திருவள்ளுவர் பல்கலைக்கழகம்

THIRUVALLUVAR UNIVERSITY

SERKKADU, VELLORE–632115

Bachelor of Computer Applications

SYLLABUS

FROM THE ACADEMIC YEAR

2023 – 2024

Introduction

BCA(Bachelor of Computer Application)

Education is the key to development of any society. Role of higher education is crucial for securingright kind of employment and also to pursue further studies in best available world class institutes elsewherewithin and outside India. Quality education in general and higher education in particular deserves highpriority to enable the young and future generation of students to acquire skill, training and knowledge inorder to enhance their thinking, creativity, comprehension and application abilities and prepare them tocompete, succeed and excel globally. Learning Outcomes-based Curriculum Framework (LOCF) whichmakes it student-centric, interactive and outcome-oriented with well-defined aims, objectives and goals toachieve. LOCF also aims at ensuring uniform education standard and content delivery across the state whichwillhelpthestudentstoensuresimilarqualityofeducationirrespectiveoftheinstituteandlocation.

Computer Application is the study of quantity, structure, space and change, focusing on problemsolving, application development with wider scope of application in science, engineering, technology, socialsciences etc. throughout the world in last couple of decades and it has carved out a space for itself like anyother disciplinesofbasicscienceandengineering.ComputerApplicationisadisciplinethat spanstheoryandpracticeanditrequiresthinkingbothinabstracttermsandinconcreteterms.Nowadays,practicallyev eryoneis a computer user, and many people are even computer programmers. Computer Application can be seen onahigherlevel,asascienceofproblemsolvingandproblemsolvingrequiresprecision, creativity,andcarefulreasoning.Theever-evolving disciplineof computerApplicationalsohasstrongconnections to otherdisciplines. Many problems in science, engineering, health care, business, and other areas can be solvedeffectivelywithcomputers,butfindingasolutionrequiresbothcomputerscienceexpertiseandknowledgeoft he particular application domain. Computer Application has a wide range of specialties. These includeComputer Architecture, Software Systems, Graphics, Artificial Intelligence, Computational Science, andSoftware Engineering. Drawing from a common core of computer science knowledge, each specialty areafocusesonspecificchallenges.ComputerApplicationispracticedbymathematicians,scientistsandengineers. Mathematics, the origins of Computer Science, provides reason and logic. Science provides the methodology for learning and refinement. Engineering provides the techniques for building hardware andsoftware.

ProgrammeOutcome,ProgrammeSpecificOutcomeandCourseOutcome

Computer Application is the study of quantity, structure, space and change, focusing on problemsolving, application development with wider scope of application in science, engineering, technology, socialsciences etc. The key core areas of study in Mathematics include Algebra, Analysis (Real & Complex),DifferentialEquations,Geometry,andMechanics.

The Students completing this programme will be able to present Software application clearly andprecisely, make abstract ideas precise by formulating them in the Computer languages. Completion of thisprogrammewillalsoenablethelearnerstojointeachingprofession,enhancetheiremployabilityforgovernment jobs, jobs in software industry, banking, insurance and investment sectors, data analyst jobs andjobsin variousotherpublicand privateenterprises.

1. ProgrammeOutcomes(PO)ofBCA

- ScientificaptitudewillbedevelopedinStudents
- Students will acquire basic Practical skills & Technical knowledge along with domain knowledge ofdifferentsubjectsintheComputerScience&humanitiesstream.
- Students will become employable; Students will be eligible for career opportunities in educationfield, Industry,orwillbeabletooptforentrepreneurship.
- Students will possess basic subject knowledge required for higher studies, professional and appliedcourses.
- Students will be aware of and able to develop solution oriented approach towards various Social andEnvironmentalissues.
- Ability to acquire in-depth knowledge of several branches of Computer Science and aligned areas.This Programme helps learners in building a solid foundation for higher studies in Computer Scienceandapplications.
- Theskillsandknowledgegained leadstoproficiencyinanalyticalreasoning,whichcan beutilizedinmodellingand solving reallifeproblems.
- Utilizecomputerprogrammingskillstosolvetheoreticalandappliedproblemsbycriticalunderstanding,ana lysisandsynthesis.
- Torecognizepatternsandtoidentifyessentialandrelevantaspectsofproblems.
- Abilitytoshareideasandinsightswhileseekingandbenefittingfromknowledgeandinsightofothers.
- Mouldthestudentsintoresponsiblecitizensinarapidlychanginginterdependentsociety.

