Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

BACHELOR OF COMPUTER APPLICATIONS

Under CBCS

SEMESTER – I

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language-English	100	25	75	4	3
2	Second Language-Hindi/Sanskrit	100	25	75	4	3
3	Foundation Course – 1 HVPE (Human Values & Professional Ethics)	50	0	50	2	2
4	Foundation course -2 Environmental Sciences	50	0	50	2	2
5	Elementary Mathematics	100	25	75	6	5
6	Computer Fundamentals & MS office	100	25	75	4	3
7	MS OFFICE LAB	50	0	50	2	2
8	Programming Using “C”	100	25	75	4	3
9	Programming Using “C” Lab	50	0	50	2	2
10	Photoshop Lab	50	0	50	2	2
Total		**750**			**32**	**27**

SEMESTER – II

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language-English	100	25	75	4	3
2	Second Language-Hindi/Sanskrit	100	25	75	4	3
3	Foundation course - 3(ICT-1) Information & Communication Technology	50	0	50	2	2
4	Foundation course – 4(CSS-1) Communication & Soft Skills	50	0	50	2	2
5	Statistical Methods & their Applications	100	25	75	6	5
6	Operating Systems	100	25	75	4	3
7	Operating Systems Lab	50	0	50	2	2
8	Object Oriented Programming Using “C++”	100	25	75	4	3
9	Object Oriented Programming Using “C++” Lab	50	0	50	2	2
10	Multimedia & Flash Lab	50	0	50	2	2
Total		**750**			**32**	**27**

SEMESTER – III

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language-English	100	25	75	4	3
2	Second Language-Hindi/Sanskrit	100	25	75	4	3
3	Foundation Course – 5(ICT)-2 Information & Communication Technology	50	0	50	2	2
4	Foundation course -6(CSS)-2 Communication & Soft Skills	50	0	50	2	2
5	Accounts and Financial Management	100	25	75	6	5
6	Data Base Management Systems	100	25	75	4	3
7	Data Base Management Systems Lab	50	0	50	2	2
8	Programming with JAVA	100	25	75	4	3
9	Programming with JAVA Lab	50	0	50	2	2
10	Tally Software	50	0	50	2	2
Total		**750**			**32**	**27**

SEMESTER – IV

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	*Foundation Course – 7** Communication & Soft Skills -3	50	0	50	2	2
2	*Foundation Course – 8** Analytical Skills	50	0	50	2	2
3	*Foundation Course - 9* ** Entrepreneurship)	50	0	50	2	2
4	*Foundation course* –10 Leadership Education	50	0	50	2	2
5	Unix	100	25	75	4	3
6	Data Structures Using Java	100	25	75	4	3
7	Data Structures Using Java Lab	50	0	50	2	2
8	Web Programming	100	25	75	4	3
9	Web Programming Lab	50	0	50	2	2
10	Unix Lab	50	0	50	2	2
Total		**650**			**26**	**23**

SEMESTER – V

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	Skill Development Course -1 (University's Choice)	50	0	50	2	2
2	Computer Networks	100	25	75	4	3
3	Software Engineering	100	25	75	4	3
4	System Programming	100	25	75	4	3
5	Data Mining & Ware Housing	100	25	75	4	3
Elective – 1						
6	Android Programming Principles of Animation Web Programming - II	100	25	75	4	3
LABS						
7	Data Mining Lab	50	0	50	2	2
8	Web Programming Lab	50	0	50	2	2
Total		**650**			**26**	**21**

SEMESTER – VI

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	Skill Development Course – 2 (University's Choice)	50	0	50	2	2
2	Ecommerce	100	25	75	4	3
3	UML	100	25	75	4	3
4	Cryptography	100	25	75	4	3
5	Design and Analysis of Algorithms	100	25	75	4	3
Elective – 1						
6	IOT Artificial Intelligence Cloud Computing	100	25	75	4	3
7	Main Project	100	0	100	2	6
Total		**650**			**24**	**23**

BACHELOR OF COMPUTER APPLICATIONS

Syllabi

With effect from 2019-20 admitted batch

Chairman

Board of Studies

(2019-20)

Department of Computer Applications

Gayatri Vidya Parishad College for Degree and PG Courses(A)

Affiliated to Andhra University

Visakhapatnam

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

Syllabi

With effect from 2019-20 admitted batch

SEMESTER – I

S.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language **English**	100	25	75	4	3
2	Second Language Hindi/Sanskrit	100	25	75	4	3
3	Foundation Course - 1 HVPE (Human Values & Professional Ethics)	50	0	50	2	2
4	Foundation course -2 Environmental Sciences	50	0	50	2	2
5	Elementary Mathematics	100	25	75	6	5
6	Computer Fundamentals & MS office	100	25	75	4	3
7	MS OFFICE LAB	50	0	50	2	2
8	Programming Using “C”	100	25	75	4	3
9	Programming Using “C” Lab	50	0	50	2	2
10	Photoshop Lab	50	0	50	2	2
Total		**750**			**32**	**27**

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester I

ENGLISH

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25**

Course Objectives:		
1.To make the students acquire required level of linguistic knowledge and skills to communicate effectively in English. 2. To make students think creatively and employ literary tools for better expression through poetry. 3. To make students use appropriate words and structures required for a situation. 4. To make students improve vocabulary and grammatical ability.		
	SYLLABUS	
Unit I:		
PROSE 1. A.P. J. Abdul Kalam: The Knowledge Society (from Ignited Minds) 2. NgugiWaThiong'o: The Language of African Literature (from Decolonizing the Mind)		
Unit II:		
POETRY 1. Robert Frost: The Road Not Taken 2. Nissim Ezekiel: Night of the Scorpion		
Unit III:		
SHORT STORY 1. Mulk Raj Anand: The Lost Child 2. Henry Lawson: The Loaded Dog		
Unit IV:		
ONE - ACT PLAY William Shakespeare: The Merchant of Venice (Court Scene – Act IV Scene -1)		
Unit V:		
LANGUAGE ACTIVITY 1. Classroom andLaboratory Activities i. Single Sentence Answer Questions on Vocabulary (spelling), sound(pronunciation), sense (meaning), and syntax (usage) Classroom Activity. ii. Exercises in Articles and Prepositions iii. Exercises in Tenses, Interrogatives and Question tags		
Outcomes:		
1. Enables students to read and comprehend literary pieces. 2. Enables students to write meaningfully on topics of interest or relevance. 3. Enables students to understand the finer aspects of creative writing. 4. Enables students improve vocabulary and grammatical ability.		
Text Book: Step Up with English		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester-I
SANSKRIT

Credits:3	**Theory:3 Hours**	**Tutorials: -**
Max Marks: 75	**External: 50 Marks**	**Internal:25 Marks**

Course Objectives:

1. Learning of Sanskrit language is very useful to everyone.
2. Sanskrit language Gives scope to improve personality development.
   It is the only one language which enhances human ethical values and spirituality.

SYLLABUS

Unit I:

Old poetry:
1. ABHIJŇĀNAM
Rāmāyaṇam – KiṣkindhāKānda – 6th Canto 1- 27 Śloka-s
(Ślokano.s 5,11,16,22 are only to be given forPratipadārthatātparyalekhanam)
2. ĀTITHYAM
(Ślokano.s 5,15,16, are only to be given for Pratipadārthatātparyalekhanam)
Bhāgavatam – IX Skandha - 21stAdhyāya : 1 - 36 Śloka-s

Unit II:

Modern Poetry: 1. UNNATIH From BhāratīBhūṣaṇamby DrD.N.Dīkṣit
2. VIVIKTA PUṢPA KARANDAH
By Dr. RāṇīSadāśivaMūrtī, Selected Stanzas – 14

Unit III:

Prose:1. MŪRKHATĀ
(MūrkhaBrāhmaṇaKathā&MūrkhaPanditaKathā)From Aparīkṣitakārakamof Panćtantram – 3rd& 4th Stories

Unit IV:

Grammar:1. ŚABDĀH
Ajanta Śabdāh, Deva, Kavi, Bhānu, Dhātṛ, Pitṛ, Go, Ramā, Matī
2. DHĀTAVAH
1st Conjugation – Bhū, Gam, Shthā, Dṛśir, Labh, Mud 2nd Conjugation – As10th Conjugation – Bhāṣ

Unit V:

Grammar: 1. SANDHAYAH
SvaraSandhih:Sarvarṇadīrgha, Ayavāyāva, Guṇa, Vṛddhi, Yaṇādeśa.
Halsandhih:Śćutva, Sţutva, Anunāśika
2.SAMĀSĀH Dvandva, Tatpuruṣa, Karmadhāraya, Dvigu.

Outcomes:

1.Student will learn how to behave with the family and respect towards the guest who comes to their house.
2. Student will learn to attain their target in their life.
3. Student will learn the worldly knowledge along with education.
4. Student will learn the sentence formation of Sanskrit language.
5. Student will learn the division of words and group of words in a sentence.

Textbook:

1. VIŚVABHĀRATĪ -1 - Developed and approved by the Sanskrit subject experts committee, Published by Lorven Publications, Hyderabad, 2015.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester-I
HINDI

Credits:3	**Theory:3 Hours**	**Tutorials: -**
Max Marks: 75	**External: 50 Marks**	**Internal:25 Marks**

Course Objectives:

संपर्कभाषाकेरूपमेंभारतकेविभिन्नक्षेत्रोंमेंइसकामहत्वपूर्णस्थानहैं।2.विदेशीविश्वविद्यालयोंमेंहिन्दीकोएकभारतीय भाषाकेरूपमेंपढाईजातीहैंऔरइसकोपढानेकेलिएभारतकेविभिन्नविश्वविद्यालयोंसेआचार्योंकोभेजाजाताहैं।3. स्नातककेलिएनिर्धारितपाठ्यक्रमविध्यार्थियोंकोस्नातकोत्तरस्तरपरआसेटऔरआरसेटदोनोंभरतीपरीक्षाओंकेलिए उपयोगीहै।4.स्नातकस्तरपरकार्यालयीसंबंधजोकार्यालयीनहिन्दीपाठ्यक्रमविभिन्नपदपरनौकरियोंकेलिएउपयोगी हैयथाहिन्दीअनुवादक,हिन्दीटंकक,हिन्दीअधिकारी,हिन्दीपत्राचारआदि| 5. व्याकरणकीसभीपहलूओंपरविद्यार्थियोंकोविषदरूपअध्ययनकरायागयाहै।क्योंकिव्याकरणहीकिसीभाषाकीरीढ होतीहै।क्योंकिभाषाहीविचारविनमयकासाधनहै।

	SYLLABUS	
Unit I:		
साहित्यकीमहत्ता- महावीरप्रसादद्वेवेदी		
Unit II:		
सच्चीवीरता -सरदारपूर्णसिंह		
Unit III:		
मित्रता- आचार्यरामचन्द्रशुक्ल		
Unit IV:		
मुक्तिधन- प्रेमचन्द		
Unit V:		
गूदडसाई-जयशंकरप्रसाद,6.उसनेकहाथा- चन्द्रधरशर्मागुलेरी,**<u>व्याकरण:</u>**1.लिंग2.वचन3.काल4.वाच्य5.वाक्योंकीशुद्धि6.शब्दप्रयोग7.कार्यालयीशब्द- [पारिभाषिकशब्दवली-अंग्रेजीसेहिन्दी8.विलोमशब्द**<u>पत्रलेखन</u>** :व्यक्तिगतऔरसरकारीपत्र		
Outcomes:		

1. विद्यार्थियोंकोसंस्कृति,साहित्यऔरविज्ञानआदिविषयोंसेसंबंधअवगतकरायाजाताहैजोउनकेव्यक्तित्वनिर्मा णमेंसहायकहोताहै।
2. विद्यार्थियोंकोमानवमूल्योंकीसीखइसपाठकेमाद्यमसेदीगईहै।साथहीसच्चेवीरताकापरिचयदेकरउन्हेंसच्चे वीरबननेकाप्रेरणदीगईहै।
3. एड्सकेइतिहासउसकेफैलावउससेबचनेकेउपायआदिकेबारेमेंउसकेयुवावर्गकोविस्तृतज्ञानदियाजायतोइ समहामारीसेबचनाबहुतआसानहै| इसप्रकारयहवैज्ञानिकनिबंधविद्यार्थियोंकोअत्यंतउपयोगीहै।
4. विद्यार्थियोंकेलिएयहएकसीखहैकिकिसीभीप्रलोभनमेंनपढऔरबहुतसूझबूझकेसाथजीवनकथमबढाए|

गैरसरकारीकार्यालयोंमेंनौकरीप्राप्तकरनेतथासरकारीउच्चस्थापरहोनेवालेविभिन्नपरीक्षाओंमेंसफलताप्राप्तकरने मेंअत्यंतउपयोगीहैं। 5. वर्तमानयुवावर्गकोस्वाभिमानसेसबहासिलकरनेकीसीखदीगईहै, नाकिकिसीपरआधारितरहकर।विद्यार्थियोंकेलिएयहएकसीखहैकिकिसीभीप्रलोभनमेंनपढ।
REFERENCES:
1.V. LNarasimhamSivakotiand Dr.D.LakshmiHindi GadyaSandesh Semester -Loven Publishers 2.MeenuKadhariya 'Kapil' Adunik Hindi VyakaranEvamRachanaV.Kumar Publications Pvt.Ltd.
3.BhattKamaleswarPrayojanmulakHindi Children Book Bank

Foundation Course – 1

HUMAN VALUES AND PROFESSIONAL ETHICS

Credits: 2	Theory: 2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal: -

Course Objectives:

1. To enable students, appreciate the essential complementarily between "values" and "Skills" to ensure sustained happiness and prosperity which are the core aspiration of all human beings.
2. To highlight plausible implication of the above holistic understanding in terms of human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with nature.

	SYLLABUS	
Unit I:		

Introduction to Value Education:

1. Value Education, Definition, Concept and Need for Value Education
2. The Content and Process of Value Education
3. Self-Exploration as a means of Value Education
4. Happiness and Prosperity as parts of Value Education.

Unit II:		

Harmony in the Human Being:

1. Human Being is more than just the Body
2. Harmony of the Self ('I') with the Body
3. Understanding Myself as Co-existence of the Self and the Body
4. Understanding Needs of the Self and the Needs of the Body.

Unit III:		

Harmony in the Family and Society and Harmony in the Nature

1. Family as a basic unit of Human Interaction and Values in Relationships
2. The Basics for respect and today's Crisis: Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive Human Goal: The Five dimensions of Human Endeavour.

Unit IV:		

Social Ethics

1. The Basics for Ethical Human conduct
2. Defects in Ethical Human Conduct
3. Holistic Alternative and Universal order
4. Universal Human Order and Ethical Conduct.

Unit V:		

Professional Ethics

1. Value Based Life and Profession
2. Professional Ethics and Right Understanding
3. Competence in Professional Ethics
4. Issues in Professional Ethics – The Current scenario
5. Vision for Holistic Technologies, Production System and Management Models.

Outcomes:		

1.The Students identify the importance of human values and Skills for Sustained happiness
2.The Students strike a balance between profession and personal happiness/ goals.
3.The Students develop/propose appropriate technologies and management patterns to create harmony in professional and personal life.

References:		

1. A.N.Tripaty, Human Values, New Age International Publishers, 2003
2. Bajpai.B.L., Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted, 2004
3. Bertrand Russell, Human Society in Ethics and Politics
4. Corliss Lamont, Philosophy of Humanism
5. Gaur.R.R., Sangal.R, Bagaria.G.P., A Foundation Course in Value Education, Excel Books, 2009
6. Gaur.R.R., Sangal.R, Bagaria.G.P., Teacher's Manual, Excel Books, 2009
7. I.C.Sharma, Ethical Philosophy of India, Nagin & Co., Julundhar
8. Mortimer.J.Adler, What Man has Made of Man
9. R.Subramanian, Professional Ethics, Oxford University Press
10. Text Book for Intermediate Ethics and Human Values, Board of Intermediate Education & Telugu Academy, Hyderabad
11. William Lilly, Introduction to Ethics, Allied Publishers.

