahni, Julie. “Classic Indian Cooking.” William Morrow Cookbooks, 1980.
10. Harle, J.C. “The Art and Architecture of the Indian Subcontinent.” Yale University Press, 1994.
11. Craven, Roy C. “Indian Art: A Concise History.” Thames & Hudson, 2010.
12. Anand, Meenakshi, and A. G. Noorani. “Human Rights in India: Historical, Social, and Political Perspectives.” Oxford University Press, 2017.
13. Kapur, Ratna. “Gender, Alterity and Human Rights: Freedom in a Fishbowl.” Routledge, 2017

## SEMESTER V

| Course Title: : NM E-2: Office Automation-I | Course Type: Theory<br>Course Code:23GRN2 |
|---|---|

| Total Hours: 30 | Hours/Week: 2 | Credit: 2 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Dr.D. Shiny | Dr.S.Gnana Sophia |
| AssistantProfessor | Assistant Professor | Assistant Professor |
| Mobile:9942730217 | Mobile: 9488382437 | Mobile: 9944281506 |
| sheejarufus.r.d@gmail.com | shinyd328@gmail.com | gnanasophias@gmail.com |

| CLO # | **Course Learning Outcomes**<br>*Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Remember File, Home, Insert, Pagelayout Menus in MS-Word | 1,2,8 | R | F |
| 2 | Create Mail-Merge, Table of Contents, Foot Notes and Proofing in MS-Word. | 1,2,8 | C | P |
| 3 | Create PDF & Understand the Basics of MS-Excel Spread Sheet. | 1,2,8 | C | P |
| 4 | Apply formula in MS-Excel SpreadSheet. | 1,2,8 | A | P |
| 5 | Create Report in MS-Excel Spread sheet. | 1,2,8 | C | P |

| Module | Course Description | Hours | Learning Activities | Assessment Task | Reference |
|---|---|---|---|---|---|
| 1.1 | **Microsoft Word**<br>**File:** Save, Save As, Open, Close, Info, Recent, New, Print, save & send, Help, Option, exit. | 2 | Lec | CT | 1 |
| 1.2 | **Home:** Clipboard, Font, Paragraph, Styles, Editing. | 2 | Lec | ST | 1 |
| 1.3 | **Insert:** Pages, Tables, Illustrations, links, Header & Footer, Text, Symbols. | 1 | Lec | HoA | 1 |
| 1.4 | **Page layout:** Themes, Page Setup, Page background, Paragraph, Arrange. | 1 | GL | OBT | 1 |
| 2.1 | **References:** Table of Contents, Footnotes, Citations &Bibliography, Captions, Index, Table of Authorities. | 1 | GD | HrA | 1 |
| 2.2 | **Mailing:** Create, Start Mail Merge, Write & Insert fields,Preview Results, Finish. | 2 | Lec | CT | 1 |
| 2.3 | **Review:** Proofing, Language, Comments, Tracking, Changes, Compare, Protect. | 3 | Lec | SA | 1 |
| 3.1 | **View:** Document Views, Show, Zoom, Window, Macros. | 1 | Lec | OBT | 1 |
| 3.2 | **Nitro PDF Professional7:** Creation, Word Setting, General Settings. | 2 | GL | CA | 1 |
| 3.3 | **Microsoft Excel**<br>**File:** Save, Save As, Open, Close, Info, Recent, New, Print, save & send, Help, Option, exit. | 2 | CS | Qui | 1 |
| 3.4 | **Home:** Clipboard, Font, Alignment, Number, Styles, Cells, Editing. | 1 | Lec | ST | 1 |
| 4.1 | **Insert:** Tables, Illustrations, Charts, Spark Lines, Filter,links, Text, Symbols. | 2 | Lec | CA | 1 |
| 4.2 | **Page layout:** Themes, Page Setup, Scale to Fit, SheetOptions, Arrange | 2 | Lec | CA | 1 |
| 4.3 | **Formulas:** Function Library, Defined Names, FormulaAuditing, Calculation. | 2 | Lec | CT | 1 |
| 5.1 | **Data:** Get External Data, Connections, sort & Filter, DataTools, Outline. | 1 | Lec | ST | 1 |
| 5.2 | **Review:** Proofing, Language, Comments, tracking, Changes. | 2 | Lec | HoA | 1 |
| 5.3 | **View:** Document Views, Show, Zoom, Window, Macros. | 1 | GL | OBT | 1 |
| 5.4 | **Nitro PDF Professional7:** Creation, Excel setting, general settings | 2 | GD | HrA | 1 |

**Reference Books**


1. Dinesh Maidasani, *Microsoft Office 2007*, Firewall media, New Delhi, First Edition2008
2. Timothy J O'Leary, Microsoft Office 2010 , McGraw-Hill Education, 2007

| Course Title : CC-10 : RDBMS & Oracle | Course Type: Theory<br>Course Code:23GR61 |
|---|---|