Theaboveexpectationsgenerallycanbepooledinto6 broadcategoriesandcan bemodifiedaccordingtoinstitutionalrequirements:

PO1:Knowledge

PO2:ProblemAnalysis

PO3:Design/DevelopmentofSolutions

PO4:ConductinvestigationsofcomplexproblemsPO5:M

odern toolusage

PO6:Applyingtosociety

2. ProgrammeSpecificOutcomesofB.Sc.DegreeProgrammeinComputerScience

PSO1:Thinkinacriticalandlogicalbasedmanner

PSO2:Familiarizethestudents with suitable software tools of computer science andindustrialapplications to handle issues and solve problems in mathematics orstatisticsandrealtimeapplication relatedsciences.

PSO3:Knowwhen there is a need for information, to be able to identify, locate, evaluate,andeffectivelyusethatinformationfortheissueorproblemathand.

PSO4:Understand,formulate,developprogrammingmodelwith logical approaches to aAddressissuesarisinginsocialscience,businessandothercontexts.

PSO5:Acquiregoodknowledgeand understanding tosolvespecific theoretical and appliedproblemsinadvancedareasofComputerscienceandIndustrial statistics.

PO6:Providestudents/learnerssufficientknowledgeandskillsenabling them to undertakefurther studies in Computer Science or Applications or Information Technology and itsalliedareasonmultiplediscipline slinkedwithComputerScience.

PO7:EquipwithComputerscience technical ability, problem solving skills, creative talentandpowerofcommunicationnecessaryforvariousformsofemployment.

PO8:Developarange of generic skills helpful in employment, internships&societalactivities.

PO9:Getadequateexposuretoglobalandlocal concerns that provides platform for furtherexplorationintomulti-dimensionalaspectsofcomputingsciences.

MappingofCourseLearningOutcomes(CLOs)withProgrammeOutcomes(POs)andProgrammeSpecifi cOutcomes(PSOs)canbecarriedoutaccordingly,assigningtheappropriatelevelinthegrids:

(puttickmark ineach row)

PO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1	✓					
PO2		✓				
PO3			✓			
PO4				✓		
PO5					✓	
PO6						✓

3. Highlights of the Revamped Curriculum

- Student-centric,meeting the demands of industry & society, incorporating industrial components,hands-ontraining,skill enhancement modules,industrialproject,projectwithviva-voce,exposuretoentrepreneurialskills,training forcompetitive examinations,sustaining the quality of the corecomponentsandincorporatingapplicationorientedcontentwhereverrequired.
- TheCoresubjects include latestdevelopments intheeducation andscientificfront, advancedprogramming packages allied with the discipline topics, practical training, devising mathematicalmodelsandalgorithmsforprovidingsolutionstoindustry/real
- lifesituations.Thecurriculumalsofacilitatespeerlearningwithadvancedmathematicaltopicsinthefinal semester, cateringtotheneedsofstakeholderswithresearchaptitude.
- The General Studies and Computer Science based problem solving skills are included as mandatorycomponentsinthe_TrainingforCompetitiveExaminations‘courseatthefinalsemester,afirst ofitskind.
- The curriculum is designed so as to strengthen the Industry-Academia interface and provide morejobopportunitiesforthestudents.
- The Industrial Statistics course is newly introduced in the fourth semester,to expose the students toreal life problems and train the students on designing a mathematical model to provide solutions totheindustrialproblems.
- The Internship during the second year vacation will help the students gain valuable work experiencethat connects classroom knowledge to real world experience and to narrow down and

focus on thecareerpath.

- Project withviva-voce component in the fifth semester enables the student, applicationofconceptualknowledgetopracticalsituations.ThestateofarttechnologiesinconductingaExplaininascientificand systematic way and arriving at a precise solution is ensured. Such innovative provisions of theindustrial training, project and internships will give students an edge over the counterparts in the jobmarket.