Department of Computer Applications
B.C.A-Semester I
Foundation Course – 2

ENVIRONMENTAL STUDIES

Credits: 2	**Theory: 2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal: -**

Course Objectives:

1. Acquire an awareness of the environment as a whole and its related problems.
2. Gain a variety of experiences and acquire a basic understanding and knowledge about the environment and its allied problems.
3. Acquire an attitude of concern for the environment and skills for identifying and solving environmental problems.
4. Participate in improvement and protection of environment.
5. Motivating public to participate in environment protection and environment improvement.

	SYLLABUS	
Unit I:		

Natural Resources:
Definition, scope and importance. Need for public awareness.
Brief description of;

- Forest recourses: Use and over-exploitation. Deforestation; timber extraction, mining, dams. Effect of deforestation environment and tribal people
- Water resources: Use and over–utilization. Effects of over utilization of surface and ground water. Floods, drought.
- Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- Food resources: World food problems, Effects of modern agriculture; fertilizer- pesticide, salinity problems.
- Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification

Unit II:		

Ecosystems, Biodiversity and its conservation

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Food chains, food webs and ecological pyramids
- Characteristic features of the following ecosystems: -Forest ecosystem, Desert ecosystem, Aquatic ecosystem.
- Value of biodiversity: Consumptive use, productive use. Biodiversity in India.
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity.

Unit III:		

Environmental Pollution

- Definition
- Causes, effects and control measures of: -
  a. Air pollution b. Water pollution c. Soil pollution d. Noise pollution
- Solid waste management; Measures for safe urban and industrial waste disposal
- Role of individual in prevention of pollution
- Disaster management: Drought, floods and cyclones.

Unit IV:		

Social Issues and the Environment

- From Unsustainable to Sustainable development
- Water conservation, rain water harvesting, watershed management.
- Climate change, global warming, ozone layer depletion,
- Environment protection Act
- Wildlife Protection Act, Forest Conservation Act.

Unit V:		

Human Population and the Environment

a. Population explosion, b. impact on environment.
c. Family welfare Programme d. Environment and human health
e. Women and Child Welfare f. Value Education
g. Role of Information Technology in Environment and human health.

Outcomes:		

1. Students learn about the scope and importance of Environmental studies. The students also understand about the types of natural resources and problems associated with them.
2. Students understand about different kinds of ecosystems, biodiversity and its conservation. They also learn about types of biodiversity, values of biodiversity and threats to biodiversity.
3. Students gain knowledge about different types of environmental pollutions, their causes, effects and control measures.
4. Student learns about sustainable development and various environmental legislation Acts.

References:		

1.Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu and Dr.V.VivekaVardhani, Published by Telugu Academy, Hyderabad.
2.Environmental Studies by R.C.Sharma, Gurbir Sangha, published by Kalyani Publishers.
3.Environmental Studies by Purnima Smarath, published by Kalyani Publishers.

Department of Computer Applications

B.C.A-Semester I

ELEMENTARY MATHEMATICS

Credits: 5	**Theory: 6 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25**

Course Objectives:

Determine eigenvalues and eigenvectors and solve eigenvalue problems. Apply principles of matrix algebra to linear transformations. Demonstrate understandingof inner products and associated norms.

	SYLLABUS	
Unit I:		

Matrix Algebra: Types of matrices -Matrix addition and subtraction - Matrix multiplication- Transpose of a matrix, row matrix, column matrix, Symmetric and skew symmetric matrices.

Unit II:		

Linear Equations:

Ad joint of a square matrix- Inverse of square matrix by using Adj A 3 order only.

Solution of Linear Equations.(i) Cramer's Rule (ii) Matrix Inverse method

Unit III:		

Maxima and Minima:

Maxima and Minima: Introduction- Increasing and decreasing functions -Maxima and Minima Values of a Function in one variable only.

Numerical Integration:1. Trapezoidal rule 2. Simpson's 1/3 rule 3. Simpson's 3/8 rule

Unit IV:		

Numerical Methods:

Introduction

Solution of algebraic and transcendental equations: Bisection method - Method of false position - Newton - Raphson method.

Unit V:		

Finite Differences and interpolation:

Finite Differences - Forward Differences - Backward differences.

Newton's forward interpolation formula - Newton's backward interpolation formula

Note: 1. Proofs of theorems and derivations of Expressions are omitted.

Outcomes:		

1.Ability to demonstrate matrix operations.
2.Ability to find the solution of linear equations.
3.Familiarize with numerical methods.
4.Ability to find the solution of algebraic and transcendental equations.
5.Familiarize with Newton's backward and forward interpolation formulae.

Text Books:		

1. Mathematical Methods by Dr.T.K.V. Ivengar, Dr.B.Krishna Gandhi, Dr. S.Ranganatham, and Dr.M.V.S.S.N. Prasad by S.Chand publications 6th revised edition 2011.
2. Quantitative Techniques by C.Satyadevi by S.chand Company.

References:		

1. Numerical Methods by P.Kandaswamy, K.Thilagavathy, K.Gunavathy by S.Chand
2. Higher Engineering Mathematics by Dr.B.S.Grewal by Karna publisher's 4th edition.

Department of Computer Applications

B.C.A-Semester I

COMPUTER FUNDAMENTALS AND MS OFFICE

Credits: 3	Theory: 4 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:		
The objective of the course is to introduce the concepts of computer fundamental & their applications for the efficient use of office technology in a business environment.		
	SYLLABUS	
UNIT I:		
Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems: binary,hexaand octal numbering system.		
UNIT II:		
Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software,commercial,opensource,domain and free ware software, Memories: primary, secondary and cache memory. Windows basics: desk top,start menu,icons.		
UNIT III:		
System Software, Compilers, assemblers, loaders, Operating Systems fundamentals, Introduction to Algorithms and Programming Languages.		
UNIT IV:		
MS Word: Getting Started Working with Microsoft Office 2007. Understanding Word Basics Editing and Formatting Text. Formatting Documents Working with Graphic Objects.		
UNIT V:		
Microsoft Excel: Understanding Excel Basics. Formatting and Editing the Worksheet, Using Formulas and Functions. Working with Charts. Microsoft PowerPoint: Understanding PowerPoint Basics. Formatting and Modifying Presentations,EnhancingthePresentation.		
Outcomes:		
1. Student will get knowledge on basic computer characteristics and history of computers. 2. Student will get awareness how to handle the computer and internal structure. 3. Student will get knowledge on system software and different languages. 4.Student will get knowledge on Word documents for office use. 5. Student will get knowledge on the basic technicalities of creating a PowerPoint presentation.		
References:		
1. Fundamentals ofComputers" by REEMA THAREJA from OXFORD UNIVERSITY PRESS 2. Microsoft Office 2007 Fundamentals, 1st Edition by Laura Story, Dawna Walls (UNIT I, UNIT II, UNIT III, UNIT IV) 3. "Computer Fundamentals and Programming in C" by REEMA THAREJA from OXFORD UNIVERSITY PRESS 4. PC SOFTWARE UNDER WINDOWSby Puneet Kumar And SushilBhardwaj From Kalyani Publishers.		

Department of Computer Applications

B.C.A-Semester I

MS OFFICE LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To Create a document in Microsoft Word with formatting
2. To Write functions in Microsoft Excel to perform basic calculations and to convert number to text and text to number
3. To create a presentation in Microsoft PowerPoint that is interactive and legible content.

SYLLABUS

1. Prepare your class time table using different Text formatting's in a table.
2. Send a Call Letter for All Applicants to Inform Interview Details using Mail Merge.
3. Type your mathematical problems in MS word using Mathematical Equation editor
4. Create Water Marking.
5. Create Backup file.
6. Create a short film with animation and sound effects.
7. Create a payslip with details of employee salary.
8. Calculate student grades using his internal and external marks details.
9. Draw different types of charts for weather analysis of 5 successive years.
10. Prepare an excel sheet for posting attendance of students in various subjects and create a formula for promoting students having 75% minimum attendance.
11. Prepare an excel sheet for conducting objective entrance test having multiple choice answers.
12. Prepare an excel sheet for student details and create formulas for accessing studentaddresses, category etc.

Outcomes:

1.Student will get knowledge the basic technicalities of creating Word documents for office use.
2. Student will get knowledge Create and design a spreadsheet for general office
3. Student will get knowledge the basic technicalities of creating a PowerPoint presentation.
4. Student will get knowledge the practices in data & files management
5. Student will create formulas in excel sheet.

Department of Computer Applications
B.C.A-Semester I
PROGRAMMING USING C

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:

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

SYLLABUS

UNIT I:

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms – examples of Algorithms – Flow Charts – Pseudo code – Programming Languages – Generation of Programming Languages – Structured Programming Language.**Introduction to C:** Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting.

UNIT II:

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement.

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions – Type of recursion – Towers of Hanoi.

UNIT III:

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations that can be performed on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays.

Strings: Introduction - String Operations – String and Character functions.

UNIT IV:

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function– Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers.**Structure, Union, and Enumerated Data Types:** Introduction – Nested Structures – Arrays of Structures– Self-referential Structures – Union– Enumerated Data Types.

UNIT V:

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations.

Outcomes:

1. Able to learn basics of algorithm and c language.
2. Uses the 'C' language constructs and functions.
3. Improve knowledge about arrays and strings.
4. Able to do pointers and structures and enumerated data types.
5. Can write programs on file operations.

References:		

1. Computer Fundamentals and Programming in C by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: ―COMPUTING FUNDAMENTALS & C PROGRAMMING‖ – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. 2. Henry Mullish&HuubertL.Cooper: The Spirit of C, Jaico Pub. House,1996.
5. Teach your C Skills-Kanithker.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester I

PROGRRAMMING USING 'C' LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To implement decision making and arrays.
2. To develop programs for pointers and structures.
3. To write C programs using Files.

SYLLABUS

1. Write a C program to calculate the expression: ((a*b)/c) +(a+b-c)
2. Write a C program to calculate $(a+b+c)^3$.
3. Program to convert temperature from
   a. Celsius to Fahrenheit. b. Fahrenheit to Celsius.
4. Write a C program to calculate the Compound Interest.
5. Program to convert Hours into seconds.
6. Write a C program to Fine Biggest of Three numbers.
7. Write a C program to read student marks in five subjects and calculate the Total, Average and Grade according to the following conditions:
   i. If average >=75 grade is A
   ii. If average >=60 and <75 grade is B
   iii. If average >=50 and <60 grade is C
   iv. Otherwise grade is D
   v. Check that marks in each subject >= 35.
8. Write a C program to find biggest of two numbers using Switch – Case.
9. Program to display number of days in given month using Switch – -Case.
10. Write a C program to check whether the given number is Prime or Not.
11. Write a program to
    i. Check whether given number is Palindrome or Not.
    ii. Find the Reverse of a given number.
12. Program to check whether a given number is
    i. Strong or Not.ii. Armstrong or Not. iii. Perfect or Not.
13. Write a C program to print Fibonacci Series.
14. Write a C Program to print Prime Numbers up to given range.
15. Write a program to print multiplication tables up to given range.
16. Write a C program to perform Matrix Multiplication.
17. Program to display Student Details using Structures.
18. Program to swap two numbers using different parameter passing techniques.
19. Write a C program toi. Write data into a File. ii. Read data from a File.

Outcomes:

After Completion of the course student should able to
1. Student will be able to Know concepts in problem solving.
2. Ability to do programming in C language.
3.To write diversified solutions using C language.
4. ability to write programming with pointers and structures.
5. Ability to write c programming with files.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester I

PHOTOSHOP LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:
1.To have a proficiency in a broad range of design skills pertaining to publication & web design. 2.To Understand typography, color, layout, photo editing, composition, graphics, vector & raster application etc. 3.To be able tounderstand Layers and Masking. 4.To be able to work with effects, filters and adjustments

	SYLLABUS	

Create following items using different options in photo shop

1. Visiting card
2. Cover page of a book
3. Paper add for calling tenders
4. Passport photo design
5. Pamphlet
6. Broacher designing
7. Titles designing
8. Custom shapes creation
9. Web template design
10. Black & white and color photo conversion
11. Image size modification
12. Wedding album designing
13. Background changes
14. Box package cover designing
15. Texture and patterns designing
16. Filter effects & Eraser effects

Outcomes:		

1. Learn to work with in the Photoshop workspace and learn how to use basic tools.
2. Ability to Navigate, Resize, Transform and Crop images
3. Lear to create new layers, perform basic layer functions, learn to apply layer effects.
4. Learn to use layer masks, filters and blending modes (on text and images).
5. Learn to implement various retouching and repairing techniques to correct images.

Sl. No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language-English	100	25	75	4	3
2	Second Language-Hindi/Sanskrit	100	25	75	4	3
3	*Foundation course - 3*(ICT-1) Information & Communication Technology	50	0	50	2	2
4	*Foundation course – 4(*CSS-1) Communication & Soft Skills	50	0	50	2	2
5	Statistical Methods & their Applications	100	25	75	6	5
6	Operating Systems	100	25	75	4	3
7	Operating Systems Lab	50	0	50	2	2
8	Object Oriented Programming Using "C++"	100	25	75	4	3
9	Object Oriented Programming Using "C++" Lab	50	0	50	2	2
10	Multimedia & Flash Lab	50	0	50	2	2
Total		**750**			**32**	**27**

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester II
ENGLISH

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 100 Marks**	**Internal: 25**
Course Objectives:		
1. To make the student understand the importance of cultural differences and importance of science in one's life.		

2. To make the student understand the feministic approach and the use of poetic devices.
3. To make the student understand the mechanics of Prose and Dialogue Writing.
4. To make the student improve their expressive power through various English GrammarComponents.

	SYLLABUS	
Unit I:		

Prose:

1. J. B.S Haldane: The Scientific Point of View
2. A.G. Gardiner: On Shaking Hands

Unit II:		

1. John Keats: Ode to Autumn
2. KishwarNaheed: I am not that Woman (from *An Anthology of Commonwealth Poetry* edited by C.D. Narasimhaiah)

Unit III:		

Short Story

1. Ruskin Bond: The Boy Who Broke the Bank
2. R. K. Narayan: Half a Rupee Worth

Unit IV:		

One Act PlayAnton Chekhov: The Proposal

Unit V:		

Language Activity

1. Classroom and Laboratory Activities
   - i. Transformation of Sentences (Voice, Speech and Degrees)
   - ii. Dialogue Practice (Oral)
   - iii. Listening Comprehension
   - iv. Synonyms and Antonyms
2. Classroom Activity
   Guided Composition
   Dialogue Writing
   Reading Comprehension
   One Word Substitutes and Homonyms.

Outcomes:		

1. Enables the student to read and understand the text on their own to know the different cultural aspects and the prominence of Science in our daily lives.
2. Enables the students understand Feminism and the influence of Seasons on human activities.
3. Enables the students to convert the prose form to dialogue form and vice- versa.
4. Enables the students to improve their verbal and writing skills.

Text Books:

1. A Spectrum of Language Skills – Maruthi Publications.
2. Engage with English - Orient Black Swan Publications.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester II
SANSKRIT

Credits:3	**Theory:3 Hours**	**Tutorials: -**
Max Marks: 75	**External: 50 Marks**	**Internal:25 Marks**

Course Objectives:

1.To make the students acquire required level of linguistic knowledge and skills to communicate effectively in English.
2. To make students think creatively and employ literary tools for better expression through poetry.
3. To make students use appropriate words and structures required for a situation.
4. To make students improve vocabulary and grammatical ability.