| Total Hours: 60 | Hours/Week: 4 | Credits: 4 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.S.Gnana Sophia | Mrs.R.Suguna Jasmin | Dr. R.D. Seeja |
| Assistant Professor | Assistant Professor | AssistantProfessor |
| Mobile: 9944281506 | Mobile: 9486941443 | Mobile:9942730217 |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Database Concepts, Database Design, DataModeling, Normalization and Basis of Oracle 9i. | 1,2,3 | U | F |
| 2 | Create Oracle Table & Apply Table Operations using DDL.Evaluate Subqueries, Arithmetic Operations, Sortingand Other operations on Tables using DML. | 1,2,3 | C | P |
| 3 | Apply Nested Query Objects &Advanced Features onTables. | 1,2,3 | Ap | P |
| 4 | Understand PL/SQL Basics & Control Structures. | 1,2,3 | U | P |
| 5 | Create PL/SQL Programs | 1,2,3 | C | P |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | **Database Concepts- A relational approach**: Database: Relationships, Database managementSystem, The relationaldatabase model, Integrityrules. | 3 | Lec | CA | 1 |
| 1.2 | Theoretical relational Languages-RelationalAlgebra, Theoretical relational languages- Applications of relational algebra, relationalcalculus. | 3 | GL | Qui | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | **Database design: Data modeling and normalization:** Data modeling, Dependency, Database design, Normal forms, Dependencydiagrams, Denormalization. | 2 | GT | HrA | 1 |
| 1.4 | **Oracle 9i - An Overview**: Personal databases, client/server databases. | 2 | Lec | HoA | 1 |
| 1.5 | The SQL *plus environment, Structured QueryLanguage, Logging into SQL * plus, SQL * plus commands. | 2 | GL | OBT | 1 |
| 2.1 | **Oracle Tables: Data Definition Language**:Naming Rulesand Conventions, Data types, Constraints | 2 | Lec | CT | 1 |
| 2.2 | Creating an Oracle Table, Displaying TableInformation, Altering an Existing Table, Dropping, Renaming and Truncating a Table. | 3 | Lec | ST | 1 |
| 2.3 | **Working with Tables: Data Management andRetrieval**:Data Manipulation Language (DML),Adding a New Row/Record, Customized Prompts, Updating and DeletingExisting Rows/Records. Retrieving Data from a table. | 2 | Lec | HoA | 1 |
| 2.4 | Arithmetic Operations, Restricting Data with aWHERE clause. Sorting. Revisiting Substitution Variables, DEFINECommand, CASE Structure. | 3 | GL | OBT | 1 |
| 2.5 | **Working with Tables: Functions and Grouping**: Built-InFunctions: Single Row Functions, Character Functions, Built-In Functions: Numeric Functions, Date Functions, Grouping Data. | 2 | Lec | HoA | 1 |
| 3.1 | **Multiple Tables: Joins and Set Operations:** Join: Cartesian Product, Equijoin, Table Aliases, Additional Conditions, Non -equijoin,Outer Join, Self-Join. | 2 | GL | OBT | 1 |
| 3.2 | Set Operators: Union, Union All, Intersect,Minus | 3 | GD | HrA | 1 |
| 3.3 | **Sub queries: Nested Queries:** Sub query: Single-Row sub query, Sub query: Multiple-Row Sub query. | 2 | Lec | SA | 1 |
| 3.4 | **Advanced Features: Objects, Transactionand Data Control**: Views, Sequences, Synonyms, Index. | 3 | Lec | HoA | 1 |
| 3.5 | ROWID Pseudo column, Transactions, Locking Rows for Update, Controlling Access. | 2 | Lec | HoA | 1 |
| 4.1 | **PL/SQL: A Programming Language**: Fundamentalsof PL/SQL, PL/SQL BlockStructure. | 3 | Lec | OBT | 1 |
| 4.2 | Comments, Data Types, Other Data Types, Variable declaration, Anchored Declaration. | 3 | GL | CA | 1 |
| 4.3 | Assignment Operation, Bind Variables, Substitution Variables in PL/SQL, Printing inPL/SQL, Arithmetic Operators. | 2 | CS | Qui | 1 |
| 4.4 | **More on PL/SQL: Control Structures and Embedded SQL**: Control Structures: SelectionStructure, Control Structures: Case, Control Structures: Looping Structure . | 2 | Lec | HoA | 1 |
| 4.5 | Nested Blocks, SQL in PL/SQL, Data manipulation in PL/SQL, Transaction Control Statements. | 2 | GL | OBT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 5.1 | **PL/SQL Cursors and Exceptions:** Cursors,Implicit Cursors, Explicit Cursors Explicit Cursor Attributes. | 3 | Lec | ST | 1 |
| 5.2 | Implicit Cursor Attributes, Cursor FOR Loops, SELECT……FOR UPDATE Cursor, WHERE CURRENT OF Clause, Cursor with Parameters,Cursor Variables: Exceptions, Types of Exceptions. | 3 | Lec | CA | 1 |
| 5.3 | **PL/SQL Composite Data Types: Records,Tables and Arrays**: Composite Data Types,PL/SQL Records, PL/SQL Tables, PL/SQL Arrays. | 3 | Lec | CA | 1 |
| 5.4 | **PL/SQL Named Blocks: Procedure, Function, Package and Trigger**: Procedures,Functions, Packages, Triggers: BEFORE Triggers, Triggers: AFTER Triggers, INSTEADOF Triggers. | 3 | Lec | HoA | 1 |

**Reference Books.**


1. Nilesh shah, *Database Systems Using ORACLE*, Prentice-Hall of India, II Ed., 2008.
2. Michael Abbey, Michael Corey, Ian Abramson, *Oracle 9i: A Beginner'sGuide*, TataMcGraw Hill Publishing Company, I Ed., 2002
3. Silberschatz, Korth&Sudharshan, Database Systems Concepts, Tata McGraw HillPublishing Company IV Ed., 2002.
4. IvanBayross, *Understanding ORACLE*, BPB Publications, I Ed., 2004.