State-ofArttechniquesfromthestreamsofmulti-disciplinary,crossdisciplinaryandinterdisciplinarynatureare incorporated as Elective courses, covering conventional topics to the latest – Statistics with RProgramming,DataScience,Machinelearning.InternetofThingsandArtificialIntelligenceetc..

4. Value additions in the Revamped Curriculum:

Semester	Newly introduced Components	Outcome/Benefits
I	**FoundationCourse** To ease the transition oflearningfromhighersecondarytohighereducation, providinganoverviewofthepedagogyoflearningabstract Mathematics andsimulatingmathematical conceptstorealworld.	• Instilconfidenceamongstudents • Createinterest forthesubject
I,II,III,IV	**SkillEnhancementpapers** (Disciplinecentric/Generic/Entrepreneurial)	• Industryreadygraduates • Skilledhumanresource • Studentsareequippedwithessentialskillstomakethememployable
		• Trainingon Computing / Computational skills enablethestudentsgainknowledgeandexposureonlatestcomputationalaspects
		• Dataanalytical skills will enable students gain internships,apprenticeships,fieldworkinvolvingdatacollection,compilation,analysisetc.
		• Entrepreneurial skill training will provide anopportunityforindependent livelihood • Generatesself–employment • Createsmallscaleentrepreneurs • Trainingtogirlsleadstowomenempowerment
		• DisciplinecentricskillwillimprovetheTechnicalknowhowofsolvingreallifeproblemsusingICT tools

III,IV,V &VI	Electivepapers- An open choice of topicscategorized under GenericandDisciplineCentric	• Strengtheningthedomainknowledge • IntroducingthestakeholderstotheState-ofArttechniques from the streams of multi-disciplinary,crossdisciplinaryandinterdisciplinarynature • Students are exposed to Latest topics on ComputerScience/IT,thatrequirestrongmathematical background • Emerging topics inhighereducation /industry /communicationnetwork/healthsectoretc.areintroducedwithhands-on-training,facilitatesdesigningofmathematicalmodelsintherespective sectors
IV	IndustrialStatistics	• Exposuretoindustrymouldsstudentsintosolutionproviders • GeneratesIndustryreadygraduates • Employmentopportunitiesenhanced
II year Vacation activity	Internship /IndustrialTraining	• Practical training at the Industry/ Banking Sector /Private/ Publicsector organizations / Educationalinstitutions,enablethestudentsgainprofessional experienceandalsobecomeresponsiblecitizens.
V Semester	ProjectwithViva–voce	• Self-learningisenhanced • Applicationoftheconcepttorealsituationisconceivedresultingintangibleoutcome
VI Semester	Introduction ofProfessionalCompetencycomponent	• Curriculum designaccommodates allcategoryoflearners;_MathematicsforAdvancedExplain‘componentwillcompriseofadvancedtopicsinMathematics and allied fields, for those in the peergroup/aspiringresearchers; • _Training for Competitive Examinations‘ –caters tothe needs of the aspirants towards most sought-after services of the nation viz, UPSC, CDS, NDA,BankingServices,CAT,TNPSCgroupservices, etc.
ExtraCredits: ForAdvancedLearners/Honorsdegree		• Tocatertotheneedsofpeerlearners/researchaspirants

Skills acquired fromtheCourse	Knowledge,ProblemSolving,Analyticalability,ProfessionalCompetency,ProfessionalCommunicationandTransferrableSkill