SYLLABUS

Unit I:

Poetry: 1. VASISHṬHĀŚRAMAGAMANAM –CO-1
Raghuvamśah – 1st Canto – 35 – 95 Śloka-s
(Nakştrāmkitaślokano.s 2,5,7,9,11,12,17,20 are only to be given for Pratipadārthatātparyalekhanam)

Unit II:

Poetry: 2. GANGĀVATARAṆAM –-CO-2
Bhoja'sChampūRāmāyaṇam – Bālakānda

Unit III:

Prose: 1. PUṢPODBHAVA CHARITAM from 4th Chapter of -CO-3
PŪRVAPĪṬHIKĀ ofDAŚAKUMĀRA CHARITAM

2. KṚṢIPHALAM from20th Chapter of KĀLĀYATASMAI -CO-4
NAMAH — Written by OgetiParīkşitŚarma

Unit IV:

Grammar: 1. *ŚABDĀH* – Nouns ending in Vowels: *Nadī, Tanu, Vadhū, Mātṛ, Phala, Vāri*and*Madhu. -CO5*
2. *DHĀTAVAH-CO-5*
III- Conjugation – *Yudh*
IV- Conjugation _ *Iş*
VIII- Conjugation – *Likh, Dukṛṇ*
IX- Conjugation – *Krīṇ*
X- Conjugation – *Kath, Ram, Vand*

Unit V:

Grammar: 1. SANDHAYAH-CO-5Halsandhih -Latva, Jaśtva
VisargaSandhih – Utva, Visargalopa, Rephādesa, ŪşmaSandhi
2. SAMĀSĀH-CO-5
Avyayībhāvah, Bahuvrīhih.

Outcomes:

1.Student will learn how to behave with the family and respect towards the guest who comes to their house.
2. Student will learn to attain their target in their life.
3. Student will learn the worldly knowledge along with education.
4. Student will learn the sentence formation of Sanskrit language.
5. Student will learn the division of words and group of words in a sentence.

Text Book:

1. *VIŚVABHĀRATĪ* -3 - Developed and approved by the Sanskrit subject experts committee, Published by Lorven Publications, Hyderabad, 2015.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester II
HINDI

Credits:3	Theory:3 Hours	Tutorials: -
Max Marks: 75	External: 50 Marks	Internal:25 Marks

Course Objectives:

1.संपर्कभाषाकेरूपमेंभारतकेविभिन्नक्षेत्रोंमेंइसकामहत्वपूर्णस्थानहैं।2.विभिन्नक्षेत्रोंमेंसरकारी,गैरसरकारीकेविभिन्ननौकरियांजैसेअनुवादक,आशुलिपिक,टंकक,अद्यापक,हिन्दीअधिकारीआदिप्राप्तकरसकतेहै।3.स्नातकस्तरपरकार्यालयीसंबंधजोकार्यालयीनहिन्दीपाठ्यक्रमविभिन्नपदपरनौकरियोंकेलिएउपयोगीहैयथाहिन्दीअनुवादक,हिन्दीटंकक,हिन्दीअधिकारी,हिन्दीपत्राचारआदि।4.हमकिसीभीदेशकीसंस्कृतिकोउसदेशकेसाहित्यकेमाद्यमसेहीजानाजासकताहैं। पाठ्यक्रममेंसम्मिलितविभिन्नकहांनियां,
कविताएं,निबंधआदिविभिन्नविषयोंसेसंबंधितहै5.व्याकरणकीसभीपहलूओंपरविद्यार्थियोंकोविषदरूपअध्ययनकरायागयाहै।क्योंकिव्याकरणहीकिसीभाषाकीरीढहोतीहै। सरकारीएवंनिजीस्थारपरअनेकउच्चअधिकारीपरीक्षाओंकेलिएहिन्दीभीएकउपविषयकेरूपमेंचयनकियाजाताहै।जिसकेलिएहमारास्नातकपाठ्यक्रमभीमहत्वपूर्णसिद्दहोगा

	SYLLABUS	
Unit I:		

गद्यसंदेश: संस्कृति और साहित्य का परस्पर संबंध -डां.सुन्दर रेड्डी जी

Unit II:		

भारत एक है-रामधारी सिंह दिनकर

Unit III:		

एच.आई. वी./एड्स-मूल लेखक-डां.प्रकाश भातल बंडे,डां.रमण गंगा खंडेकर

Unit IV:		

जरिया-चित्रा मुदगल

Unit V:		

भूख हडताल-श्री बालशौरी रेड्डी
भूख हडताल-श्री बालशौरी रेड्डी
3.परमात्मा का कुत्ता-मोहन राकेश

व्याकरण

1.कार्यालय हिन्दी शब्दावली अंग्रेजी-हिन्दीPage no 72 to76
2. कार्यालयों की कुछ प्रशासनिक शब्द अंग्रेजी-हिन्दी-Page no 76 to81
3.शब्दों का वाक्यों में प्रयोग
4. संधि
5. पत्र लेखन

Outcomes:		

1.विद्यार्थियोंकोसंस्कृति,साहित्यऔरविज्ञानआदिविषयोंसेसंबंधअवगतकरायाजाताहैजोउनकेव्यक्तित्वनिर्माणमेंसहायकहोताहै।

2.विद्यार्थियोंकोमानवमूल्योंकीसीखइसपाठकेमाध्यमसेदीगईहै।साथहीसच्चेवीरताकापरिचयदेकरउन्हेंसच्चेवीरबननेकाप्रेरणदीगईहै।

3.एड्सकेइतिहासउसकेफैलावउससेबचनेकेउपायआदिकेबारेमेंउसकेयुवावर्गकोविस्तृतज्ञानदियाजायतोइसमहामारीसेबचनाबहुतआसानहै| इसप्रकारयहवैज्ञानिकनिबंधविद्यार्थियोंकोअत्यंतउपयोगीहै।

4.विद्यार्थियोंकेलिएयहएकसीखहैकिकिसीभीप्रलोभनमेंनपढऔरबहुतसूझबूझकेसाथजीवनकथमबढाए|
गैरसरकारीकार्यालयोंमेंनौकरीप्राप्तकरनेतथासरकारीउच्चस्थापरहोनेवालेविभिन्नपरीक्षाओंमेंसफलताप्राप्तकरनेमेंअत्यंतउपयोगीहैं।

5.वर्तमानयुवावर्गकोस्वाभिमानसेसबहासिलकरनेकीसीखदीगईहै,
नाकिकिसीपरआधारितरहकर।विद्यार्थियोंकेलिएयहएकसीखहैकिकिसीभीप्रलोभनमेंनपढ|

REFERENCES:

1.V. LNarasimhamSivakoti And Dr.D.LakshmiHindi GadyaSandesh Semester -Loven Publishers2.MeenuKadhariya ‘Kapil’ Adunik Hindi VyakaranEvamRachanaV.Kumar Publications Pvt.Ltd.

3.BhattKamaleswar Prayojanmulak Hindi Children Book Bank.

B.C.A-Semester II

Foundation Course – 3

INFORMATION & COMMUNICATION TECHNOLOGY –1 (ICT-1)

Computer Fundamentals and Office Tools

Credits: 2	Theory: 2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal: -

Course Objectives:

1. Give students an in-depth understanding of why computers are essential components in business,education and society. -Introduce the fundamentals of computing devices and reinforce computer vocabulary, particularly with respect to personal use of computer hardware and software, the Internet, networking and mobile computing.
2. Provide hands-on use of Microsoft Office applications Word, Excel, Access and PowerPoint. Completion of the assignments will result in MS Office applications knowledge and skills.

SYLLABUS

Unit I:

Basics of Computers: Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

Unit II:

Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Pane.

Unit III:

MS-Word: Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting andPrinting of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format –Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge.

Unit IV:

MS-PowerPoint: Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using aTemplate - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation.

Unit V:

MS-Excel: Overview of Excel features – Creating a new worksheet, selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns –Changing column widths and row heights, auto format, changing font sizes, colors, shading.

Outcomes:

1. Learns basics of computers.
2. Familiarize with Operating systems and working of a Computer.
3. Ability to create professional and academic documents using MS word.
4. Ability to create professional and academic documents using MS Power Point.
5. Ability to create professional and academic documents using MS Excel.

References:

1. Fundamentals of Computers by ReemaThareja, Publishers: Oxford University Press,India.

2.Fundamentals of Computers by V.Raja Raman, Publishers : PHI

3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh andFaitheWempen, Publishers: Wiley.

B.C.A-Semester II

Foundation Course – 4

COMMUNICATION SKILLS AND SOFT SKILLS-1 (CSS -1)

Credits: 2	Theory: 2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal: -

Course Objectives:

1. Vocabulary building as vocabulary is fundamental to effective communication.
2. Choosing appropriate words to express oneself in the right tense.
3. Preparing the students to face competitive examinations by improving their grammatical skills.
4. To improve the students listening and reading skills for better performance in competitive examinations.

	SYLLABUS	
Unit I:		

Vocabulary Building

1a. Prefixes and Suffixes
1b. Conversion
1c. Compounding
1d. Analogy
2. One-Word Substitutes
3. Words Often Confused
4. Synonyms and Antonyms
5. Phrasal Verbs

Unit II:		

Grammar - 1

1. Types of Verbs 2. Subject-Verb Agreement

Unit III:		

Grammar - 2

1. Meanings of Modals
2. Tense (Present and Past) and Aspect
3. The Several Possibilities for Denoting Future Time
4. Articles and Prepositions

Unit IV:		

Listening Skills

1. The Importance of Listening2. Types of Listening
3. Barriers/Obstacles to Effective Listening4. Strategies for Effective Listening.

Unit V:		

Reading Skills

1. Skimming 2. Scanning 3. Intensive Reading and Extensive Reading 4. Comprehension.

Outcomes:		

1. Enable students to improve their vocabulary and the usage.
2. Enable students to learn and hone the language skills for apt expression.
3. Enable students to master tenses for effective communication.
4. Enable students to develop effective listening skills and reading skills.

B.C.A-Semester II

STATISTICAL METHODS AND THEIR APPLICATIONS

Credits: 5	Theory: 6 Hours	Tutorials: -
Max Marks: 100	External: 100 Marks	Internal: 25

Course Objectives:

1. To understand the scope and limitations of statistical methods.
2. To understand the Arithmetic mean, median, mode, geometric mean and Harmonic mean and their properties.
3. Apply the Measures of dispersion techniques to find deviations central tendency.
4. Find the differences between Karl Pearson's, Bowley's and Kelly's measures of skewness.
5. To understand the use of linear regression analysis to develop an empirical model of experimental data.

	SYLLABUS	
Unit I:		

Introduction - scope and limitations of statistical methods - classification of data - Tabulation of data - Diagrammatic and graphical representation of data - Graphical determination of percentiles and quartiles.

Unit II:		

Measures of location: Arithmetic mean, median, mode, geometric mean and Harmonic mean and their properties.

Unit III:		

Measures of dispersion: range, Quartile deviation, mean deviation, standard deviation, combined standard deviation, co-efficient of variation.

Unit IV:		

Measures of Skewness Karl Pearson's, Bowley's, Kelly's and co-efficient of skewness and kurtosis based on moments.

Unit V:		

Correlation - Karl Pearson -spearman's rank correlation - concurrent deviation method.
Regression Analysis: Simple Regression Equations.

Outcomes:		

1. Evaluate the probabilities and conditional probabilities.
2. Evaluate expectations and conditional expectations of random variables.
3. Approximate the distribution of sum of random variables using CLT.
4. Construct point estimators using the method of maximum likelihood.
5. Calculate the number of samples needed to construct confidence levels on the mean and variance of a normal distribution.

Reference Books:		

1. Fundamental of mathematical Statistics - S.C.Gupta&V.K.Kapoor- Sultan Chand
2. Statistical Methods - Snedecor G.W. & Cochran W.G. oxford & +DII
3. Elements of statistics - Mode. E.B. -Prentice Hall
4. Statistical Methods - Dr.S.PGupta - Sultan chand& sons.

OPERATING SYSTEMS

Credits: 3	Theory: 4 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:

1. To understand the services provided by and the design of an operating system.
2. To understand the structure and organization of the file system.
3. To understand what a process is and how processes are synchronized and scheduled.
4. To understand different approaches to memory management.
5. Students should be able to use system calls for managing processes, memory and the file system.

SYLLABUS

Unit I:

Operating System Introduction: Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations, Evolution of Operating Systems - Simple Batch, Multi programmed, time shared, Parallel, Distributed Systems, Real-Time Systems, Operating System services, System Calls.

Unit II:

Process and CPU Scheduling - Process concepts - The Process, Process States, Process Control Block, Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Processes Scheduling Concepts- CPU-I/O Burst Cycle, CPU Scheduler, Preemptive Scheduling, Dispatcher, Scheduling Criteria, Scheduling algorithms-FCFS, SJF, Priority and RR Scheduling. **Process Coordination** - Process Synchronization, The Critical section Problem, Synchronization Hardware, Semaphores-Usage, Implementation, Classic Problems of Synchronization- The Dining Philosophers Problem.

Unit III:

Deadlocks: System Model, Deadlock Characterization, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.

Unit IV:

Memory Management: Basic Hardware, Address Binding, Logical & physical Address Space, Swapping, Contiguous Memory Allocation, Paging- Basic Method, Hardware Support, Protection, Structure of Page Table, Segmentation- Basic Method, Hardware, Segmentation with Paging.**Virtual Memory**: Demand Paging, Performance of Demanding Paging, Page Replacement Page Replacement Algorithms, Allocation of Frames.

Unit V:

File System: File Concept- File Attributes, File Operations, File Types, Access methods- Sequential Accesses, Direct Accesses, Directory Structure- Single-Level, Two-Level, Tree Structured, Acyclic Graph and General Graph Directory.**Mass Storage Structure** - Overview of Mass Storage Structure, Disk Structure, Disk Attachment.

Outcomes:

1. Lean Operating System functionalities, Objectives, structure, operations and services including evaluation of OS.
2. Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.
3. Analyze memory management techniques, concepts of virtual memory and disk scheduling.
4. Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.
5. Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.

Reference Book:

Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester II

OPERATING SYSTEMS LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To familiarize the students with the Architecture of UNIX Operating System.
2. To learn the mechanisms of CPU Scheduling and Deadlock Detection algorithms.
3.To learn mechanisms of Processes synchronization using semaphores.

SYLLABUS

1. Introduction
2. Basic UBUNTU Commands
3. WAP to create chain of Process using fork() System Call.
4. WAP for FCFS Scheduling algorithm.
5. WAP for SJF Scheduling algorithm.
6. WAP for RR Scheduling algorithm.
7. WAP for Deadlock Avoidance algorithm(Bankers Algorithm)
8. WAP for FIFO Page Replacement Algorithm.
9. WAP for Optimal Page Replacement Algorithm.
10. WAP for LRU Page Replacement Algorithm.
11. WAP to implement Sequential File Allocation.
12. WAP to implement Basic File operations.

Outcomes:

1. Students are able to differentiate difference between MS-DOS, Windows and UNIX OS.
2. Students are able to write programming by using system calls (read, write,fclose,fork,perror,pipe,sysconf) using vi editor.
3. Learn the role of CPU Scheduling algorithms and memory management using page replacement algorithms.
4.Students are familiar with basic UNIX commands.
5.Be familiar with shell programming and shell commands.

OBJECT ORIENTED PROGRAMMING USING C++

Credits: 3	Theory: 4 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:

This course covers object-oriented programming principles and techniques using C++. Topics include pointers, classes, overloading, data abstraction, information hiding, encapsulation, inheritance, polymorphism, file processing, templates, exceptions, container classes, and low-level language features. This course also covers basic concepts for software design and reuse.

SYLLABUS

Unit I:

Principles of OOP: Software Crisis. Software Evolution- Programming Paradigms. Object Oriented Technology- Basic concepts and benefits of OOP – Applicationof OOP, OOP languages

Introduction to C++: History of C++, Structure of C++, Application of C++, tokens,keywords, identifiers, basic data types, derived data types, derived data types,symbolic constant, dynamic initialization, reference variables, scope resolution operator,type modifiers, type casting operators and control statements, input and output statementsin C++, Function prototyping and components, Passing parameters: Call by reference,Return by reference, Inline function, Default arguments, Over loaded function.

Unit II:

Classes and Objects: Class specification, Member function definition – nestedmember function, access qualifiers, static data members and, member functions. Instancecreation - Array of objects - Dynamic objects - Static Objects – Objects as arguments -Returning objects

Constructors and Destructors: Constructors- Parameterized constructors, OverloadedConstructors, Constructors with default arguments, copy constructors, Destructors.