## SEMESTER VI

| | |
|---|---|
| Course Title : : CC-11: Computer Graphics | Course Type: Theory<br>Course Code:23GR62 |
| Total Hours: 60 Hours/Week: 4 Credits: 4 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.D. Shiny | Dr. R.D. Seeja | Mrs.R.Suguna Jasmin |
| Assistant Professor | AssistantProfessor | Assistant Professor |
| Mobile: 9488382437 | Mobile:9942730217 | Mobile: 9486941443 |
| shinyd328@gmail.com | sheejarufus.r.d@gmail.com | suguna.jasmin@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the core concepts ofGraphical Devices. | 1,2,7,10 | U | F |
| 2 | Apply Graphical Algorithms. | 1,2,7,10 | Ap | P |
| 3 | Create Basic Transformations. | 1,2,7,10 | C | P |
| 4 | Apply Clipping Operations. | 1,2,7,10 | Ap | P |
| 5 | Understand Display Methods, Graphics Packages & Animation Sequences. | 1,2,7,10 | U | F |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | Computer Aided Design, Presentation Graphics, ComputerArt, Entertainment, Education and training | 4 | Lec | CA | 1 |
| 1.2 | Visualization, Image Processing, Graphical User Interface, Video Display Devices-Refresh Cathode-Ray Tubes, ColorCRT Monitors. | 4 | GL | Qui | 1 |
| 1.3 | Direct View Storage Tubes, Flat Panel Displays, Raster ScanSystems, Random Scan Systems, Graphics Monitors and Work Stations. | 4 | GT | HrA | 1 |
| 2.1 | Points and Lines, Line Drawing Algorithms, DDA Algorithm, Bresenham's Line Algorithm, Parallel Line Algorithm. | 4 | Lec | CT | 1 |
| 2.2 | Line Function, Loading the Frame Buffer, Mid-Point CircleAlgorithm, Mid-Point Ellipse Algorithm. | 4 | Lec | ST | 1 |
| 2.3 | Line Attributes, Curve Attributes, Color and Gray Scale Levels, Area-Fill Attributes, Character Attributes, BundledAttributes. | 4 | Lec | HoA | 1 |
| 3.1 | Basic Transformations: Translation, Rotation, Scaling, Matric Representations and Homogeneous Coordinates, Composite Transformations: Translations, Rotations, Scaling. | 4 | GL | OBT | 1 |
| 3.2 | General Pivot-Point Rotation, Fixed point Scaling, GeneralScaling Directions, Concatenation Properties, General Composite Transformation, Computational Efficiency,Reflection, Shear. | 4 | GD | HrA | 1 |
| 3.3 | Transformations between Coordinate Systems, Affine Transformations, Transformation Functions, Raster Methodof Transformations. | 4 | Lec | CT | 1 |
| 4.1 | The viewing Pipeline, Viewing Coordinate Reference Frame,Window-to-Viewport Coordinate Transformations, Two Dimensional Viewing Functions. | 4 | Lec | SA | 1 |
| 4.2 | Clipping Operations: Point Clipping, line Clipping, Cohen-Sutherland Line Clipping, Nicholl-Lee-Nicholl Line Clipping, Liang-Barsky line Clipping. | 4 | Lec | OBT | 1 |
| 4.3 | polygon Clipping, Sutherland –Hodgeman Polygon Clipping,Weiler-Atherton polygon Clipping, Other Polygon Clipping Algorithms, Curve Clipping, Text Clipping, Exterior Clipping. | 4 | GL | CA | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 5.1 | Three Dimension Display Methods, Three Dimensional Graphics Packages, Design of Animation Sequences, Generalcomputer Animation functions, Raster Animations. | 4 | CS | Qui | 1 |
| 5.2 | Computer Animation Languages, Key-Frame Systems, Morphing, Simulating Accelerations. | 4 | Lec | ST | 1 |
| 5.3 | Motion Specifications, Direct Motion Specifications, GoalDirected Systems, Kinematics and Dynamics. | 4 | Lec | CA | 1 |

**Reference Books**


1. Donald Hearn, M.Pauline Baker , *Computer Graphics C Version* , Second Edition,Pearson Education, 2013.
1. Jeffrey J McConnell, *Computer Graphics: Theory Into Practice*, Jones & Bartlett Learning,2006
2. Rajesh K Maurya, *Computer Graphics With Virtual Reality Systems*, Wiley India Pvt.Limited, 2009
3. Robert Bridson, *Fluid Simulation for Computer Graphics*, CRC Press, 2008


## SEMESTER VI

| | |
|---|---|
| Course Title : : CCE-3: Computer Networks | Course Type: Theory<br>Course Code:23GREE |
| Total Hours: 75 Hours/Week: 5 Credits:5 | |
| Pass-Out Policy : Minimum Contact Hours: 36<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr.R.Shanthikaran | Dr.S.Gnana Sophia | Mrs.R.Suguna.Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9442304556 | Mobile: 9944281506 | Mobile: 9486941443 |
| shanthikarans@gmail.com | gnanasophias@gmail.com | Suguna.jasmin@gmail.com |


| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand fundamentals of Data Communication and Networking; Analyze the Differences of Analog and Digital transmission methods | 1,2,7,10 | U | F |
| 2 | Remember the Modes of Data transmission and multiplexing; Analyze the Classification of Errors | 1,2,7,10 | R | C |
| 3 | Understand Data Compression and encryption & Transmission media . | 1,2,7,10 | U | M |
| 4 | Analyze the Various types of Network Topologies, Algorithms & Protocols. | 1,2,7,10 | An | M |
| 5 | Analyze Various Types of Networks | 1,2,7,10 | An | C |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | **Introduction to data communications and networking:**Fundamental concepts, Data communications, Protocols, Standards, Standards organizations, Signal propagation, Analog and digital signals, Bandwidth of a signal and a medium. | 5 | Lec | CA | 1 |
| 1.2 | **Analog and Digital transmission methods :** Analog signal, Analog transmission, Digital signal, Digital transmission, Digital signal, Analog transmission, Baud rate and bits per second, Analog signal, digital transmission,nyquist theorem. | 5 | GT | HrA | 1 |
| 2.1 | **Modes of Data transmission and multiplexing:** Parallel and serial communication, Asynchronous, synchronous and Isochronous communication, Simplex, half-duplex and full-duplex communication, Multiplexingand demultiplexing, Types of multiplexing, FDM versusTDM. | 5 | Lec | CT | 1 |
| 2.2 | **Transmission Errors: Detection and Correction: Introduction ,**Error classification, Types of error, Error detection, Check sum, vertical redundancy Check(VRC), Longitudinal Redundancy Check(LRC), Cyclic RedundancyCheck(CRC), Recovery from errors, Stop and wait ,go-back-n. | 5 | Lec | HoA | 1 |
| 3.1 | **Data Compression and encryption:** Simple coding scheme, Based on the context of symbols, Based on the relative frequencies of symbols, Information security, Cryptography, Symmetric and Asymmetric key encryption,Digital certificates, Digital signatures, Secure socket layer/Transport layer security. | 5 | GL | OBT | 1 |
| 3.2 | **Transmission media:** Guided media, Unguided media, Shannon Capacity. | 5 | Lec | CT | 1 |
| 4.1 | **Network Topologies, Switching and Routing Algorithm:**Mesh Topology, Star Topology, Tree Topology, Ring Topology, Bus Topology, Hybrid Topology, Basics of switching. | 8 | Lec | SA | 1 |
| 4.2 | **Networking protocols and OSI Model:** Protocols in Computer Communications, The OSI Model , OSI Layer Functions. | 7 | Lec | OBT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 5.1 | **LAN, MAN and WAN:** Local Area Networks(LAN), Ethernet, Virtual LAN, Fast and Gigabit Ethernet, TokenRing, Fiber Distributed Data Interface, Comparison of Ethernet, Token ring and FDDI, Metropolitan Area network, Distributed Queue Dual Bus, Switched Multimegabit Data services, Wide Area Network, WANarchitecture, WAN Transmission mechanism, WAN addressing, Packet Forwarding, Next-hop tables and routing,Pure and slotted ALOHA. | 5 | GL | CA | 1 |
| 5.2 | **Internet Working concept, device, internet basics, historyand Architecture:** Introduction, why Internetworking, problems in internet working, dealing with incompatibility issues, A Virtual Network, Internetworking devices, Repeaters, bridiges. | 5 | Lec | ST | 1 |

**Reference Books.**


1. Achyut s Godbole, AtulKahate, *Data Communications and Networks*, Tata McGraw-Hill, IIEdition, Seventh Reprint 2015.
2. Andrew S.Tannenbaum, *Computer Networks*, PHI, III Edition, 2001.
3. Behrouz A Forouzan, *Data Communication and Networking*, Tata McGraw Hill, SecondEdition 2000.


## SEMESTER VI

| | |
|---|---|
| Course Title : CCE-3: Network Security | Course Type: Theory<br>Course Code:23GREF |

| | | |
|---|---|---|
| Total Hours: 75 | Hours/Week: 5 | Credits:5 |

| | |
|---|---|
| Pass-Out Policy : | Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr.R.Shanthikaran | Dr.S.Gnana Sophia | Mrs.R.Suguna.Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
| Mobile: 9442304556 | Mobile: 9944281506 | Mobile: 9486941443 |
| shanthikarans@gmail.com | gnanasophias@gmail.com | Suguna.jasmin@gmail.com |

| CLO # | **Course Learning Outcomes**<br>*Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | KnowledgeCategory (KC) |
|---|---|---|---|---|
| 1 | Understand Security Models, Encryption Techniques. | 1,2,7,10 | U | F |
| 2 | Remember Number Theory and Chinese remainder theorem | 1,2,7,10 | R | C |
| 3 | Understand Security of hash functions. | 1,2,7,10 | U | M |
| 4 | Analyze Authentication applications,Security, . | 1,2,7,10 | An | M |
| 5 | Analyze cryptography and security | 1,2,7,10 | An | C |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | Model of network security – Security attacks, services and attacks – OSI security architecture | 5 | Lec | CA | 1 |
| 1.2 | Classical encryption techniques – SDES – Block cipher Principles DES – Strength of DES – Block cipher design principles – Block cipher mode of operation | 5 | GL | Qui | 1 |
| 1.3 | Evaluation criteria for AES – RC4 - Differential and linear cryptanalysis – Placement of encryption function – traffic confidentiality. | 5 | GT | HrA | 1 |
| 2.1 | Number Theory – Prime number – Modular arithmetic – Euclid's algorithm - Fermet's and Euler's theorem – Primality | 5 | Lec | CT | 1 |
| 2.2 | Chinese remainder theorem – Discrete logarithm – Public keycryptography and RSA – Key distribution – Key management | 5 | Lec | ST | 1 |
| 2.3 | Diffie Hellman key exchange – Elliptic curve cryptography | 5 | Lec | HoA | 1 |
| 3.1 | Authentication requirement – Authentication function – MAC –Hash function | 5 | GL | OBT | 1 |
| 3.2 | Security of hash function and MAC – SHA - HMAC – CMAC | 5 | GD | HrA | 1 |
| 3.3 | Digital signature and authentication protocols – DSS. | 5 | Lec | CT | 1 |
| 4.1 | Authentication applications – Kerberos – X.509 Authenticationservices | 8 | Lec | SA | 1 |
| 4.2 | E- mail security – IP security - Web security | 7 | Lec | OBT | 1 |
| 5.1 | Intruder – Intrusion detection system – Virus and related threats | 5 | GL | CA | 1 |
| 5.2 | Countermeasures – Firewalls design principles – Trusted systems | 5 | CS | Qui | 1 |
| 5.3 | Practical implementation of cryptography and security | 5 | Lec | ST | 1 |

Reference Books.