s	

Credit Distribution for UG Programmes

Sem I	Credit	H	Sem II	Credit	H	Sem III	Credit	H	Sem IV	Credit	H	Sem V	Credit	H	Sem VI	Credit	H
Part 1. Language – Tamil	3	6	Part..1. Language – Tamil	3	6	Part..1. Language – Tamil	3	6	Part..1. Language – Tamil	3	6	5.1 Core Course – \CC IX	4	5	6.1 Core Course – CC XIII	4	6
Part.2 English	3	6	Part..2 English	3	6	Part..2 English	3	6	Part..2 English	3	6	5.2 Core Course – CC X	4	5	6.2 Core Course – CC XIV	4	6
1.3 Core Course – CC I	5	5	2..3 Core Course – CC III	5	5	3.3 Core Course – CC V	5	5	4.3 Core Course – CC VII Core Industry Module	5	5	5. 3.Core Course CC -XI	4	5	6.3 Core Course – CC XV	4	6
1.4 Core Course – CC II	5	5	2.4 Core Course – CC IV	5	5	3.4 Core Course – CC VI	5	5	4.4 Core Course – CC VIII	5	5	5. 4.Core Course –/ Project with viva-voce CC -XII	4	5	6.4 Elective -VII Generic/ Discipline Specific	3	5
1.5 Elective I Generic/ Discipline Specific	3	4	2.5 Elective II Generic/ Discipline Specific	3	4	3.5 Elective III Generic/ Discipline Specific	3	4	4.5 Elective IV Generic/ Discipline Specific	3	3	5.5 Elective V Generic/ Discipline Specific	3	4	6.5 Elective VIII Generic/ Discipline Specific	3	5
1.6 Skill Enhancement Course SEC-1	2	2	2.6 Skill Enhancement Course SEC-2	2	2	3.6 Skill Enhancement Course SEC-4, (Entrepreneurial Skill)	1	1	4.6 Skill Enhancement Course SEC-6	2	2	5.6 Elective VI Generic/ Discipline Specific	3	4	6.6 Extension Activity	1	-
1.7 Skill Enhancement -(Foundation Course)	2	2	2.7 Skill Enhancement Course –SEC-3	2	2	3.7 Skill Enhancement Course SEC-5	2	2	4.7 Skill Enhancement Course SEC-7	2	2	5.7 Value Education	2	2	6.7 Professional Competency Skill	2	2
						3.8 E.V.S.	-	1	4.8 E.V.S	2	1	5.8 Summer Internship /Industrial Training	2				
	23	**30**		**23**	**30**		**22**	**30**		**25**	**30**		**26**	**30**		**21**	**30**
Total – 140 Credits																	

Choice Based Credit System (CBCS), Learning Outcomes Based Curriculum Framework (LOCF) Guideline Based Credit and Hours Distribution System for all UG courses including Lab Hours

First Year – Semester-I

Part	List of Courses	Credit	No. of Hours
Part-1	Language – Tamil	3	6
Part-2	English	3	6
Part-3	Core Courses & Elective Courses [in Total]	13	14
Part-4	Skill Enhancement Course SEC-1	2	2
	Foundation Course	2	2
		23	**30**

Semester-II

Part	List of Courses	Credit	No. of Hours
Part-1	Language – Tamil	3	6
Part-2	English	3	6
Part-3	Core Courses & Elective Courses including laboratory [in Total]	13	14
Part-4	Skill Enhancement Course -SEC-2	2	2
	Skill Enhancement Course -SEC-3 (Discipline / Subject Specific)	2	2
		23	**30**

Second Year – Semester-III

Part	List of Courses	Credit	No. of Hours
Part-1	Language - Tamil	3	6
Part-2	English	3	6
Part-3	Core Courses & Elective Courses including laboratory [in Total]	13	14
Part-4	Skill Enhancement Course -SEC-4 (Entrepreneurial Based)	1	1
	Skill Enhancement Course -SEC-5 (Discipline / Subject Specific)	2	2
	E.V.S	-	1
		22	**30**

Semester-IV

Part	List of Courses	Credit	No. of Hours
Part-1	Language - Tamil	3	6
Part-2	English	3	6
Part-3	Core Courses & Elective Courses including laboratory [in Total]	13	13
Part-4	Skill Enhancement Course -SEC-6 (Discipline / Subject Specific)	2	2
	Skill Enhancement Course -SEC-7 (Discipline / Subject Specific)	2	2
	E.V.S	2	1

		25	**30**

Third Year
Semester-V

Part	List of Courses	Credit	No. of Hours
Part-3	Core Courses including Project / Elective Based	22	26
Part-4	Value Education	2	2
	Internship / Industrial Visit / Field Visit	2	2
		26	**30**

Semester-VI

Part	List of Courses	Credit	No. of Hours
Part-3	Core Courses including Project / Elective Based & LAB	18	28
Part-4	Extension Activity	1	-
	Professional Competency Skill	2	2
		21	**30**