Unit III:

Operator Overloading: Operator function-overloading unary and binaryoperators, overloading the operator using Friend function, Stream operator overloading, Dataconversion.

Inheritance: Defining derived classes. Single Inheritance - Protected data with privateinheritance - Multiple Inheritances - Multi Level Inheritance - Hierarchical Inheritance.Hybrid Inheritance - Multi path Inheritance - Constructors in derived and base Class -Template in Inheritance - Abstract classes - Virtual function and Dynamic polymorphism. -

Virtual destructor - Nested Classes

Unit IV:

Functions in C++: Virtual functions- need for Virtual function,Pure Virtual functions, Generic Programming withTemplates. Introduction, function templates, overloaded function templates, user definedtemplates arguments, class templates, Inheritance of class templates.

Unit V:

Files: file stream, file pointer and manipulation, fileopen and close, sequential and random access.

Exception Handling: Principle of Exception handling, Exception handling mechanism, Multiple catch, Nested try, re throwing the Exception.

Outcomes:

1. Understands the concepts of Object-Oriented Programming
2. Learns how to use constructors and destructors
3. Designs of programs by reusing the properties of existing classes
4. Learns how to implement dynamic binding, generic classes
5. Understands how to manage files and exceptions in a program.

References:

1.Object Oriented Programming with C++ by ReemaThareja, OXFORD University Press
2.The Complete Reference C++, Herb Schildt, Tata McGraw-Hill, Fourth Edition.
3.Robert Lafore, "Object Oriented Programming in C++", Galgotia Publication Pvt. Ltd,4 thedition, New Delhi, 2002
4.Ashok N Kamathane, "Object Oriented Programming with ANSI & Turbo C++", Pearson Education, New Delhi, 2003.
5.BjarneStroustrup," C++ Programming language", Pearson Education, New Delhi, 2001.
6.Venugopal K R, RajkumarBuyya and Ravishankar T," Mastering C++", TMH, ND, 2006

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester II

OBJECT ORIENTED PROGRAMMING USING C++ LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

- At the end of the course students should be familiar with the main features of the C++ language.
- Be able to write a C++ program to solve a well specified problem.
- To make the students understand the features of object-oriented principles and familiarize them with virtual functions, templates and exception handling.
- To make the students to develop applications using C++.

SYLLABUS

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C++ program to generate the first n terms of the sequence.
3. Write a C++program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
4. Write a C++program to find the factorial of a given integer
5. Write a C++program to find the GCD of two given integers
6. Write a C++ program that uses a recursive function for solving Towers of Hanoi problem.
7. Write a C++program to implement call by value and call by reference parameters passing
8. Write a C++ program to implement function templates
9. Write a program to implement Overloading and Overriding
10. Write a C++ program to implement the matrix ADT using a class. The operations supported by this ADT are:
    a. Reading a matrix.
    b. Printing a matrix
    c. Addition of matrices
    d. Subtraction of matrices
    e. Multiplication of matrices
11. Write C++programs that illustrate how the Single inheritance, Multiple inheritance Multi-level inheritance and Hierarchical inheritance forms of inheritance are supported
12. Write a C++program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class
13. Write a C++ program that illustrates how run time polymorphism is achieved using virtual functions.

Outcomes:

1. Student will be able to write programs using classes and objects in C++.
2. Ability to write programs using functions in C++.
3. Ability to write programs using constructors in C++.
4. Able to write programs using operator overloading and function overloading techniques.
5. Able to implement virtual functions.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester II
MULTIMEDIA & FLASHLAB

Credits:2	Theory:2 Hours	Tutorials: -

Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:		
This course is intended for users who want to expand their introductory skills in developing animations and working with ActionScript.		
	SYLLABUS	

Implement the following tasks using ADOBE

1. Resume designing
2. Paragraph setting
3. Text column wise designing
4. Text base paper add
5. Create college Logo
6. Table creation
7. Student marks list
8. Book work
9. Picture insertion
10. Application form
11. Text based Visiting card
12. Notice designing
13. Typographic alignment styles
14. Wedding card designing
15. Letter models

Outcomes:		

1. Learned about tools throughout the course by implementing the tools on objects in stage area.
2. Learn to create, manipulate, organize text objects and designed objects.
3. Demonstrate the ability moving objects with color, shape and size changing according to timeline and motion tween to produce animations.
4. Learn to create buttons and control buttons using action scripts.
5. Able to develop a small video with minimum 2-4 minutes.

Witheffectfrom2019-20admittedbatch

SEMESTER –III

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language-English	100	25	75	4	3
2	Second Language-Hindi/Sanskrit	100	25	75	4	3
3	Foundation Course – 5(ICT)-2 Information & Communication Technology	50	0	50	2	2
4	Foundation course -6(CSS)-2 Communication & Soft Skills	50	0	50	2	2
5	Accounts and Financial Management	100	25	75	6	5
6	Data Base Management Systems	100	25	75	4	3
7	Data Base Management Systems Lab	50	0	50	2	2
8	Programming with JAVA	100	25	75	4	3
9	Programming with JAVA Lab	50	0	50	2	2
10	Tally Software	50	0	50	2	2
Total		**750**			**32**	**27**

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester III

ENGLISH

Credits:3	Theory:4 Hours	Tutorials: -
Max.Marks:100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:

1. To make the students read and comprehend text-based passages.
2. To make the students understand stress and rhythm patterns employing poetic devices.
3. To make students learn the four skills of listening, speaking, reading, and writing more effectively.
4. To make students know combination of words and transformation of sentences.

SYLLABUS

UNIT – I: PROSE

1.Shyness My Shield –M.K.Gandhi
2.Why People Really Love Technology an Interview with Genevive Bell –Alexix Madrigal

UNIT – II: POETRY

1.Once Upon a Time – GabrialOkara
2.Digging – Seamus Heaney

Unit-III:Short Story and One act Play

1.The Interpreter of Maladies –Jhumpa Lahari
2.My Beloved Charioteer – Shashi Deshpande
3. KanyaSulkam- Gurajada. Apparao

Unit IV Grammar

1.Transformation of Sentences -Simple, Complex and Compound
2.Error Analysis
3.Expansion of an Idea or a proverb,
4. Report writing,
5. Reporting for the media
6. Vocabulary
7. JAM, Note Making,

Language Activity:

1. Expansion of an Idea or a proverb,
2. Report writing,
3. Reporting for the media
4. Vocabulary
5. JAM, Note Making,

Course Outcomes

1. Enable the students enhancing their higher order skills like analytical skills, problem solving skills, reviewing and critical thinking.
2. Enable students improve and understand intonation patterns in language.
3. Enable the students understand literary, cultural and higher order literary aspects.
4. Enable students improve English language skills through text based exercises.

Recommended Books:

1. Global Horizons Orient Black Swan.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester III

SANSKRIT

Credits:1.5	Theory:3 Hours	Tutorials: -
Max Marks: 75	External: 50 Marks	Internal:25 Marks

Course Objectives:		
1.To make the students acquire required level of linguistic knowledge and skills to communicate effectively in English. 2. To make students think creatively and employ literary tools for better expression through poetry. 3. To make students use appropriate words and structures required for a situation. 4. To make students improve vocabulary and grammatical ability.		
	SYLLABUS	
Unit I:		
Drama: 1. DŪTAVĀKYAM - One Act Play by Bhāsa-(Ślokano.s 7, 16, 20, 26, 27, 31, 40, 41 are only to be given for Pratipadārthatātparyalekhanam)		
Unit II:		
Upanishad: 2. ŚIṢYĀNUŚĀSANAM - Śikṣāvallī of TAITTARĪYOPANIṢAD		
Unit III:		
Alamkāra-s 1.Upamā 2. Ananvaya3. Utprekṣā 4. Dīpakam5. Aprastutapraśamsā		
Unit IV:		
History of Poetics: 1. Pāṇinīh2. Kauṭilyah3. BharataMunih 4.Bhāravih 5.Māghah		
Unit V:		
Grammar: 1. ŚABDĀH - Nouns ending in consonants 1. Vāk2. Marut3. Bagavat4. Rājan 2. KṚTPRATYAYĀH – Ktvā, Lyap, Tumun, Kta		
Outcomes:		
1.Student will learn how to behave with the family and respect towards the guest who comes to their house. 2. Student will learn to attain their target in their life. 3. Student will learn the worldly knowledge along with education. 4. Student will learn the sentence formation of Sanskrit language. 5. Student will learn the division of words and group of words in a sentence.		
Text Book:		
1. ***VIŚVABHĀRATĪ*** **-3** - Developed and approved by the Sanskrit subject experts committee, Published by Lorven Publications, Hyderabad, 2015.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester III
HINDI

Credits:1.5	Theory:3 Hours	Tutorials: -

Max Marks: 75	External: 50 Marks	Internal:25 Marks
Course Objectives:		
	SYLLABUS	
Unit I:		
काव्यदीप 1.कबीरदास-साखी(१-२०) 2.मातृभूमि		
Unit II:		
हिन्दीसाहित्यकाइतिहास आदिकाल-वर्गिकरण,काल,परिस्थितियां[CO4] पृथ्वीराज रासो		
Unit III:		
3साधारणनिबन्ध 1.समाचारपत्र 2.बेकारीकी समस्या 3.कम्प्यूटर 4.पर्यावरण और प्रदूषण 5.साहित्य और समाज		
Unit IV:		
4अनुवाद अनुवाद अभ्यास-अंग्रेजी से हिन्दी		
Unit V:		
5प्रयोजनमूलकहिन्दी 1. परिपत्र		
Outcomes:		
1.छात्र- छत्रोंकोइनदोहोंकेमाद्यमसेएकसमाजमेंएकउत्तमनागरिककेरूपमेंसमाजकीसेवाकिसतरहकरनाचाहिएइसकीशिक्षा मिलतीहै। 2.कालोंकीमुख्यप्रवृत्तियोंसेपरिचयहोकरसाधारणहिन्दीपाठकहिन्दीसाहित्यकीजानकारीप्राप्तकरसकेगा। 3.निबंधोंकेमाध्यमसेविध्यार्थियोंकोसामान्यज्ञानप्राप्तहोताहैजैसेउन्हेंजीवनमेंबहुउपयोगीसिद्दहै।स्नातकस्तरपरछात्रोंओं कोअनुवादसाहित्यकऔरअनुप्रयोगिकमाध्यमसेसिखाजारहाहै, जोउनकोभविष्यमेंअत्यंतलाभाकारीसिद्दहोगा 4.तोडतीपत्तरमेंश्रमकेमहत्वकोबतातेहुएप्रलोभनोंसेदूररहनेकाउपदेशदियाहै। 5.सार-लेखविद्यार्थियोंकीविश्लेषण,संश्लेषण,तर्क, एवंनिर्णयआदिशक्तियोंकोविकासकरनेमेंउपयोगहैसरकारीतथागैरसरकारीकार्यालयोंमेंनौकरीप्राप्तकरनेतथासरका रीउच्चस्थरपरहोनेवालेविभिन्नपरीक्षाओंमेंसफलताप्राप्तकरनेमेंअत्यंतउपयोगीहैं।		
References:		
Hindi kavya deep writer-Sri.V. Radhakrishna Murty-2016, Maruthi Publications, ISBN-978-93-84361-35-8		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester III
Foundation Course – 5

INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

Internet Fundamentals and Web Tools

Credits: 2	**Theory: 2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal: -**

Course Objectives:

1.The aim of this course is to provide you the conceptual and technological developments in the field of Internet and web designing with the emphasis on comprehensive knowledge of Internet, its applications. 2.The World Wide Web with its widespread usefulness has become an integral part of the Internet. Therefore, this course also puts emphasis on basic concepts of web design.

	SYLLABUS	
Unit I:		
Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.		
Unit II:		
Internet applications: Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking: twitter, tumblr, Linkedin, facebook, flickr, skype, yelp, vimeo, yahoo!, google+, youtube,WhatsApp, etc.		
Unit III:		
E-mail: Definition of E-mail - Advantages and Disadvantages – User-Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management,Email Inner Workings.		
Unit IV:		
WWW- Web Applications, Web Terminologies, Web Browsers,URL – Components of URL, Searching WWW – Search Engines and Examples.		
Unit V:		
Basic HTML: Basic HTML – Web Terminology – Structure of a HTML Document – HTML, Head and Body tags – Semantic and Syntactic Tags – HR, Heading, Font, Image and Anchor Tags –Different types of Lists using tags – Table Tags, Image formats – Creation of simple HTML Documents.		
Outcomes:		
1. Learn the basics of the Internet and World Wide Web. 2. Understand fundamental tools and applications of internet. 3. Familiarize with advantages and disadvantages of Email. 4. Ability to explain the applications of Web. 5. Comprehend the technologies for Hypertext Mark-up Language (HTML).		
Reference book:		
1. In-line/On-line: Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers: TMH.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester III
Foundation Course-6

COMMUNICATION AND SOFT SKILLS(CSS-2)

Credits: 2	Theory: 2 Hours	Tutorials: -
Max Marks: 50	**External: 50 Marks**	**Internal: -**
Course Objectives:		

1. To make the students learn the sounds of International Phonetic Alphabet (IPA). 2. To make the students learn the importance of stress and intonation patterns for the clarity in speech. 3. To make students learn employability skills to succeed in interviews through effective speaking. 4. To make students learn effective writing skills.
SYLLABUS
Unit-I: 1. Pronunciation-1 1.The sounds of English
Unit:II Pronunciation- 2 1.Stress 2.Intonation
Unit-III: Speaking Skills-1 and 2 1.Conversational skills 2.Interview Skills 3.Presentation Skills 4.Public Speaking Skills 5.Role Play 6. Debating 7.Group Discussion.
Unit-IV: Writing Skills 1.Spelling 2.Punctuation 3.Information Transfer
Course Outcomes
1. Enable the students to pronounce the words in English correctly through phonemic transcription. 2. Enable students understand the role of stress and intonation in language learning. 3. Enable students to write with clarity using punctuation marks correctly. 4. Enable students to gain effective writing skills to excel at professional life.
Recommended Books:
English in Use - Orient Black Swan

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester III
ACCOUNTS AND FINANCIAL MGMT

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**
Course Objectives:		

1.To understand the accounting principles and various final accounts 2.To impart knowledge on methods of depreciation 3.To enable the students to understand the various functions of financial management. 4.To impart knowledge on Short term Investment decision 5.To give inputs on operational mechanism of capital marketand aware of the role of merchant banker in capital market.

	SYLLABUS	
Unit I:		
Introduction: meaning, objectives, process, limitations and basic terms of Accounting;Generally accepted Accounting Principles; Journalizing, Posting and Preparation of trial balance. Rectification of errors.		
Unit II:		
Capital and revenue items; Reserves and Provisions; Depreciation: Meaning, causes,accounting procedure, methods of computing depreciation – straight line method anddiminishing balance method, change of method.Final Accounts with adjustments;		
Unit III:		
Nature of Financial Management: Scope of Finance, Finance functions, FinancialManager's role, Financial goal; Profit maximization Vs Wealth maximization, Objective of financial Management, Finance and related disciples.		
Unit IV:		
Working Capital Management: Meaning, nature and planning of Working Capital.Permanent and variable Working Capital. Balanced working position, determinates ofworking Capital, Issues of working Capital Management. Management of cash andMarketable Securities and Receivables Management.		
Unit V:		
Capital Market Efficiency and Capital Markets in India: Capital market efficiency,Capital Markets in India, Primary and secondary capital markets in India, **MerchantBanking:** Role in Capital markets, mutual funds and Capital Markets. Long-term Finance:Shares, debentures and Terms loans (including right issue of shares), Zero-interestdebentures, Secure Premium notes (SPN) with warrants.		
Outcomes:		
1. Students will be aware of accounting principles and prepare the various final accounts. 2. Students will be able to handle the various depreciation methods. 3.Students will be aware of various functions and objectives of financial management 4.Students will be able to handle the short term financial needs of the organization 5. Student will gain knowledge on components of secondary markets and also understand the role of merchant banker incapital market.		
References:		
Suggested Readings: 1.Gupta R.L. and Radha Swami M., Financial Accounting, Sultan Chand and Sons., New Delhi. 2. Financial Management Accounting by:I.M.Pandey, Vikas Publications House, NewDelhi.		

GayatriVidyaParishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester III

DATABASE MANAGEMENT SYSTEM

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:

The objective of the course is to enable students to understand and use a relational database system. Introduction to Databases, Conceptual design using ERD, Functional dependencies and Normalization, Relational Algebra is covered in detail. Students learn how to design and create a good database and use various SQL operations. The course concludes with an overview of transaction management and introduction to advanced and non-relational databases.

	SYLLABUS	
Unit I:		

Database Systems: Introducing the database and DBMS, Files and File Systems, Problems with File System and advantages of Database Management systems.**Data Models**: The importance of Data models, Data Model Basic Building Blocks, The evaluation of Data Models, Degree of Data Abstraction.

Unit II:		

The Relational Database Model: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, Data Dictionary, Relationships with in the Relational Database, Data, Indexes, Codd's relational database rules. **Entity Relationship Model:** The ER Model, Developing ER Diagram.

Unit III:		

Normalization of database tables: Database Tables and Normalization, The need for Normalization, The Normal forms and High-level Normal Forms.

Unit IV:		

Introduction to SQL: Data Definition Commands, Data Manipulation Commands, select queries, Advanced Data Definition Commands, Advanced Select queries, Virtual Tables, Joining Database Tables. **Advanced SQL:** Relational Set Operators, SQL Join Operators, Subqueries and correlated queries, SQL Functions, Procedural SQL.

Unit V:		

Transaction Management and Concurrency Control: What is transaction, Concurrency control, Concurrency control with locking Methods, database recovery management.

Outcomes:		

1. Able to master the basic concepts, different data models and understand the applications of databasesystems.
2. Able to construct Relational model and an Entity-Relationship (E-R) model from specifications and to transform to relationalmodel.
3. Understandandapplydatabasenormalizationprinciplesandto constructunary/binary/ queries in RelationalAlgebra.
4. Able to construct SQL queries to perform CRUD operations on database.
5. Understand principles of database transaction management, database recovery,security.

References:		

1. Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson(2007)
2. Elimasri / Navathe, Fundamentals of Database Systems, Fifth Edition, Pearson Addison Wesley(2007).
3. Raman A Mata – Toledo/Panline K Cushman, Database Management Systems, Schaum'sOutlibe series, Tata McGraw Hill (2007).
4. C.J. Date, A.Kannan, S.Swamynathan, An Introduction to Database Systems, Eight

Edition, Pearson Education (2006).
5.AtulKahate, Introduction to Database Management Systems, Pearson Education (2006).

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester III
DBMS LAB

Credits:2	**Theory:2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:

The major objective of this lab is to provide a strong formal foundation in database concepts, technology and practice to the participants to groom them into well-informed database application developers.

	SYLLABUS	

1.Order Tracking Database

The Order Tracking Database consists of the following defined six relation schemas.Employees(eno, ename,zip,hdate)

Parts(pno,pname,qoh,price,level) (hint: qoh: quality on hand)

Customers(cno,cname,street,zip,phone)

Orders (ono,cno,eno,receiveddate,shipped date)

Odetails(ono,pno,qty)

Zipcodes(zip,city)

Solve the following queries

1. Get all pairs of customer numbers for customers based on same zip code.
2. Get part numbers for parts that have been ordered by at least two different customers.
3. For each odetail row, get ono,pno,pname,qty and price values along with the total price for the item. (total price=price*qty)
4. Get customer name and employee pairs such that the customer with name has placed an order through the employee
5. Get customer names living in fort dodge or liberal.
6. Get cname values of customers who have ordered a product with pno 10506.
7. Get pname values of parts with the lowest price.
8. Get cname values of customers who have placed at least one order through the employee with number 1000.
9. Get the cities in which customers or employees are located.
10. Get the total sales in dollars on all orders.
11. Get part name values that cost more than the average cost of all parts.
12. Get part names of parts ordered by at least two different Customers.
13. Get for each part get pno,pname and total sales
14. For each part, get pno,pname, total sales, whose total sales exceeds 1000
15. Get pno, part names of parts ordered by at least two different customers.
16. Get cname values of customers who have ordered parts from any one employee based in wichita or liberal.

2.Shipment database

An enterprise wishes to maintain the details about his suppliers and other corresponding details. For that it uses the following tables

Table s(sid,sname,address)
primary key : sid

Table p(pid,pname,color)
primary key : pid

Table cat(sid,pid,cost)
primary key : sid+pid
reference key : sid references s.sid
pid references p.pid

Solve the following queries

1. Find the pnames of parts for which there is some supplier
2. Find the snames of suppliers who supply every part.
3. Find the snames of suppliers who suppy every red part.
4. Find the pnames of parts supllied by london supplier and by no one else
5. Find the sids of suppliers who charge more for some part other than the average cost of that part.
6. Using group by with having clause get the part numbers for all the parts supplied by more than one supplier.
7. Get the names of the suppliers, who do not supply part p2.
8. Find the sids of suppliers who supply a red and a green part
9. Find the sids of suppliers who supply a red or a green part
10. find the total amount has to pay for that supplier by part located from London

3.Employee database

An enterprise wishes to maintain a database to automate its operations. Enterprise divided into to certain departments and each department consists of employees. The following two tables describes the automation schemas

Dept (deptno, dname, loc)

Emp (empno,ename,job,mgr,hiredate,sal,comm,deptno)

1. Create a view, which contain employee names and their manager names working in sales department.
2. Determine the names of employee, who earn more than their managers.
3. Determine the names of employees, who take highest salary in their departments.
4. Determine the employees, who located at the same place.
5. Determine the employees, whose total salary is like the minimum salaryof any department.
6. Update the employee salary by 25%, whose experience is greater than 10 years.
7. Delete the employees, who completed 32 years of service.
8. Determine the minimum salary of an employee and his details, who join on the same date.
9. Determine the count of employees, who are taking commission and not taking Commission.
10. Determine the department does not contain any employees.
11. Find out the details of top 5 earner of company.
12. Display those managers name whose salary is more than average salary of his employees.
13. Display those employees who joined the company before 15th of the month?
14. Display the manager who is having maximum number of employees working under him?
15. Print a list of employees displaying ‘less salary’ if less than 1500 if exactly 1500 display as ‘exact salary’ and if greater than 1500 display ‘more salary’?
16. Display those employees whose first 2 characters from hire date-last 2 characters of salary?
17. Display those employees whose 10% of salary is equal to the year of joining?
18. In which year did most people join the company? Display the year and number of employees.
19. Display the half of the enames in upper case and remaining lower case
20. Display ename, dname even if there no employees working in a particular department (use outer join).

4.Pl/sql programs

1. Write a pl/sql program to check the given number is strong or not.
2. Write a pl/sql program to check the given string is palindrome or not.
3. Write a pl/sql program to swap two numbers without using third variable.
4. Write a pl/sql program to generate multiplication tables for 2,4,6
5. Write a pl/sql program to display sum of even numbers and sum of odd umbers in the given range.
6. Write a pl/sql program to check the given number is pollinndrome or not.
7. write a pl/sql procedure to prepare an electricity bill by using following table

table used: elect

name null? Type
mnonot null number (3)
cnamevarchar2(20)
cur_readnumber(5)
prev_readnumber(5)
no_unitsnumber(5)
amount number (8,2)
ser_taxnumber(8,2)
net_amtnumber(9,2)

8. Write a procedure to update the salary of employee, who belongs to certain department with a certain percentage of raise.

Outcomes:		

1. Able to apply the basic commands of SQL – DDL, DML.
2. Able to create the tables at different levels.
3. Able to create different databases with primary key, foreign keys and insert values for DDL and DML operations.
4. Able to solve the queries using PL/SQL.
5. Able to write procedures.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester III
OBJECT ORIENTED PROGRAMMING USING JAVA

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:

As the business environment becomes more sophisticated, the software development (software engineering is about managing complexity) is becoming increasingly complex. As of the best programming paradigm which helps to eliminate complexity of large projects, Object Oriented Programming (OOP) has become the predominant technique for writing software in the past decade. Many other important software development techniques are based upon the fundamental ideas captured by object-oriented programming.

	SYLLABUS	
Unit I:		

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING: Introduction,Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features: **OVERVIEW OF JAVA LANGUAGE**: Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **CONSTANTS, VARIABLES &DATATYPES:**Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values; **OPERATORS & EXPRESSIONS**.

Unit II:		

DECISION MAKING & BRANCHING: Introduction, Decision making with if statement, Simple if statement, if. Else statement, Nesting of if. else statements, the else if ladder, the switch statement, the conditional operator. **LOOPING**: Introduction, The While statement, the do-while statement, the for statement, Jumps in loops.

CLASSES, OBJECTS & METHODS: Introduction, defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods;

Unit III:		

INHERITANCE: Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes;

ARRAYS, STRINGS AND VECTORS: Arrays, One-dimensional arrays, creating an array, two – dimensional arrays, Strings, Vectors, Wrapper classes; **INTERFACES:** MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables;

Unit IV:		

MULTITHREADED PROGRAMMING: Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.**MANAGING ERRORS AND EXCEPTIONS:** Types of errors: Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement.

Unit V:		

APPLET PROGRAMMING: local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, running state, Idle or stopped state, Dead state, Display state.

PACKAGES: Introduction, Java API Packages, Using System Packages, naming conventions, Creating Packages, accessing a Package, using a Package.

MANAGING INPUT/OUTPUT FILES IN JAVA: Introduction, Concept of Streams, Stream classes, Byte Stream Classes, Input Stream Classes, Output Stream Classes, Character Stream classes: Reader stream classes, Writer Stream classes, Using Streams, Reading and writing files.

Outcomes:		

1. Will be able to understand how to write a java program
2. By learning classes and objects student will be able to learn how java provides security for variables and methods.
3. Understands how interfaces are useful for implementing multiple inheritance.
4. Able to write programs using multithreading, exception handling.
5. Acquire knowledge on designing user defined packages and file management.

References:

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

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester III

OBJECT ORIENTED PROGRAMMING USING JAVA LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To build software development skills using java programming for real world applications.
2. To implement object-oriented concepts of java.
3. To implement classical problems using java programming.

SYLLABUS

1. Java program to demonstrate the use of Harmonic Series.
2. Java program to display a number of even, odd and sum of even, odd program.
3. Java program to find a sub string in the given string.
4. Java program to arrange the given strings in Alphabetic Order.
5. Java program to implements Addition and multiplication of two Matrices.
6. Java program to demonstrate the use of Constructor.
7. Java program to display a use of method overloading.
8. Java program to demonstrate the use of overriding Method.
9. Java program for single Inheritance.
10. Java program for implementing Interface.
11. Java program on Multiple Inheritance.
12. Java program for to implement Thread, Thread Priority,
13. Java program to demonstrate Exception handling.
14. Java program to demonstrate Applet program.

Outcomes:

1. Student can write programs using concepts of OOP.
2. Able to write programs on method overloading and overriding techniques.
3. Able to implement programs by reusing the properties of existing classes.
4. Acquire knowledge on how to handle multiple requests and process them using multithreading.
5. Able to write client-side application development using applets.

TALLY LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

The objective is to teach the basic application of **Tally** to ensure students have exposure and hands on experience that enables to use the **Tally**effectively & efficiently preparing them to bridge the gap between the industry interfaces with academics.

SYLLABUS

1) Kiran started a business with the following transactions
   i) Kiran started business with Rs. 1,00,000/-
   ii) Kiran purchased goods with Rs. 20,000/-
   iii) Kiran sold products for Rs. 40,000/-
   iv) And he spent Rs. 5,000/- towards for salaries.
   I. Practical exercise for the above transactions are

   a) Creating Company Transactions
   b) Creation of Ledgers.
   c) Record of Vouchers.
   d) Preparation of Balance Sheet.
   e) Preparation of Profit and Loss Account
   f) Trial Balance
   g) Day Book

2) Create the above records for any organization and get certified by them with comments

Outcomes:

1. Ability to explain how to use a Tally s/w and its advantages.
2. Will be able to create a company in Tally s/w.
2. Ability to prepare profitand lossaccounts using Tally s/w.
3. Ability to prepare balance sheets for a given set of transactions.
4. Ability to create a Ledger accounts in Tally.

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SEMESTER –IV

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	*Foundation Course – 7** Communication & Soft Skills -3	50	0	50	2	2
2	*Foundation Course – 8** Analytical Skills	50	0	50	2	2
3	*Foundation Course - 9* ** Entrepreneurship)	50	0	50	2	2
4	*Foundation course* –10 Leadership Education	50	0	50	2	2
5	Unix	100	25	75	4	3
6	Data Structures Using Java	100	25	75	4	3
7	Data Structures Using Java Lab	50	0	50	2	2
8	Web Programming	100	25	75	4	3
9	Web Programming Lab	50	0	50	2	2
10	Unix Lab	50	0	50	2	2
Total		650			26	23

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester IV
Foundation Course-7

COMMUNICATION AND SOFT SKILLS(CSS-3)

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:

1. To promote personal growth as well as prepare students for success in life.
2. To install interest in writing skills.
3. To make students improve drafting and documentation skills for professional excellence.
4. To make students improve their employability skills and career search by building a bridge between campus and corporate.

SYLLABUS

Unit-I: Soft Skills

1. Positive Attitude
2.Body Language
3.SWOT/SWOC
4.Emotional Intelligence
5.Netiquette

Unit-II: Paragraph Writing

1. Paragraph Structure
2. Development of Ideas

Unit-III: Paraphrasing and Summarizing

1. Elements of Effective Paraphrasing
2. Techniques of Paraphrasing
3. What Makes a Good Summary
4. Stages of Summarizing

Unit IV Letter Writing andResume and CV

1. Letter Writing (Formal and Informal)
2. E-Correspondence
3.Resume and Curriculum Vitae
4. Cover Letters

Course Outcomes

1. Enable students develop positive attitude, emotional intelligence and analytical abilities.
2. Enable students to improve critical and creative writing and thinking competencies
3. Enable students develop effective documentation skills.
4. Enable students improve upon their employability skills and life skills to be on the success side in their professional and social life.

Recommended Books:

3. Skills Pro-III Orient Black Swan.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester IV
Foundation Course-8
ANALYTICAL SKILLS

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:		
The overall objective of quantitative analysis is: 1.To provide students with an approach to problem solving through logic and reasoning. 2. Determine quantitative relationships and solutions to problems.		
	SYLLABUS	
Unit I:		
Data Analysis: -The data given in a Table, Graph, Bar Diagram, Pie Chart, Venn diagram or a passage is to be analyzed and the questions pertaining to the data are to be answered.		
Unit II:		
Sequence and Series: - Analogies of numbers and alphabets completion of blank spaces following the pattern in A: b::C: d relationship odd thing out; Missing number in a sequence or a series.		
Unit III:		
Arithmetic Ability: -Algebraic operations BODMAS, Fractions, Divisibility rules, LCM&GCD (HCF). **Date, Time and Arrangement Problems:** Calendar Problems, Clock Problems, Blood Relationship.		
Unit IV:		
Quantitative aptitude: Averages, Ratio and proportion, Problems on ages, Time-distance – speed.		
Unit V:		
Business computations: - Percentages, Profit &loss, Partnership, simple compound interest.		
Outcomes:		
1. Ability to solve data representation problems. 2. Learns to solve problems regarding sequences and series. 3. Improves basic arithmetic problem solving. 4. Improves quantitative aptitude. 5. Ability toexplain how to solve problems related to business computations.		
References:		
1. Quantitative Aptitude for Competitive Examination by R S Agrawal, S.Chand publications. 2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers. 3. Quantitative Aptitude: Numerical Ability (Fully Solved) Objective Questions, Kiran Prakashan, Pratogitaprakasan, Kic X, Kiran Prakasan publishers 4. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw hill publications. 5. Old question Paper of the exams conducted by (Wipro, TCS, Infosys, Etc) at their recruitment process, source-Internet.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester IV
Foundation Course-9
ENTREPRENEURSHIP

Credits:2	**Theory:2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:

1. To helps the student understand the key objectives of entrepreneur and different forms of business organizations.

2. To teach student the business idea recognition process and conceptualize it into business opportunity.

3. To helps the students gain knowledge about structure and functions of technical agencies, ancillary industries,and other judiciary institutions in industrial development.