1. William Stallings, "Cryptography & Network Security", PearsonEducation,Fourth Edition 2010.
2. Charlie Kaufman, Radia Perlman, Mike Speciner, "Network Security,Private communication in public world", PHI Second Edition, 2002.
3. Bruce Schneier, Neils Ferguson, "Practical Cryptography",Wiley Dreamtech India Pvt Ltd, First Edition, 2003.
4. Douglas R Simson "Cryptography – Theory and practice", CRC Press,First Edition, 1995

| Course Title : CCE-4 : Principles of management | Course Type: Theory<br>Course Code:23GREG |
|---|---|

| Total Hours: 75 | Hours/Week: 5 | Credits:5 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr.R.Shanthikaran | Dr.S.Gnana Sophia | Mrs.R.Suguna.Jasmin |
| Assistant Professor | Assistant Professor | Assistant Professor |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Remember the Basics of Management | 1,2,5,7,8 | R | F |
| 2 | Analyze the Difference Between Planningand Forecasting. | 1,2,5,7,8 | An | C |
| 3 | Understand Organizing and Staffing | 1,2,5,7,8 | U | M |
| 4 | Understand Coordination and Direction | 1,2,5,7,8 | U | M |
| 5 | Understand Managerial Control | 1,2,5,7,8 | U | C |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Meaning, Definition, Functions of Management, Levels of Management, Importance of Management. | 5 | Lec | SA | 1 |
| 1.2 | Administration vs Management, Roles of Manager, ManagerialSkill. | 5 | Lec | OBT | 1 |
| 1.3 | Early and Modern Management Approaches, Scientific Management, Administrative Management, Contribution of FW Taylor and Henry Fayol. | 5 | GL | CA | 1 |
| 2.1 | Forecasting: Meaning, Methods of Forecasting, Uses and typesof Forecasting. | 4 | Lec | HoA | 1 |
| 2.2 | Difference Between Planning and Forecasting,Importance of Planning Forms of Plans. | 4 | GL | OBT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 2.3 | Strategic Planning vs Tactical Planning, Types of Plans, Singleuse plans, Standing Plans, Steps in Planning, Limitations of Planning, How to make Plans Effective. | 7 | GD | HrA | 1 |
| 3.1 | Importance, Principles of Organizing, Departmentalization, Organization Structure. | 5 | Lec | CA | 1 |
| 3.2 | Span of Management, Authority and Power, Delegation of authority, Decentralization of Authority, Delegation vs. Decentralization. | 5 | GL | Qui | 1 |
| 3.3 | Importance Staffing, Recruitment, Selection,Training. | 5 | GT | HrA | 1 |
| 4.1 | Need for Coordination, Requisites for Effective Coordination,Types of Coordination, Techniques of Coordination, Difficulty of Coordination | 5 | GT | HrA | 1 |
| 4.2 | Requirement of Effective Direction, Motivation ( Exclude Theories), Types of Motivation. | 5 | Lec | CT | 1 |
| 4.3 | Importance of Communication, Forms of Communication, Formal and Informal Communication, Barriers to Communication, Principles of Effective Communication. | 5 | Lec | ST | 1 |
| 5.1 | Meaning of Control, Steps in Control Process,Need for Control, Types of Control Methods, Essentials of Effective Control System , Problems in Control Process, Traditional and Modern ControlTechniques, Budgeting and Defects of Budgetary Control. | 9 | Lec | HoA | 1 |
| 5.2 | Responsibility Accounting, Financial Statements and Ratio Analysis, Return on Investment, Special Reports, Pert and CPM | 6 | GL | OBT | 1 |

Reference Books:


1. P C Tripathi& P N Reddy – '*Principles of Management'*,Tata McGraw-Hill Publishing Company Limited, 2015
2. HeinsWeihrich& Harold Koontz – '*Management a Global Perspective'*,McGraw Hill International Edition, 2000.
3. Koonts&O'Donnel - *Principles of Management*, McGraw HillInternational Edition, 2001.