Consolidated Semester wise and Component wise Credit distribution

Parts	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Total Credits
Part I	3	3	3	3	-	-	12
Part II	3	3	3	3	-	-	12
Part III	13	13	13	13	22	18	92
Part IV	4	4	3	6	4	1	22
Part V	-	-	-	-	-	2	2
Total	23	23	22	25	26	21	**140**

***Part I. II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components. IV, V have to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.**

FIRST YEAR

SEMESTER-I

Part	ListofCourses	Credit	Hours perweek (L/T/P)
Part-I	Language	3	6
Part-II	English	3	6
Part-III	CC1–PythonProgramming	5	5
	CC2-Practical:PythonProgrammingLab	5	5
	ElectiveCourse1(Generic/DisciplineSpecific) {choose one from the list) 1,Statistical Methods & its Applications- I 2.Numerical Methods	3	4
Part-IV	SkillEnhancementCourse-SEC-1–**ChoosefromAnnexure-II** Fundamentals of Information Technology	2	2
	FoundationCourseFC–Structured programming inC	2	2
		23	**30**

COREPAPER

FIRSTYEAR

SEMESTER-I

Subject Code	SubjectName	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
CC1	PYTHONPROGRAMMING		5	-	-	-	5	25	75	100

LearningObjectives	
LO1	To makestudents understandthe concepts of Python programming.
LO2	Toapplythe OOPsconceptinPYTHONprogramming.
LO3	Toimpartknowledgeondemandandsupplyconcepts
LO4	TomakethestudentslearnbestpracticesinPYTHONprogramming
LO5	Toknowthecostsandprofit maximization

UNIT	**Contents**	**No. ofHours**
I	**BasicsofPythonProgramming:**HistoryofPython-FeaturesofPython-Literal-Constants-Variables- Identifiers–Keywords-Built-inDataTypes-OutputStatements –Input Statements-Comments –Indentation- Operators-Expressions-Type conversions. **PythonArrays:**DefiningandProcessingArrays–Arraymethods.	**15**
II	**ControlStatements:**Selection/Conditional Branchingstatements: if,if-else,nestedifand if-elif-else statements. Iterative Statements: whileloop,forloop,elsesuiteinloopand nested loops. **Jump Statements:**break,continueandpassstatements**.**	**15**
III	**Functions:** Function Definition – Function Call – Variable Scope and itsLifetime-ReturnStatement.**FunctionArguments**:RequiredArguments,Keyword Arguments, Default Arguments and Variable LengthArguments-Recursion.**PythonStrings:**Stringoperations- ImmutableStrings - Built-in String Methods and Functions - String Comparison. **Modules**: import statement- The Python module – dir() function –	**15**

	ModulesandNamespace–Definingourownmodules.	
IV	**Lists:**Creatingalist-Accessvalues in List-Updating values in Lists-Nestedlists-Basiclistoperations-List Methods. Tuples: Creating,Accessing,UpdatingandDeletingElementsin atuple–Nestedtuples–Differencebetweenlistsandtuples.**Dictionaries:**Creating,Accessing,UpdatingandDeletingElementsinaDictionary–DictionaryFunctions AndMethods-DifferencebetweenListsandDictionaries.	**15**
V	**PythonFileHandling:**Typesof files in Python -Opening and Closingfiles-Reading and Writing files: write() and writelines() methods-append()method–read()andreadlines()methods–withkeyword–Splittingwords –Filemethods-FilePositions-Renamingand deleting iles.	**15**
	TOTALHOURS	**75**

CourseOutcomes		**ProgrammeOutcomes**
CO	Oncompletionofthiscourse, studentswill	
CO1	Learnthebasicsofpython,Dosimpleprogramsonpython, Learnhowtouseanarray.	PO1,PO2,PO3, PO4,PO5,PO6
CO2	Developprogramusingselectionstatement,WorkwithLoopingandjump statements,DoprogramsonLoopsandjumpstatements.	PO1,PO2,PO3, PO4,PO5,PO6
CO3	Concept of function, function arguments, Implementing theconceptstringsinvariousapplication,SignificanceofModules, Work withfunctions,Stringsandmodules.	PO1,PO2,PO3, PO4,PO5,PO6
CO4	WorkwithList,tuplesanddictionary,Writeprogramusinglist, Tuplesanddictionary.	PO1,PO2,PO3, PO4,PO5,PO6
CO5	UsageofFilehandlingsinpython,Conceptofreadingandwritingfiles ,Doprogramsusingfiles.	PO1,PO2,PO3, PO4,PO5,PO6