4.To helps the students learn about the government policy and taxation related to start-ups.

	SYLLABUS	
Unit I:		
Entrepreneurship: Entrepreneur characteristics – Classification of Entrepreneurships – Incorporation of Business – Forms of Business organizations –Role of Entrepreneurship in economic development –Start-ups.		
Unit II:		
Idea Generation and Opportunity Assessment: Ideas in Entrepreneurships – Sources of New Ideas – Techniques for generating ideas – Opportunity Recognition – Steps in tapping opportunities.		
Unit III:		
Project Formulation and Appraisal: Preparation of Project Report –Content; Guidelines for Report preparation – Project Appraisal techniques –economic – Steps Analysis; Financial Analysis; Market Analysis; Technical Feasibility.		
Unit IV:		
Institutions Supporting Small Business Enterprises: Central level Institutions: NABARD; SIDBI, NIC, KVIC; SIDIO; NSIC Ltd; etc. – state level Institutions –DICs-SFC- SSIDC- Other financial assistance.		
Unit V:		
Government Policy and Taxation Benefits: Government Policy for SSIs- tax Incentives and Concessions –Non-tax Concessions –Rehabilitation and Investment Allowances.		
Outcomes:		
1. Students will acquire knowledge about entrepreneurshipand forms of business. 2. Student gain insight about innovation trends related to project assessment, formulation and appraisal techniques. 3. Student are able to understand the role of Banks, financial institutions and apex bodies 4. Student will acquire knowledge about different institutes extending support at central and stat e level. 5. Student gain knowledge regarding Government policies and taxation benefits w.r.t entrepreneurship establishmentbodies in industrial development.		
References:		
1. Arya Kumar, Entrepreneurship, Pearson, Delhi, 2012. 2. Poornima M.CH., Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi,2009 3. Michael H. Morris, ET. al., Entrepreneurship and Innovation, Cen gage Learning, New		

Delhi, 2011
4. KanishkaBedi, Management and Entrepreneurship, Oxford University Press, Delhi, 2009
5. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi, 2011
6. Khanka, SS, Entrepreneurship Development, S. Chand, New Delhi.
7. Peter F. Drucker,Innovation and Entrepreneurship.
8. A.Sahay, M. S. Chhikara, New Vistas of Entrepreneurship: Challenges &Opportunities.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester IV
Foundation Course-10

LEADERSHIP EDUCATION

Credits:2	Theory:2 Hours	Tutorials: -

Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To provide basic concepts of Organization, Management, Leadership. To understand the different theories of Management.
2. To impart knowledge on behavioral concepts, theories of Motivation and personality development.
3. To improve interpersonal behavior, leadership and influencing relations.
4. To improve group behavior, group dynamics and conflict management.
5. To familiarize team building concepts, participation in team building activities.

	SYLLABUS	
Unit I:		
Organisation – Management – Leadership –Meaning and Significance – Different theories – Trait Theory, Blake &Mountan Theory – Other functions of Management.		
Unit II:		
Behavioral Concepts – Individual Behaviour – Perception – Learning – Attitude Formation and Change – Motivation – Theories of Motivation – Personality Development.		
Unit III:		
Interpersonal Behaviour – Communication – Leadership – Influencing Relations – Transactional Analysis.		
Unit IV:		
Group Dynamics – Roles – Morale – Conflict – Groups – Inter-Group Behaviour – Inter-Group Collaboration and Conflict Management.		
Unit V:		
Team Building and Management – Developing team resources – Designing team – Participation and Repercussion – Team building activities.		
Outcomes:		

1. Students will understand the history of leadership and leadership theories. Students will understand how leadership models are put into practice personally, locally and globally.
2. Students will learn to practice leadership through active group participation.
3. Students will examine their own and other's intrinsic and extrinsic motivations as leaders.
4. Students will beable to understand and manage groups and their functioning by resolving group conflicts.
5. Students will be able to develop and design team building activities and sessions

References:

1. Fred Luthans, "Organizational Behaviour", Tata McGraw Hill Publishing Co., New Delhi.

2. Robins, Stephen P, "OrganisationalBehaviour", 9th Edition, Prentice Hall of India, New Delhi.
3. Koontz and O "Donnell", Essentials of Management,Tata McGraw Hill Publishing Co., New Delhi, 2000.
4. Keith Davis, "Human Behaviour at Work", Tata McGraw Hill Publishing Co., New Delhi.
5. Aswathappa,"OrgnizationalBehaviour", Himalaya Publishing House, Mumbai
6. Stoner Freeman, "Management", Prentice Hall of India, New Delhi.

GayatriVidyaParishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester IV
UNIX

Credits:3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal:25 Marks**
Course Objectives:		

1. To understand Unix Operating System 2. To explore the Basic Shell Commands		
	SYLLABUS	
Unit I:		
UNIX OPERATING SYSTEM Overview of UNIX Operating System, basic features of Unix operating System, File Structure, CPU Scheduling, Memory Management, File System Implementation of Operating System Functions in UNIX.		
Unit II:		
Starting of Unix and Text Manipulation and user-to-user communication User Names and Groups, Logging In, Format of Unix Commands, Changing your password, Unix Documentation.		
Unit III:		
Files and Directories: File permission, Basic Operation on Files, Changing Permission Modes, Standard files, Processes Inspecting Files, Operating on Files, Printing Files, Rearranging Files, Sorting Files, Splitting Files, Translating Characters, On line communication, Off line communication.		
Unit IV:		
EDITORS General characteristics, adding text and Navigation, changing text, searching for text, copying and Moving text, Features of Ex, Line Editors Ex and Ed, Stream editor SED, changing several file s in SED, AWK features.		
Unit V:		
Shell Programming: Programming in the Bourne and C-Shell, Wild Cards, Simple Shell program, variables, Programming Construct, Interactive Shell scripts, Advanced Features, Unix Compiler, maintaining program System Administration Define System Administration, Booting the system, Maintaining User Accounts, File System, and special files, Backup and Restoration.		
Outcomes:		
1. Develop knowledge on functions, Objectives, structure and Features of UNIX Operating System. 2. Knowledge to Implement and Innovative basic and advanced UNIX commands. 3. Knowledge on File system in UNIX including accesses rights and permissions on files. 4. Develop basic knowledge on editors with their characteristics, especially on vi Editor. 5. Knowledge on Shell commands and features and types of shells with proper knowledge.		
References:		
1. Unix and shell Programming by B.M Harwani, OXFORD University Press 2. Unix Concept and application- Sumitabhadas 3. Unix Shell Programming-Yashwant Kanetkar 4. Unix Programming Environment- RobPike 5. Unix in a Nutshell- DonillGily.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester IV

UNIX LAB

Credits:2	**Theory:2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:		
1. To introduce Basic Unix general purpose Commands 2. To learn network Unix commands. 3. To learn C programming in Unix editor environment. 4. To learn shell scripts.		
	SYLLABUS	
1. Execute of various file/directory handling commands. 2. Write a Simple shell script for basic arithmetic and logical calculations. 3. Write Shell scripts to check various attributes of files and directories. 4. Write Shell scripts to perform various operations on give n strings. 5. Write Shell scripts to explore system variables such as PATH, HOME etc. 6. Write Shell scripts to check and list attributes of processes. 7.Execute various system administrative commands 8.Write awk script that uses all of its features. 9.Use seed instruction to process /etc/password file. 10.Write a shell script to display list of users currently logged in. 11.Write a shell script to delete all the temporary files. 12.Write a shell script to search an element from an array using binary searching.		
Outcomes:		
1.Able to differentiate between windows and UNIX OS, features of UNIX OS. 2.Knowledge on basic and advanced UNIX Commands. 3.Learn to implement system calls in vi editor. 4.Learn to implement Scheduling and page replacement algorithms as per UNIX OS. 5.Learn to implement Shell commands and develop skills on shell programming.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester IV

DATA STRUCTURES USING JAVA

Credits:3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal:25 Marks**

Course Objectives:

To introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms. In addition, another objective of the courseis to develop effective software engineering practice, emphasizing such principles as decomposition,procedural abstraction, and software reuse.

	SYLLABUS	
Unit I:		

Concept of Abstract Data Types (ADTs)- Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Structures.

Linear Lists - ADT, Array and Linked representations (Single and Double Linked lists), Pointers.

Unit II:		

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications.

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues and Applications.

Unit III:		

Trees: Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications, Heaps Trees and Applications,

Binary Search Trees (BST) - Definition, ADT, Operations and Implementations, BST with Duplicates and Applications.

Unit IV:		

Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees.

Unit V:		

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Sequential and Binary Searching.

Outcomes:		

After completing this course satisfactorily, a student will be able to:

1. Describe how arrays, records, linked structures are representedin memory and used by algorithms.
2. Write programs that use arrays, records, linked structures, stacks, queues.
3. Demonstrate different methods for traversing trees.
4. Able to do graph traversal and minimum spanning tree algorithms.
5. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

Text Book:		

Data Structures and Algorithm Analysis in C++, MARK ALLEN WEISS,Pearson Edition.

References:		

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

McGraw-Hill,
6. Drozdek A, Data Structures and Algorithms in C++), 2nd edition, Vikas Publishing House, 2002.
7. Kanetkar Y P, Data Structures through C ++, BPB Publications. 2003.
8. Data Structures by Allen Weiss

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester IV

DATA STRUCTURES USING JAVA LAB

Credits:2	Theory:2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:
The course is designed to develop skills to design and analyze and implement simple linear and non linear data structures in java. It strengthens the ability to the students to identify and apply the suitable data structure for the given real-world problem. It enables them to gain knowledge in practical applications of data structures .

	SYLLABUS	

1. Write Programs to implement the Stack operations using an array.
2. Write Programs to implement theQueue operations using an array.
3. Write Programs to implement the Stack operations using Pointers.
4. Write Programs to implement theQueue operations using Pointers.
5. Write a program for arithmetic expression evaluation.
6. Write a program for Binary search Tree Traversals
7. Write a program to implement dequeue using a doubly linked list.
8. Write a program to search an item in a given list using
   (i) Linear Search
   (ii) Binary Search.
9. Write a program for
   (i) Bubble Sort
   (ii) Quick Sort
   (iii)Merge Sort.
10. Write a program for polynomial addition using SLL

Outcomes:		

After completion of course, student will be able to:

1. Implement linked list data structure.
2. Implement various sorting algorithms.
3. Implement various data structure such as stacks, queues, trees, graphs using java-programming language.
4. Implement tree and graph traversals.
5. implement graph traversal algorithms.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester IV
WEB PROGRAMMING

Credits: 3	**Theory: 4 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**
Course Objectives:		

1. To provide knowledge on web architecture, web services, client side and server-side scripting technologies to focus on the development of web-based informationsystems and web services.
2. To provide skills to design interactive and dynamic websites.

	SYLLABUS	
Unit I:		

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

Unit II:		

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common GatewayInterface.

Unit III:		

ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.
Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls. E-Commerce Architectures.

Unit IV:		

EDI: Overview –Types –How does EDI Work–Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI– Financial EDI – EDI and internet.

Unit V:		

XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future.

Outcomes:		

1. To understand the web architecture and webservices.
2. To practice latest web technologies, tools and the magic of Dynamic webpages.
3. To design interactive web pages using HTML and stylesheets.
4. To study the frame work and building blocks of .NET IntegratedDevelopment Environment.
5. To provide solutions by identifying and formulating IT relatedproblems.

References:		

1. WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007,TMH.
2. Web Technologies by Uttam Kumar Roy, Oxforn UniversityPress
3. INTERNET AND WEB TECHNOLOGIES – Rajkamal,TMH.
4. TCP/IP PROTOCOL SUITE – Behrouz A. Forouzan, 3rd edition,TMH.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester IV
WEB PROGRAMMING LAB

Credits:2	**Theory:2 Hours**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:

1. To design and implement websites with good aesthetic sense of designing.
2. To learn how XML and its related technologies function

SYLLABUS

1. Create a simple HTML page which demonstrates all types of lists.
2. Create a letter head of your college using following styles
   i. image as background
   ii. use header tags to format college name and address
3. Create a web page, which contains hyperlinkslike fruits, flowers, animals. When you click on hyperlinks, it must take you to related web page; these web pages must contain with related images.
4. Create a hyperlink to move around within a single page rather than to load another page.
5. Create a leave letter using different text formatting tags.
6. Create a table format given bellow using row span and colspan.

RNO	NAME	MARKS				
		M1	M2	M3	M4	M5

   Insert 5 records.
7. Create a table with different formats as given bellow.
   i. Give different background and font colors to table header, footer and body.
   ii. Use table caption tag.
8. Divide a web page vertically and horizontally with scroll bars, name them as shown below decorate it with some items.

F1	F2
	F3

9. Create a student Bio-Data, using forms.
10. Create a web page using following style sheets
    I. Inline style sheets. II. Embedded style sheets. III. External style sheets
11. Write a JavaScript program to accept two values from form and apply any 5 mathematical functions

Write student database with XML

Outcomes:

1.Students can able to understand lists, itstypes, header tags and image as background.
2.Students can able to create hyperlinks and the web page contains images.They can also use different types of tags.
3.Students can able to create tables using rowspan and columnspan.They can also divide a web page both horizontally and vertically.
4.Students can create their bio-data using forms.They can also create a web page using cascading styles.
5.Students are able to write java script programs by accepting values and can apply mathematical operations.

SEMESTER – V

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	Skill Development Course -1 (University's Choice)	50	0	50	2	2
2	Computer Networks	100	25	75	4	3
3	Software Engineering	100	25	75	4	3
4	System Programming	100	25	75	4	3
5	Data Mining & Ware Housing	100	25	75	4	3
Elective – 1						
6	Android Programming Principles of Animation Web Programming - II	100	25	75	4	3
LABS						
7	Data Mining Lab	50	0	50	2	2
8	Web Programming Lab	50	0	50	2	2
Total		**650**			**26**	**21**

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester V
Skill Development Course – 1

PC BOOTING AND MAINTENANCE

Credits: 4	Theory: 2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal: -

Course Objectives:		
1. To provide basic knowledge of I/O components. 2. To provide basic knowledge of I/O components of a computer. 3. Understand basics of OS and computer threats.		
	SYLLABUS	
Unit I:		
Introduction to Physical components- Input/output devices Software/ hardware Internal storage units. External storage units.		
Unit II:		
introduction to Central Processing Unit (CPU) Components. structure and organization -Mother board components. Drivers and types of drives - Motherboard drivers Installation.		
Unit III:		
Introduction to Operating System- Types of Operating System-Red hat Linux, Windows XP. Windows 7. Windows 8 and Multi-boost operating system- Installation of Windows 8-Peripheral installation.		
Unit IV:		
Introduction to PC maintenance Virus and Types of Virus - Anti-virus - Introduction to OS and Peripherals Troubleshooting Cache cleaning - Designing for visibility - Applying GOF: design patterns - adapter, singleton. Factory and observer patterns.		
Outcomes:		
1. Ability to explain about I/O devices of a computer. 2. Understands the structure and organization of a CPU. 3. Familiarize with the functions of an operating system. 4. Learns about viruses and related computer threats.		

Gayatri Vidya Parishad Collegefor Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester V

COMPUTER NETWORKS

Credits: 4	Theory: 5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:

1. To provide an introduction to the fundamental concepts on data communication andthe Design of computernetworks.
2. To get familiarized with Transmissionmedia.
3. To get familiarized with the basic protocols of computernetworks.