## SEMESTER VI

| | |
|---|---|
| Course Title : CCE-4 : Management Information System | Course Type: Theory<br>Course Code:23GREH |
| Total Hours: 75 Hours/Week: 5 Credits:5 | |
| Pass-Out Policy : Minimum Contact Hours: 45<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the Basics of MIS | 1,2,5,7,8 | U | F |
| 2 | Understand Communication System and Methods | 1,2,5,7,8 | U | C |
| 3 | Understand Planning Information system | 1,2,5,7,8 | U | M |
| 4 | Understand Social System & organization culture | 1,2,5,7,8 | U | M |
| 5 | Understand Industrial Behavior | 1,2,5,7,8 | U | C |

| **Module** | **Course Description** | **Hours** | **Learning Activities** | **Assessment Task** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Introduction to MIS, Function of MIS, Problems withMIS, Knowledge requirements for MIS(7 areas),<br>General system concept, DSS, EIS, ES, 4GL. | 5 | GT | HrA | 1 |
| 1.2 | IT & MIS : What is IT? Is computer essential for MIS?,Office supporting system, Computer and MIS,<br>Computer & MIS Data Processing System. | 5 | Lec | CT | 1 |
| 1.3 | Characteristics of DPS, Scope of Trans. Processing,Example of Sales Processing. | 5 | Lec | ST | 1 |
| 2.1 | Information, Data & Communication, Concepts. | 5 | Lec | CA | 1 |
| 2.2 | Classification of Information, Characteristics of Information. | 5 | GL | Qui | 1 |
| 2.3 | Communication System, Communication methods, Information in an organization, Case Study | 5 | GT | HrA | 1 |
| 3.1 | Planning and Planning terms, Objectives, Problems, Type, Source of Planning Information System Concepts | 9 | Lec | CA | 1 |
| 3.2 | Structure elements, Objectives & types , Tools of planning, Introduction to Pert-CPM | 6 | GL | Qui | 1 |
| 4.1 | Working with people , Model of Organization behaviour<br>, Social System & organization culture, Case Study. | 9 | Lec | CA | 1 |
| 4.2 | Industry , Academic, Employee Vs Employer,Employee Vs Organization | 6 | GL | Qui | 1 |
| 5.1 | Industrial Behavior, formal and informal relationship. | 8 | Lec | CA | 1 |
| 5.2 | Job satisfaction, Change its resistance & management | 7 | GL | Qui | 1 |

**Reference Books:**


1. Management Information System : by T. Lucey, 8th Edition BPB Publication
2. Organizational & Management : By Agarwal, Tata McGraw Hill Publishing Company Ltd.
3. MIS – By W.S. Jawadekar, Tata McGraw Hill Publishing Company Ltd


SEMESTER VI

| Course Title : CP-6 : RDBMS & Oracle Lab | Course Type: Practical<br>Course Code:23GRP6 |
|---|---|
| Total Hours: 45 Hours/Week: 3 Credits:2 | |
| Pass-Out Policy : Minimum Contact Hours: 27<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |


| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.S.Gnana Sophia | Mrs.R.Suguna Jasmin | Dr. R.D. Seeja |
| Assistant Professor | Assistant Professor | AssistantProfessor |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create Tables, Constraints and Queries. | 1,2,5,7 | C | P |
| 2 | Create Views, Sequence and Synonyms, Join. | 1,2,5,7 | C | P |
| 3 | Create Programs using ControlStructures. | 1,2,5,7 | C | P |
| 4 | Create Exceptions. | 1,2,5,7 | C | P |
| 5 | Create Programs using Procedures, Packages, Triggers and Stored Procedures. | 1,2,5,7 | C | P |

| **Sl.No** | **Course Description** |
|---|---|
| Tables Implementing | |
| 1. | Creation, Constraints, Inserting records. |
| 2. | Altering, Dropping. |
| 3. | DML statements -INSERT, UPDATE, DELETE. |
| 4. | SQL queries. |
| 5. | Views. |
| 6. | Sequence and Synonyms. |
| 7. | Built-in functions. |
| 8. | Join. |

| PL/SQL- Programs Implementing | |
|---|---|
| 9. | Conditional Statements. |
| 10. | Looping Statements. |
| 11. | Implicit Cursor. |
| 12. | Explicit Cursor. |
| 13. | Pre-Defined Exceptions. |
| 14. | User-Defined Exceptions. |
| 15. | Functions, Procedures, Packages, |
| 16. | Triggers. |
| 17. | Stored Procedures. |

**Reference Books.**

1. Nilesh shah, *Database Systems Using ORACLE*, Prentice-Hall of India, II Ed., 2008.

SEMESTER VI

| Course Title : CP-7: Computer Graphics lab | Course Type: Practical<br>Course Code:23GRP7 |
|---|---|
| Total Hours: 45 Hours/Week: 3 Credits:2 | |
| Pass-Out Policy : Minimum Contact Hours: 27<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr.D. Shiny | Dr. R.D. Seeja | Mrs.R.Suguna Jasmin |
| Assistant Professor | AssistantProfessor | Assistant Professor |
| Mobile: 9488382437 | Mobile:9942730217 | Mobile: 9486941443 |
| shinyd328@gmail.com | sheejarufus.r.d@gmail.com | suguna.jasmin@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Create Programs to implement Line drawing Algorithms. | 1,2,5,7 | C | P |
| 2 | Create Programs to implement Filling Algorithms.. | 1,2,5,7 | C | P |
| 3 | Create Programs for Basic Transformations. | 1,2,5,7 | C | P |
| 4 | Programs to Apply Clipping Operations. | 1,2,5,7 | Ap | P |
| 5 | Generate Animation Sequences. | 1,2,5,7 | C | P |

| **Sl.No** | **Description** |
|---|---|
| Graphics Programs Implementing | |
| 1. | Line Drawing - DDA algorithm |
| 2. | Line Drawing - Bressenham's algorithm |
| 3. | Boundary- fill algorithm |
| 4. | Scan Line Polygon Filling Algorithm |

| | |
|---|---|
| 5. | Scale an image. |
| 6. | Rotate an image. |
| 7. | Translate an image. |
| 8. | Reflect an image. |
| 9. | Shear an image. |
| 10. | Point clipping |
| 11. | Cohen Sutherland Line Clipping Algorithm |
| 12. | Polygon clipping algorithm |

**Reference Books:**


1. Donald Hearn, M.Pauline Baker , *Computer Graphics C Version* , Second Edition,Pearson Education, 2009.
2. Jeffrey J. McConnell, *Computer Graphics: Theory Into Practice*, Jones & BartlettLearning, 2006
3. Rajesh K. Maurya, *Computer Graphics With Virtual Reality Systems*, Wiley India Pvt.Limited, 2009
4. Robert Bridson, *Fluid Simulation for Computer Graphics*, CRC Press, 2008
5. William. M. NewMan, Robert. F. Sproull, Principles of InteractiveGraphics,Second Edition, Tata McGraw-Hill Publishing Company Ltd, 1997.