Textbooks

1	ReemaThareja,–PythonProgrammingusingproblemsolvingapproach,FirstEdition, 2017,Oxford UniversityPress.
2	Dr.R.NageswaraRao,–CorePythonProgramming‖,FirstEdition,2017,Dreamtech Publishers.

ReferenceBooks

1.	VamsiKurama,–PythonProgramming:AModernApproach,nPearsonEducation.
2.	MarkLutz,LearningPython,Orielly.
3.	AdamStewarts,–♭PythnProgramming,Online.
4.	FabioNelli–PythonDataAnalytics,APress.

5.	KennethA.Lambert,–FundamentalsofPython–FirstPrograms,CENGAGE Publication.
WebResources	
1.	https://www.programiz.com/python-programming
2.	https://www.guru99.com/python-tutorials.html
3.	https://www.w3schools.com/python/python_intro.asp
4.	https://www.geeksforgeeks.org/python-programming-language/
5.	https://en.wikipedia.org/wiki/Python_(programming_language)

MappingwithProgrammeOutcomes:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	**3**	**2**	**2**	**3**	**3**	**3**
CO2	**3**	**2**	**2**	**3**	**2**	**3**
CO3	**3**	**2**	**2**	**3**	**2**	**2**
CO4	**3**	**2**	**2**	**3**	**2**	**3**
CO5	**3**	**2**	**2**	**3**	**3**	**3**
WeightageofcoursecontributedtoeachPSO	15	10	10	15	13	14

S-Strong-3 M-Medium-2L-Low-1

SubjectCode	SubjectName	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
CC2	PYTHONLAB		-	-	4	-	5	25	75	100

CourseObjectives:

1. BeabletodesignandprogramPythonapplications.
2. BeabletocreateloopsanddecisionstatementsinPython.
3. BeabletoworkwithfunctionsandpassargumentsinPython.
4. BeabletobuildandpackagePythonmodulesfor reusability.
5. BeabletoreadandwritefilesinPython.

LABEXERCISES	RequiredHours
1. Programusingvariables,constants,I/OstatementsinPython. 2. ProgramusingOperatorsinPython. 3. ProgramusingConditionalStatements. 4. ProgramusingLoops. 5. ProgramusingJumpStatements. 6. ProgramusingFunctions. 7. ProgramusingRecursion. 8. ProgramusingArrays. 9. ProgramusingStrings. 10. ProgramusingModules. 11. ProgramusingLists. 12. ProgramusingTuples. 13. ProgramusingDictionaries. 14. ProgramforFileHandling.	**60**

CourseOutcomes

Oncompletionofthiscourse, studentsWill

CO1	Demonstratetheunderstandingofsyntaxandsemanticsof
CO2	IdentifytheproblemandsolveusingPYTHONprogrammingtechniques.
CO3	Identifysuitableprogrammingconstructsforproblemsolving.
CO4	AnalyzevariousconceptsofPYTHONlanguagetosolvetheprobleminanefficient way.
CO5	DevelopaPYTHONprogramforagivenproblemandtestforitscorrectness.

MappingwithProgrammeOutcomes:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	**2**	**2**	**2**	**2**	**3**	**2**
CO2	**2**	**1**	**3**	**2**	**-**	**2**
CO3	**3**	**3**	**1**	**1**	**1**	**2**
CO4	**2**	**3**	**3**	**1**	**-**	**1**
CO5	**3**	**2**	**3**	**1**	**1**	**-**
Weightageofcourse contributed to eachPSO	12	11	12	7	5	7

S-Strong-3 M-Medium-2L-Low-1

Subject Code	SubjectName	Category	L	T	P	S	Credits	Marks		
								CIA	External	Total
	FUNDAMENTALSOF INFORMATION TECHNOLOGY	Specific Elective	2	-	-	-	2	25	75	100