SYLLABUS

UNIT I:		**14HOURS**

Introduction: Uses of Computer Networks-Business Applications, Home Applications, **Network Hardware**-Local Area Networks, Metropolitan Area Networks, Wide Area Networks, Internetworks, **Network Software**-Protocol Hierarchies, Design Issues for the Layers, Connection-Oriented and Connectionless Services, Service Primitives,The Relationship of Services to Protocols.
Reference Models-The OSI Reference Model, The TCP/IP Reference Model.
The Physical Layer: The Theoretical Basis for Data Communication-Fourier Analysis, The Maximum Data Rate of a Channel.**Guided Transmission Media**-Twisted Pair, Coaxial Cable, Fiber Optics.**Wireless transmission**-The Electromagnetic Spectrum, Radio Transmission, Microwave Transmission. **Communication Satellites**-Geostationary Satellites, Medium-Earth Orbit Satellites, Low-Earth Orbit Satellites.

UNIT II:		**10 HOURS**

The Data Link Layer: Error Detection-Parity Bit, Checksums, Cyclic Redundancy Check. **Error Correction**-Hamming Code. **Elementary Data link protocols**-STOP and WAIT Protocol. **Sliding Window Protocols**-One-Bit-Sliding Window Protocol, Protocol Using Go Back N, Protocol Using Selective Repeat. **Switching**-packet switching and circuit switching.
The Medium Access Control Sub-layer: Multiple Access Protocols-ALOHA, Carrier Sense Multiple Access Protocols **Collision-free protocols:** Token passing**Data Link Layer Switching**-Uses of Bridges, Learning Bridges, Spanning Tree Bridges. Repeaters, Hubs, Bridges, Switches, Routers and Gateways.

UNIT III:		**12HOURS**

The Network Layer: Network Layer Design Issues-Store-and-Forward Packet Switching, Services Provided to the Transport Layer, Comparison of Virtual-Circuit and Datagram Subnets**.Routing Algorithms**-Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, **Internet Working**-Tunneling, Fragmentation, **The Network Layer in the Internet**-The IP Protocol, IP Address, Internet Control Protocols, OSPF, BGP, Internet Multicasting, IPV6.

UNIT IV:		**10 HOURS**

The Transport Layer: The Transport Service-Services Provided to the Upper Layers, Transport Service Primitives, **The Internet Transport Protocols: UDP**- Introduction to UDP. **The Internet Transport Protocols: TCP**-Introduction to TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header.

UNIT V:		**4HOURS**

The Application Layer: DNS – The Domain Name System-The DNS Name Space, Resource Records, Name Servers, **Electronic Mail**-Architecture and Services, The User Agent, Message Formats, Message Transfer **World Wide Web**-Architectural Overview, Static Web Documents, Dynamic web Documents.

Outcomes:

1. Understands the different network components in a communication system and their respectiveroles.
2. Gains the technical issues related to the local AreaNetworks.
3. Familiarize with Network LayerFunctionalities.
4. Understands the transport layer protocols like UDP andTCP.
5. Learns the importance of application layer protocols DNS, E-mail andWWW.

Text Book:		
Andrew S. Tanenbaum, “Computer Networks”, Fifth Edition, Pearson Education.		
References:		

1. Bhushan Trivedi, Computer Networks, Oxford UniversityPress
2. James F.Kurose, Keith W.Ross, “Computer Networking”, Third Edition, PearsonEducation
3. Behrouz A Forouzan, “Data Communications and Networking”, Fourth Edition, TMH(2007).
4. Kurose & Ross, “Computer Networks” – A Top-down approach featuring the Internet”, Pearson Education – Alberto Leon –Garciak.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
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B.C.A-Semester V

SOFTWARE ENGINEERING

Credits: 4	**Theory:5 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:		
1. To assist the student in understanding the basic theory of software engineering. 2. To apply basic theoretical principles to a software development project. 3. To understand how to maintain the quality of the software by means of testing. 4. To understand how to maintain a software.		
	SYLLABUS	
Unit I:		
Introduction: The problem Domain, Software Engineering Challenges, Software Engineering Approach. **Software Processes**: Software Process, characteristics of Software Process, software development Process Models.		
Unit II:		
Requirements, Analysis and Specifications: Software Requirements, Problem Analysis, Requirement Specification. **Software Architecture**: Role of software Architecture, Architectural Views, Component and Connector View, Architectural Styles for C&C View.		
Unit III:		
Planning a Software Project: Process Planning, Effort Estimation, Project Scheduling and Staffing, software configuration management plan, quality plan, risk management.		
Unit IV:		
Software Design: Function Oriented Design – Design Principles, Module Level Concepts, Design Notation and Specification, Structured Design Methodology.		
UNIT V:		
SoftwareTesting Tactics – Testing fundamentals, Black-box Testing, White-Box Testing, Testing process.		
Outcomes:		
1. Understands Software Engineering Process and Process models. 2. Ability to gather and specify requirements of software projects. 3. Learns about designing a software and user interface. 4. Familiarize with various testing strategies and tactics. 5. Gains knowledge about ensuring software quality and maintenance activities.		
References:		
1. An Integrated approach to Software Engineering, 3rd Edition, PankajJalote. 2. Roger Pressman S., "Software Engineering: A Practitioner's Approach", 7th Edition, McGraw Hill, 2010. 3.Software Engineering Principles and Practice by Deepak jain, Oxford University Press 4.Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007. 5.Pfleeger, "Software Engineering-Theory & Practice", 3rd Edition, Pearson Education, 2009 6. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals of Software Engineering", Pearson Education, 2003.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester V

SYSTEM PROGRAMMING

Credits: 4	Theory:5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal:25 Marks

Course Objectives:		
1. To understand the evolution of hypothetical machine. 2. To understand the structure and design of a two-pass assembler. 3. To understand the structure and design of macro languages and macro processors. 4. To get the knowledge of Loaders and linkers.		
	SYLLABUS	
Unit I:		
Introduction: Machine Structure.**Evolution of the components of a programming system**: Assemblers, Loaders, Macros, Compilers and Formal Systems, General Machine Structure, Assembly Language.		
Unit II:		
Assemblers: General Design Procedure.**Design of Assembler**: Statement of Problem, Data Structure, Format of Data Bases, Algorithms (Pass1 & Pass2).		
Unit III:		
Macro Language: Macro Instructions. **Features of Macro Facility**: Macro Instruction Arguments, Conditional Macro Expansion, Macro calls within macros, Macro Instructions Defining Macros.**Implementation**: A Two- Pass algorithm, Single-Pass algorithm.		
Unit IV:		
Loaders: Loaders Schemes, Compile-and-Go, General Loader, Absolute Loader, Subroutine Linkages, Relocating Loaders, Dynamic Linking Loaders and other loader schemes.		
UNIT V:		
Compilers: Statement of Problem,recognizing basic elements, Recognizing Syntactic Units, Intermediate Form, Storage Allocation, Code Generation, General model of compiler.		
Outcomes:		
1. Learns the machine structure and assembly language perceptions. 2. Ability to design a 2-pass assembler. 3. Ability to design a single pass and 2-pass macro processor. 4. Familiarizes with loaders and design of dynamic linking loader. 5.Learns about the phases in compiler design.		
References:		
1. System Programming by John J.Donovan , Tata McGraw-Hill publishing Ltd.		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester V

DATA MINING AND DATA WAREHOUSING

Credits: 4	Theory:5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal:25 Marks

Course Objectives:		
1. To understand the evolution of data warehousing and data mining systems 2. To understand extracting, cleaning and transformation of data into a warehouse. 3. To learn the principles of statistics, information theory, machine learning and other areas AI and implementation of data mining techniques. 4. To understand pattern mining using classification and clustering methods.		
	SYLLABUS	
Unit I:		
Introduction to Data Mining: Introduction-What is Data Mining? -Relational Databases- Data Warehouses-Transactional Databases- Advanced Database Systems and Advanced Database Applications-Data Mining Functionalities-Classification of data mining systems.		
Unit II:		
Data Mining task primitives-integration of data mining system with a database or Data Warehouse System-Major issues in Data Mining. **Data Pre-processing:** Why Pre-process the Data? Data Cleaning-Data Integration and Transformation-Data Reduction-Discretization and Concept Hierarchy Generation.		
Unit III:		
Data Warehouse and OLAP Technology for Data Mining: What is Data Warehouse? Multi-Dimensional Data Model-Data Warehouse Architecture-Data Warehouse Implementation-From Data Warehousing to Data Mining.		
Unit-IV		
Mining Frequent Patterns- Associations and Correlations: Basic concepts - market basket analysis, frequent item sets, closed item sets and association rules. **Frequent itemsetminingmethods:**Apriorialgorithm,generating association rules from frequent itemsets,improving the Efficiency of Apriori, a pattern growth approach for mining frequent itemsets,mining frequent itemsets using vertical data format.		
Unit V:		
Classification and Prediction: Concepts and Issues regarding Classification and Prediction-Classification by Decision Tree Induction-Bayesian Classification.		
Outcomes:		
1. Familiarize with various types of data sources in Data Mining. 2. Understands the concept of Data Pre-processing Techniques. 3. Gains knowledge on Data Warehouse and OLAP. 4. Obtain knowledge on frequent pattern mining 5. Understands the concepts and issues regarding Classification and Prediction.		
Text Book:		
Data Mining Concepts and Techniques- Jiawei Han and MichelineKambler- Second edition- Morgan Kaufman Publications.		
References:		
1. Introduction to Data Mining- Adriaan - Addison Wesley Publication 2. Data Mining Techniques- A.K.Pujari- University Presss		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester V
Elective – I
ANDROID PROGRAMMING

Credits : 4	Theory :5 Hours	Tutorials : -
Max Marks: 100	External: 75 Marks	Internal :25 Marks

Course Objectives:		
1.To study about the android architecture and the tools for developing android applications 2. To create an android application 3. To learn about the user interfaces used in android applications 4. To learn about how to handle and share android data 5. To learn about how to develop an android services and to publish android application.		
SYLLABUS		
Unit I:		
Introduction: What isAndroid , Android Versions , Features of Android , Architecture of Android Obtaining the Required Tools , Android SDK , Installing the Android SDK Tools Configuring the Android SDK Manager, editors in Eclipse , Android Development Tools (ADT) , Creating Android Virtual Devices (AVDs) , Creating Your First Android Application – Types of Android Application, Anatomy of an Android Application.		
Unit II:		
Activities, Fragments and Intents: Understanding Activities, Creating Activities, Linking Activities Using Intents, Resolving Intent Filter Collision, Returning Results from an Intent, Passing Data Using an Intent Object, Fragments, Adding Fragments Dynamically, Life Cycle of a Fragment, Interactions betweenFragments, Calling Built-In Applications Using Intents, Understanding the Intent Object, Using Intent Filters – Adding Categories, Displaying Notifications.		
Unit III:		
Android User Interface: Understanding the Components of a Screen , Adapting to Display Orientation Managing Changes to Screen Orientation , Utilizing the Action Bar , Creating the User Interface Programmatically , Listening for UI Notifications , Designing Your User Interface With Views ,Using Basic Views , Using Picker Views , Using List Views to Display Long Lists ,Understanding Specialized Fragments – Displaying Pictures And Menus With Views , Using Image Views to Display Pictures – Using Menus with Views , Additional Views.		
Unit-IV		
Databases, Content Providers and Messaging: Saving and Loading User Preferences, Persisting Data to Files, Creating and Using Databases,Content Providers, Sharing Data in Android, Using a Content Provider, Creating Your Own, Content Providers, Using the Content Provider – Messaging, SMS Messaging, Sending E-mail.		
Unit V:		
Location Based Services, Networking and Android Services: Location Based Services, Displaying Maps, Getting Location Data, monitoring a Location,Project — Building a Location Tracker,Networking,Consuming Web Services Using HTTP,Consuming JSON Services, Sockets Programming Developing.Android Services, Creating Your Own Services, Establishing Communication between a Service and an Activity, Binding Activities to Services, understanding Threading, Publishing Android Applications , Preparing for Publishing, Deploying APK Files.		

Outcomes:		
1. Attain the knowledge about Android architecture and tools. 2. Familiarize with fragments and intents. 3. Able to create android user interface. 4. Gains knowledge about databases and content providers. 5. Able to Create a mobile APP for any rural application		
Text Book:		
1.Wei - Meng Lee, "**Beginning Android 4 Application Development**", John Wiley &Sons, Inc. 2. Reto Meier, "**Professional Android 4 Application Development**" , John Wiley &Sons,Inc.		
References:		
1 .Android Programming: The Big Nerd Ranch Guide (Big Nerd Ranch Guides)By: Bill Philips & Brian Hardy 2.Android Design Patterns: Interaction design solutions for developers by Greg Nudelman 3.Android User Interface Design: Turning Ideas and Sketches into Beautifully Designed Apps by: Ian G. Clifton 4. Android Recipes: A Problem-Solution ApproachBy: Dave Smith & Jeff Friesen 5. Hello, Android: Introducing Google's Mobile Development Platform (Pragmatic Programmers) By: Ed Burnette		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester V
Elective – I

PRINCIPLES OF ANIMATION

Credits : 4	Theory :5 Hours	Tutorials : -
Max Marks: 100	External: 75 Marks	Internal :25 Marks

Course Objectives:		
1. Describe and evaluate the classical types of animation. 2. Known about Animationfunctions. 3. Identify and learn about principles of Animation. 4. Identify modern day examples for each classical animation type. 5. Create an individual short animated film.		
	SYLLABUS	
Unit I:		
What is Animation: Its definition, early examples of Animation. History of Animation: Stop Motion Photo Animation, Zoetrope, Thaumatrope, Cell and Paper Animation.		
Unit II:		
Types of Animation: Cell Animation, Stop Motion Animation, Computer Animation, 2-D Animation, 3-D Animation, Animation Functions: Zooming, Panning, Tweening, Morphing, Wrap, Dissolve, Partial Motion.(12^{th} chapter from Text book:2)		
Unit III:		
Basic Principles of Animation: straight action and pose to pose Timing, Exaggeration, Fade in and Fade out, Squash and Stretch, Anticipation, staging, follow through and overlapping action, Arcs, Solid Drawing,Appeal, slow in and slow out, Secondary Action.		
Unit IV:		
Various Terms: Animation Drawings/Cells, Rough Drawings , Clean ups, Color reference drawings, Layout, Model Sheet, Key Drawings and in Between, Master Background, Concept Piece, Character drawing , Story Board.		
UNIT V:		
Multimedia: What is Multimedia, Multimedia Systems: Components of a Multimedia System, Characteristics of a Multimedia System and Desirable features for a Multimedia System, Multimedia Contents, Applications of Multimedia.(13^{th} chapter from Text book :2)		
Outcomes:		
1. Learns about animation and its history. 2. Acquaint with Types and Functions of Animation. 3. Familiarize with Principles on Animation. 4. Accustom with Various terms of Animation. 5. Gains knowledge on Multimedia Components and its Applications.		
References:		
1.The complete animation course by Chris Patmore-Baron's Educational Series. (New York)		

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester V
Elective – I
WEB PROGRAMMING-II

Credits: 4	**Theory :5 Hours**	**Tutorials : -**
Max Marks: 100	**External: 75 Marks**	**Internal :25 Marks**

Course Objectives:

1. To study about how to write scripting in java script.
2. Understanding the basic concepts of PHP.
3. To learn about handling advanced concepts of PHP.
4. Learn about the Active Server Pages with VB Script
5. To learn about basic concepts of Perl.

SYLLABUS

Unit I:

Java Script: Introduction, Statements, Syntax, Comments, Variables, Operators, Data Types, Functions, Java Script Objects, Events, Strings, Arrays, Dates, Control Statements, Regular Expression, Debugging, Reserved Words.

Unit II:

Introduction to PHP: Basic Syntax- Defining variable and constant- PHP Data type- Operator and Expression; Handling Html Form with PHP:

Unit III:

PHP: Capturing Form Data- Dealing with Multi-value filed- Generating File uploaded form- redirecting a form after submission; Decisions and loop; Function; Strings; Arrays.

Unit IV:

Active Server Pages with VBScript: Basic ASP Techniques VBScript Basics, Variables, Variants, Operators, String Manipulation, Arrays, ASP Control Constructs in VBScript.