SEMESTER VI

| | |
|---|---|
| Course Title : SEC-4 : Logical Reasoning | Course Type: Theory<br>Course Code:23GRS3 |
| Total Hours: 30 Hours/Week: 2 Credits:1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Mr.R.Shanthikaran | Mrs.R.Suguna Jasmin | Dr. R.D. Seeja |
| Assistant Professor | Assistant Professor | AssistantProfessor |
| Mobile: 9442304556 | Mobile:9486941443 | Mobile:9942730217 |
| shanthikarans@gmail.com | suguna.jasmin@gmail.com | sheejarufus.r.d@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO & PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand Series, Analogy and Classification | 1,2,5,7 | U | P |
| 2 | Understand Analytical Reasoning,Mirror-Images and Water-Images | 1,2,5,7 | U | P |
| 3 | Understand Spotting out the Embedded Figures, Completion of Incomplete Pattern and Figure Matrix | 1,2,5,7 | U | P |
| 4 | Understand Grouping of IdenticalFigures, Rule Detection and DotSituation | 1,2,5,7 | U | P |

| | | | | |
|---|---|---|---|---|
| 5 | Understand Cubes & Dice, Construction of Squares & Triangles and Figure Formation & Analysis | 1,2,5,7 | U | P |

| Module | Course Description | Hours | Learning Activities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | Series | 2 | SP | HoA | 1 |
| 1.2 | Analogy | 2 | PF | CA | 1 |
| 1.3 | Classification | 2 | SP | CT | 1 |
| 2.1 | Analytical Reasoning | 2 | PF | Qui | 1 |
| 2.2 | Mirror-Images | 2 | SP | HoA | 1 |
| 2.3 | Water-Images | 2 | PF | CA | 1 |
| 3.1 | Spotting out the Embedded Figures | 2 | SP | CT | 1 |
| 3.2 | Completion of Incomplete Pattern | 2 | PF | Qui | 1 |
| 3.3 | Figure Matrix | 2 | SP | HoA | 1 |
| 4.1 | Grouping of Identical Figures | 2 | PF | CA | 1 |
| 4.2 | Rule Detection | 2 | SP | CT | 1 |
| 4.3 | Dot Situation | 2 | PF | Qui | 1 |
| 5.1 | Cubes and Dice | 2 | SP | HoA | 1 |
| 5.2 | Construction of Squares and Triangles | 2 | PF | CA | 1 |
| 5.3 | Figure Formation & Analysis | 2 | SP | CT | 1 |

**Reference Book.**

1. Dr.R.S.Aggarwal - "A Modern approach to Verbal and Non-Verbal Reasoning" – Revised Edition – S.Chand & company Ltd – 2013.

## SEMESTER VI

| | |
|---|---|
| Course Title: VAC-4 : Environment and Sustainable Development | Course Type: Theory<br>Course Code:23SE41 |
| Total Hours: 30 Hours/Week: 2 Credit: 1 | |
| Pass-Out Policy : Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] | |



| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. Jebitta M Shirlin | Dr.V. Robin Perinba Smith | Dr. J. Georgina |
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| CLO # | **Course Learning Outcomes** *Upon completion of this course, studentswill be able to* | CLO &PLO Mappedwith GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | understand the various environmental attributes | 1, 2, 5, 6, 7, 10 | U | F |
| 2 | evaluate the impacts of over-exploitation and degradation of natural resources | 1, 2, 5, 6, 7, 10 | An | C |
| 3 | remember various global environmental issues | 1, 2, 5, 6, 7, 10 | E | P |
| 4 | create emphasis on energy conservation andneed for sustainable development | 1, 2, 5, 6, 7, 10 | Ap | M |
| 5 | create substantial goals for sustainable development | 1, 2, 5, 6, 7, 10 | C | M |

| **Module** | **Course Description** | **Hours** | **LearningActivities** | **AssessmentTask** | **Reference** |
|---|---|---|---|---|---|
| 1.1 | Definition, scope and importance | 1 | SI | ST | 1 |
| 1.2 | Multidisciplinary nature of environmental studies | 1 | KWL | ST | 1 |
| 1.3 | Need for public awareness | 2 | Sem | ST | 1 |
| 1.4 | Concept of sustainable development | 2 | GD | ST | 1 |
| 2.1 | Renewable and non-renewable resources | 1 | Lec | CT | 1 |
| 2.2 | Land resources, forest resources, water resources | 1 | Lec | HoA | 1 |
| 2.3 | Mineral resources, energy resources, food resources | 2 | Lec | HoA | 1 |
| 2.4 | Conservation of resources | 2 | RP | HoA | 1 |
| 3.1 | Ecosystem: Concept, structure and function | 2 | BS | MCQ | 2 |
| 3.2 | Food chains, food webs and energy flow in an ecosystem | 2 | Lec | MCQ | 2 |
| 3.3 | Biodiversity: Definition, values, levels of biological diversity and mega-diversity centers | 1 | BS | OBT | 2 |
| 3.4 | Endangered and endemic species of India. Threats and conservation of biodiversity | 1 | Sem | OBT | 2 |
| 4.1 | Environmental pollution: Air, water, soil and noise pollution-causes, effects and controls | 2 | Sem | SA | 3 |
| 4.2 | Solid waste management, control measures of urban and industrialwaste | 2 | CS | Qui | 3 |
| 4.3 | Disaster management: Floods, earthquake, cyclone andlandslides | 1 | CS | Qui | 3 |
| 4.4 | Environmental policies and practices | 1 | Rep | HoA | 3 |
| 5.1 | Clean energy technologies | 2 | GT | MCQ | 3 |
| 5.2 | Bio-energy and conversion systems | 2 | FW | OT | 3 |