Learning Objectives	
LO1	Understandbasicconceptsandterminologyofinformationtechnology.
LO2	Have abasicunderstandingofpersonalcomputersandtheiroperation
LO3	Beabletoidentifydatastorageanditsusage
LO4	Get greatknowledgeofsoftwareanditsfunctionalities
LO5	Understandaboutoperatingsystemandtheiruses

UNIT	**Contents**	**No.Of. Hours**
I	**IntroductiontoComputers**-GenerationsofComputer–DataandInformation – Components of Computer – Software – Hardware – InputDevices-OutputDevices—TypesofOperatingSystem.	**6**
II	**MSWord**:Introduction–ElementsofWindow–Files,FoldersandDirectories – Text Manipulating: Cut, Copy, Paste, Drag and Drop – TextFormatting: Font – Style, Size, Face and Colors (Both foreground andbackground)– Alignment-BulletsandNumbering-Headerandfooter-watermark–insertingobjects(images,otherapplicationdocument)– Tablecreation – Mailmerge.	**6**
III	**MsExcel**:Introduction–Insertingrowsandcolumns–Sizingrowsandcolumns– Implementingformulas–Generating series-Functionsinexcel –CreationofChart–Insertingobjects–Filter–Sorting–Insertingworksheet.	**6**
IV	**MSPowerPoint**:Introduction– SlidesManipulation(Insertingnew,Copy,paste, delete and duplicate slides) –Slide show– Types of Views – TypesofAnimations–InsertingObjects– Implementingmultimedia(Videoand Audio)–Templates(Built-inandUser-Defined).	**6**
V	**Internet**: Introductionto Internet and Intranet–Services of Internet-Domain Name – URL – Browser – Types of Browsers – Search Engine -E-Mail – Basic Components of E-Mail –.How to send groupmail.**E-Commerce**:DigitalSignature–DigitalCurrency–Onlineshoppingand transaction.	**6**
	TOTALHOURS	**30**

CourseOutcomes		**Programme Outcomes**
CO	Oncompletionofthiscourse,studentswill	

CO1	Learnthebasicsofcomputer,Constructthestructureoftherequiredthingsincomputer,learnhowtouseit.	PO1, PO2, PO3,PO4,PO5, PO6
CO2	Developorganizationalstructureusingforthedevicespresentcurrentlyunderinputor outputunit.	PO1, PO2, PO3,PO4,PO5, PO6
CO3	ConceptofstoringdataincomputerusingtwoheadernamelyRAMandROMwithdifferenttypesofROMwithadvancementinstoragebasis.	PO1, PO2, PO3,PO4,PO5, PO6
CO4	Work withdifferentsoftware,Writeprograminthesoftwareand applicationsofsoftware.	PO1, PO2, PO3,PO4,PO5, PO6
CO5	UsageofOperatingsystemininformationtechnologywhichreallyacts asainterpreterbetweensoftwareand hardware.	PO1,PO2,PO3, PO4,PO5,PO6

Textbooks

1	AnoopMathew,S.KavithaMurugeshan(2009),―FundamentalofInformationTechnology‖,MajesticBooks.
2	AlexisLeon,MathewsLeon,‖FundamentalofInformationTechnology‖,2nd Edition.
3	S.KBansal,–FundamentalofInformationTechnology‖.

ReferenceBooks

1.	BhardwajSushilPuneetKumar,–FundamentalofInformationTechnology‖
2.	GGWILKINSON,–FundamentalsofInformationTechnology‖,Wiley-Blackwell
3.	ARavichandran,–FundamentalsofInformationTechnology‖,KhannaBookPublishing

WebResources

1.	https://testbook.com/learn/computer-fundamentals
2.	https://www.tutorialsmate.com/2020/04/computer-fundamentals-tutorial.html
3.	https://www.javatpoint.com/computer-fundamentals-tutorial
4.	https://www.tutorialspoint.com/computer_fundamentals/index.htm
5.	https://www.nios.ac.in/media/documents/sec229new/Lesson1.pdf

MappingwithProgrammeOutcomes:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	2	2	1	1
CO2	3	2	3	2	3	3
CO3	3	2	2	2	2	3
CO4	2	3	3	3	3	1
CO5	3	3	3	3	3	2
Weightageofcourse contributedtoeach PSO	13	13	13	12	12	10

S-Strong-3 M-Medium-2L-Low

SubjectCode	SubjectName	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
FC	**Structured Programming Language in C**	FC	2	-	-	-	2	2	25	75	100
Course Objective											
LO1	TofamiliarizethestudentswiththeProgrammingbasicsandthefundamentalsofC, DatatypesinC,Mathematicalandlogicaloperations.										
LO2	Tounderstandtheconceptusingifstatementsandloops										
LO3	ThisunitcoverstheconceptofArrays										
LO4	ThisunitcoverstheconceptofFunctions										
LO5	Tounderstandtheconceptofimplementingpointers.										
UNIT	**Details**								**No. of Hours**	**Course Objectives**	
I	**OverviewofC**:ImportanceofC,sampleCprogram,Cprogramstructure,executingCprogram. Constants, Variables, and Data Types: Character set, C tokens,keywordsandidentifiers,constants,variables,datatypes,declarationofvariables,Assigningvaluestovariables---Assignmentstatement,declaringavariable and constant,as volatile.OperatorsandExpression.								6	CO1	
II	**Decision Making and Branching**:Decision making with If,simpleIF,IFELSE,nestedIFELSE,ELSEIFladder,switch,GOTOstatement.**DecisionMakingand Looping**:While, Do-While,For,Jumpsinloops.								6	CO2	
III	**Arrays**:Declarationandaccessingofone&two-dimensionalarrays,initializingtwo-dimensionalarrays,multidimensional arrays.								6	CO3	
IV	**Functions**: The form of C functions, Return values and types,calling a function, categories of functions, Nested functions,Recursion,functionswitharrays,callbyvalue,callbyreference,storageclasses-characterarraysandstringfunctions								6	CO4	
V	**Pointers:**definition,declaringandinitializingpointers,accessing avariablethroughaddressandthroughpointer,pointer expressions, pointer increments and scale factor, pointers and arrays, pointers and functions, pointers and								6	CO5	

	structures.		
	Total	**30**	
Course Outcomes		**Programme Outcome**	
CO	Oncompletionofthiscourse, studentswill		
1	RemembertheprogramstructureofCwithitssyntaxandsemantics	PO1,PO3,PO5	
2	UnderstandtheprogrammingprinciplesinC(datatypes, operators, branching and looping, arrays,functions,structures, pointersandfiles)	PO2,PO3,PO6,PO7	
3	Applytheprogrammingprinciplesearntinreal-timeproblems	PO3,PO4,PO7	
4	Analyzethevariousmethodsofsolvingaproblemand choosethebestmethod	PO4,PO5,PO6	
5	Code,debugandtesttheprogramswithappropriate testcases	PO7,PO8	
Text Book			
1	E.Balagurusamy,ProgramminginANSIC,FifthEdition,TataMcGraw-Hill,2010.		
Reference Books			
1.	ByronGottfried,Schaum'sOutlineProgrammingwithC,FourthEdition,TataMcGraw-Hill,2018.		
2.	KernighanandRitchie,TheCProgrammingLanguage,SecondEdition,PrenticeHall, 1998		
3.	YashavantKanetkar,LetUsC,EighteenthEdition,BPBPublications,2021		
Web Resources			
1.	https://codeforwin.org/		
2.	https://www.geeksforgeeks.org/c-programming-language/		
3.	http://en.cppreference.com/w/c		
4.	http://learn-c.org/		
5.	https://www.cprogramming.com/		

Mapping with Programme Outcomes:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	**1**	**2**	**2**	**2**	**2**	**-**
CO2	**2**	**2**	**2**	**2**	**-**	**2**
CO3	**3**	**2**	**2**	**1**	**1**	**-**
CO4	**3**	**2**	**2**	**1**	**-**	**1**
CO5	**1**	**2**	**2**	**2**	**2**	**3**
WeightageofcoursecontributedtoeachPSO	7	10	10	18	15	6

S-Strong-3 M-Medium-2L-Low-1

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