| | | | | | |
|---|---|---|---|---|---|
| 5.3 | Green building with eco-friendly materials | 1 | MPr | OBT | 3 |
| 5.4 | Zero waste management | 1 | SP | HoA | 3 |

**Reference Books**


1. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publication, India.
2. Barthwl, R. R. 2002. Environmental Impact Assessment, New Age InternationalPublishers, New Delhi, India.
3. United Nations Environment Programme (UNEP). 1995. Global BiodiversityAssessment,Cambridge University Press.


## SEMESTER VI

| Course Title: : NM E-3 Office Automation-II | Course Type: Theory<br>Course Code:23GRN3 |
|---|---|

| Total Hours: 30 | Hours/Week: 2 | Credit: 2 |
|---|---|---|

| Pass-Out Policy : | Minimum Contact Hours: 18<br>Total Score %:100 Internal: 40 External: 60<br>Minimum Pass %: 40[No Minimum for Internal] |
|---|---|

| Course Creator | Expert 1 | Expert 2 |
|---|---|---|
| Dr. R.D. Seeja | Dr.D. Shiny | Dr.S.Gnana Sophia |
| AssistantProfessor | Assistant Professor | Assistant Professor |
| Mobile:9942730217 | Mobile: 9488382437 | Mobile: 9944281506 |
| sheejarufus.r.d@gmail.com | shinyd328@gmail.com | gnanasophias@gmail.com |

| CLO # | **Course Learning Outcomes** *Upon completion of this course, students will be able to* | CLO &PLO Mapped with GA# | Cognitive Level (CL) | Knowledge Category (KC) |
|---|---|---|---|---|
| 1 | Understand the Basics of PowerPoint | 1,2,8 | U | F |
| 2 | Apply Transition & Animation Effects in Presentation | 1,2,8 | Ap | P |
| 3 | Analyze the differences of Slide Shows and Slide Views | 1,2,8 | An | P |
| 4 | Understand Basics of Access Databases & Create Templates, Tables, Queries, forms,Reports, Macros &Code. | 1,2,8 | U | P |
| 5 | Apply the Knowledge of Data Collection & Analyze Data. | 1,2,8 | Ap | P |

| Module | Course Description | Hours | LearningActivities | AssessmentTask | Reference |
|---|---|---|---|---|---|
| 1.1 | **Microsoft PowerPoint**<br>**File:** Save, Save As, Open, Close, Info, Recent, New, Print, save & send, Help, Option, exit. | 2 | Lec | CT | 1 |
| 1.2 | **Home:** Clipboard, Slides, Font, Paragraph, Drawing, Editing. | 2 | Lec | ST | 1 |
| 1.3 | **Insert:** Tables, Images, Illustrations, Symbols, Media. | 2 | Lec | HoA | 1 |
| 2.1 | **Design:** Page Setup, Themes, Background. | 2 | GL | OBT | 1 |
| 2.2 | **Transition:** Preview, Transition to This side, Timing. | 2 | GD | HrA | 1 |
| 2.3 | **Animations:** preview, Animation, Advanced Animation,Timing. | 2 | Lec | CT | 1 |
| 3.1 | **Review:** Proofing, Language, Comments, Compare. | 2 | Lec | SA | 1 |
| 3.2 | **Slide show:** Start slide show, Set up Monitors. | 2 | Lec | OBT | 1 |
| 3.3 | **View:** Presentation Views, Master Views, Show, Zoom, Color/Grayscale, window Macros | 1 | GL | CA | 1 |
| 3.4 | **Nitro PDF Professional7:** Creation, PowerPoint setting,General setting. | 1 | CS | Qui | 1 |
| 4.1 | **Microsoft Access**<br>**File:** Save, Save Object as, Save Database As, Open, CloseDatabase, Info, Recent, New, Save & Publish, Help, Option, exit. | 2 | Lec | ST | 1 |
| 4.2 | **Home:** Views, Clipboard, Sort Filter, Records, Find, Window, Text Formatting. | 2 | Lec | CA | 1 |
| 4.3 | **Create :** Templates, Tables, Queries, forms, Reports, Macros &Code | 2 | Lec | CA | 1 |
| 5.1 | **External Data:** Import & Link, Export, Collect Data. | 3 | Lec | CT | 1 |
| 5.2 | **Database Tools:** Tools, Macro, Relationship, Analyze, Move Data, Add-Ins. | 3 | Lec | ST | 1 |

**Reference Books**


1. Dinesh Maidasani, *Microsoft Office 2007*, Firewall media, New Delhi, First Edition 2008
2. Timothy J O'Leary, Microsoft Office 2010 , McGraw-Hill Education, 2007