Unit V:

Perl Scripting: Introduction to Perl Scripting, working with Simple Values, Lists and Hashes, Loops and Decisions, Regular Expressions, Files and Data in Perl Scripting, References &Subroutines, Running and Debugging Perl, Modules, Object-Oriented Perl.

Outcomes:

1. Gains knowledge on implementing java script programs.
2. Familiarize with basic concepts of PHP.
3. Obtain knowledge on advanced concepts of PHP.
4. Attain knowledge on Active Server Pages with VBScript.
5. Understands about Perl scripting language.

Text Book:

1. Web Programming- building internet applications- Chris Bates 2nd edition- WILEYDreamtech.
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Scheldt.

References:

1. Web Technologies by Y.RameshBabu- Overseas Publishers Pvt.Ltd.
2. Programming world wide web-Sebesta- Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/PearsonEducation Asia.
4. Professional PHP4, Luis Argerich, WROX, SDP

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester V
DATA MINING AND WAREHOUSING USING WEKA TOOL LAB

Credits:2	**Theory:2**	**Tutorials: -**
Max Marks: 50	**External: 50 Marks**	**Internal:**

Course Objectives:

1.To apply the various data mining techniques available inWEKA for generating Knowledge such as Association Analysis, Classification and Clustering to various standard datasets and own datasets.

SYLLABUS

Cycle-I:
Introduction to Weka Tool- Attribute Related File Format- Creation of ARFF Data sets for Student- ARFF Dataset for Employee-converting Pre-defined Data sets in ARFF format- Executing ARFF Data sets in Explorer.

Cycle-II:
Converting CSV format into ARFF using manual method- Converting CSV format into ARFF using Knowledge Flow for various data sets.

Cycle-III:
Generating Association Rules based on pre-defined datasets and user-defined data sets.

Cycle-IV:
Decision Tree Induction on Trained Data sets.

Cycle-V:
Converting CSV Data set into XRFF.

Cycle-VI:
Design a Knowledge-Flow layout to load attribute selection and normalize the attributes and to store the results in CSV Saver.

Cycle-VII:
Generating ROC Curves for pre-defined datasets and user-defined datasets

Outcomes:

1. Familiarize with analysing ARFF data sets using Explorer.
2.Acquires knowledge of converting CSV to ARFF using Knowledge Flow.
3.Understands the concepts of generating association rules using Apriori.
4.Gains knowledge on Classification using Decision Tree Induction.
5. Acquires knowledge on comparing classification techniques using ROC Curves.

References:

1. Data Mining Practical Machine Learning Tools and Techniques-3rd Edition- Ian H.Witten .Eibe Frank. Mark A. Hall

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester V
WEB PROGRAMMING LAB –II

Credits:2	Theory:2	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

1. To study about how to write scripting in java script.
2. Understanding the basic concepts of PHP.
3. To learn about handling advanced concepts of PHP.
4. Learn about the Active Server Pages with VB Script
5. To learn about basic concepts of Perl.

SYLLABUS

Java Script:

1. User to enter name and displaying the same name with welcome message
2. Print next 5 numbers of user entered digit
3. Print the user entered string in reverse order
4. Multiplication table of a user entered number
5. Sum of two numbers as entered by user

PHP:

6. Printing Pattern of * using for loop
7. Printing welcome message and reversing the user entered string
8. Length of a string in PHP
9. Multiplication table of a number
10. Displaying Even Numbers
11. Highest of four Numbers
12. Print todays Date and time
13. Displaying last 20 days calendar details

ASP:

14. If Else &ElseIF conditional program structure control in ASP
15. Matching options by using Select Case statement in ASP
16. Do While Wend Loops in ASP
17. For Next Loop in ASP

PERL:

18. If Else &ElseIF conditional program structure control in PERL
19. Matching options by using Select Case statement in PERL
20. Do While Wend Loops in PERL
21. For Next Loop in PERL

Outcomes:

1. Gains knowledge on implementing java script programs.
2. Familiarize with basic concepts of PHP.
3. Obtain knowledge on advanced concepts of PHP.
4. Attain knowledge on Active Server Pages with VBScript.
5. Understands about Perl scripting language.

Text Book:

1. Web Programming- building internet applications- Chris Bates 2nd edition- WILEY Dreamtech.
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Scheldt.

References:

1. Web Technologies by Y.RameshBabu- Overseas Publishers Pvt.Ltd.
2. Programming world wide web-Sebesta- Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
4. Professional PHP4, Luis Argerich, WROX, SDP

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

Syllabi

Witheffectfrom2019-20admittedbatch

SEMESTER – VI

Sl.No	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	Skill Development Course – 2 (University's Choice)	50	0	50	2	2
2	Ecommerce	100	25	75	4	3
3	UML	100	25	75	4	3
4	Cryptography	100	25	75	4	3
5	Design and Analysis of Algorithms	100	25	75	4	3
Elective – 1						
6	IOT	100	25	75	4	3
	Artificial Intelligence					
	Cloud Computing					
7	Main Project	100	0	100	2	6
Total		**650**			**24**	**23**

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester VI
Skill Development Course – 2
PYTHON PROGRAMMING

Credits:2	Theory: 2 Hours	Tutorials: -
Max Marks: 50	External: 50 Marks	Internal:

Course Objectives:

Develop basic understanding of programming and the Python programming language.
Learn core Python scripting elements such as variables and flow control structures.
Explore Python's object-oriented features.

	SYLLABUS	
Unit I:		

Introduction to Computer and Python Programming: History of Python, Installing Python in Ubuntu, Executing Python Programs, Commenting in Python, Internal Working of Python, Python Implementations.

Basics of Python Programming: Python Character Set, Token, Python Core Data Type, The print() Function, Assigning Value to a Variable, Multiple Assignments, Writing Simple Programs in Python, The input() function, the Eval() Function, Formatting Number and Strings, Python inbuilt Functions.

Unit II:		

Loop Control Statements: The while Loop, therange () Function, The for Loop, Nested Loops, the break Statement, the continue Statement.

Unit III:		

Functions: Syntax and Basics of a Function, Use of a Function, Parameters and Arguments in a Function, The Local and Global Scope of Variable, The return statement, Recursive Functions, The Lambda Function.

Lists: Creating Lists, Accessing the Elements of a List, Negative List Indices, List Slicing [Start:end], List Slicing with Step Size, Python Inbuilt Functions for Lists, The List Operator, List Comprehensions, List Methods, List and Strings, Splitting a String in List, Passing List to a Function, Returning List from a Function.

Unit IV:		

Object-Oriented Programming: Class, Objects and Inheritance: Defining Classes, The Self-parameter and Adding Methods to a Class, Display Class Attributes and Methods, Special Class Attributes, Accessibility, The _init__ method (Constructor), Passing an Object as Parameter to a method, _del_ method(Destructor), Class Membership Tests, Method Overloading in Python, Operator Overloading, Inheritance, Types of Inheritance, The Object .Class, Using super(), Method Overriding.

UNIT V:		

Dictionaries: Need of Dictionaries, Basics of Dictionaries, creating a Dictionary, Adding and Replacing Values, Retrieving Values, Formatting Dictionaries, Deleting Items, Comparing Two Dictionaries, The Methods of Dictionary Class, Traversing Dictionaries, Nested Dictionaries, Traversing Nested Dictionaries, Simple Programs on Dictionaries.

Outcomes:		

1.Understand and Apply Python's Core Data Types while writing new programs.
2.Design object-oriented programs with Python 'classes'.
3.Use lists, dictionaries in Python programs.

Text Book:		

Programming and Problem Solving with Python: Ashok NamdevKamthane, Amit Ashok Kamthane, lst Edition, MC Graw Hill Education.

References:		

Learning Python, Mark Lutz, 5th Edition, Orielly.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester VI
E-COMMERCE

Credits: 4	**Theory: 5 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal:25 Marks**

Course Objectives:

1. To develop an understanding of scope of E-Commerce.
2. To develop an understanding of electronic market and market place.
3. To develop an understanding of business models.
4. To develop an understanding of legal issues, threats of E-Commerce.

	SYLLABUS	
Unit I:		

Introduction to E-Commerce: The revolution is just beginning, A Brief History, Understanding E-commerce, organizing Themes, Broad Goals of E-Commerce, Functions of E-Commerce, Prospectus of E-commerce.

Unit II:		

E-Commerce Business Models and Concepts, The Internet : E-commerce Business Models, Major Business to Consumer (B2C) business models, Major Business to Business (B2B) business models, Business models in emerging E-commerce areas, How the Internet and the web change business: strategy, structure and process, The Internet: Technology Background, The Internet Today, Internet II-The Future Infrastructure, The World Wide Web, The Internet and the Web Features.

Unit III:		

Building an Ecommerce Web Site, Security and Payment: Driving the E-commerce Revolution. E-commerce Activities, Matrix of E-commerce models, B2C, B2B, B2B Boom, E-commerce opportunity Frame work, Developing an E-commerce Strategy, International E-commerce, International Strategy Development, Dotcom Companies.

UnitIV:		

E-COMMERCE MARKETING CONCEPTS, ONLINE RETAILING AND SERVICES: Online Shopping, Online Purchasing, Electronic Market, three models of Electronic Market, Markets category, International Marketing, one-to –one Marketing, Permission Marketing, pull and push technologies, B2B Hubs, B2B market places, B2B exchange.

Unit V:		

SOCIAL NETWORKS, AUCTIONS, AND PORTALS: Social networks and online communities, Online auctions, E-commerce portals.

Outcomes:		

1. Able to analyse the concept ofE-Commerce.
2. Understand the business models.
3. Familiarize with legal and security issues.
4. Gains knowledge about E-Commerce online and retail services.
5. Understand the conceptof social marketing.

Text Book:		

1. Kenneth C. Laudon, E-Commerce: Business, Technology, Society, 4th Edition, Pearson
2. E-Commerce Concepts. Models, Strategies C.S.V Murthy, Himalaya Publishing House

References:		

1. The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business by Janice Reynolds
2.E-Commerce: Fundamentals and Applicationsby Henry Chan, Raymond Lee, Tharam Dillon, Elizabeth Chang November 2001
3. The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business by Janice Reynolds
4.E-Commerce: Fundamentals and Applicationsby Henry Chan, Raymond Lee, Tharam Dillon, Elizabeth Chang November 2001

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester VI

UNIFIED MODELLING LANGUAGE

Credits: 4	Theory: 5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal:25 Marks

Course Objectives:

1. To understand the importance of modelling a software.
2. To understand structural and behavioural modelling of UML.
3. To understand architectural modelling of a software.

SYLLABUS

Unit I:

Introduction: The importance of Modeling, Principles of Modeling, Object-Oriented Modeling, **Introducing the UML:** An Overview of the UML, Conceptual Model of the UML, Architecture,Software Development Life Cycle.

Unit II:

Basic structural modelling: Classes- Relationships- Class diagrams.

Unit III:

Basic BehavioralModeling: Interactions,Usecases,Usecasediagrams,interaction diagrams, Activity diagrams.

Unit IV:

Advanced BehaviouralModeling: State Machines, Time and space,state chart diagrams.

Unit V:

Architectural Modeling: Collaborations - Component diagrams - Deployment diagrams.

Outcomes:

1. Understands the basic concepts of modelling using UML.
2. Ability to design class diagrams.
3. Familiarizes with behavioural modelling by means of use case diagrams and activity diagrams.
4. Learns about advancedbehaviouralmodeling.
5. Able to design architecturalmodeling diagrams.

Text Book:

The Unified Modeling Language User Guide, Grady booch, James Rambagh, Ivar Jacobdon, Pearson Publications.

References:

1. Object-Oriented Systems Development- Ali Bahrami Mc GrawHill- 1999.
2. Craig Larman: Applying UML and Patterns- Pearson Education- 2002.
3. Grady Booch: Object-oriented analysis and design- Addison – Wesley- 1994.
4. D Jeya Mala-S Geetha- Object Oriented Analysis and Design Using UML –TMG- May 2013.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications
B.C.A-Semester VI
CRYPTOGRAPHY

Credits: 4	**Theory: 5 Hours**	**Tutorials: -**
Max Marks: 100	**External: 75 Marks**	**Internal: 25 Marks**

Course Objectives:

1.Introduction of the importance of network security.
2.To discuss various classical encryption techniques.
3.To gain knowledge about various symmetric key cryptographic techniques.
4.To introduce various asymmetric key cryptographic techniques.
5.To get acquainted with hashing techniques and digital signatures.

SYLLABUS

Unit I:

Introduction to Cryptography: Security Concepts, Security goals, Computer Security, Network Security, Internet Security, OSI Security Architecture, Attacks, Services, Mechanisms, what is Cryptography, Encryption and Decryption, Symmetric and Asymmetric key Cryptography, Types of Cryptanalysis attacks, Steganography

Unit II:

Classical Encryption Techniques: Substitution Ciphers: Monoalphabetic ciphers - Additive cipher, shift cipher, Caesar cipher, multiplicative cipher, Affine cipher, Monoalphabetic Substitution cipher. Polyalphabetic ciphers – Autokey cipher, Playfair cipher, Vigenere cipher. **Transposition Ciphers:** Keyless transposition ciphers, Keyed transposition ciphers, Combination of the two approaches.

Unit III:

Symmetric Key Ciphers: Stream Ciphers and Block Ciphers, S-Boxes, DES, The strength of DES, AES.

Unit IV:

Asymmetric Key Ciphers: Principles of Public Key Cryptosystems, RSA Algorithm, Diffie Hellman Key Exchange.

UNIT V:

Integrity, Authentication: Message Integrity, Message Authentication. Hash Functions: Introduction, SHA-1. Digital Signatures: Definition, Process, Services, RSA Digital signature Scheme.

Outcomes:

1. Familiarize with security concepts and fundamentals of cryptography.
2. Learns about various classical encryption techniques.
3. Studies various symmetric key encryption techniques.
4. Understands various asymmetric key and authentication techniques.
5. Learns about various hashing techniques and digital signature schemes.

References:

1. Cryptography and network security: principles and practice By William Stallings, 7th Edition.
2. Cryptography and Network Security, Behrouz and A. Forouzan.
3. AtulKahate, Cryptography and Network Security, Tata-McGraw-Hill-2003.
4. Bruce Schneier – "Applied Cryptography", John Wiley & Sons Inc, 2001.

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)
Department of Computer Applications

B.C.A-Semester VI

DESIGN AND ANALYSIS OF ALGORITHMS

Credits: 4	Theory: 5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:

1. To learn mathematical background for analysis of algorithm.
2. To study various Divide and Conquer Methods.
3. To understand the differentiation between Greedy and Dynamic Algorithms.
4. To identify the solutions of difficulty and overlapping problems using dynamic programming.
5. To Explain and Implementation of backtracking Procedure and randomized algorithms.

SYLLABUS

Unit I:

A simple example of design using insertion sort, pseudo code for insertion sort and analysis of time complexity. Performance Analysis - Space complexity and Time complexity (posterior testing, and a priori approach), Asymptotic Notations (O, Ω, Θ). Average, Best- and Worst-case complexity.

Unit II:

Introduction to Divide and Conquer Algorithms - Finding the Maximum and Minimum, Quick sort (Derivation of Average case analysis and Worst-case analysis), Binary Search (Derivation of Average case analysis), and Strassen's Matrix Multiplication.

Unit III:

Introduction to Greedy Algorithms - Fractional Knapsack problem, minimum cost spanning trees, Kruskal's and Prim's Algorithms, Optimal Merge patterns and Single-Source Shortest Paths

Unit IV:

Definition - All-pairs shortest paths, Traveling salesman problem, optimal parameterization for product of sequence of matrices and multistage graphs

Unit V:

Introduction- definition of backtracking, examples,4-Queens, Sum of Subsets,Random Number Generators and Primality Testing using randomized algorithms.

Outcomes:

1. Ability to understand the basic Characteristics of algorithms to calculate the efficiency of algorithms.
2. Attain the importance of Divide and Conquer algorithms
3. Familiarize the concepts of Greedy algorithms.
4. Gain the knowledge in Dynamic programming.
5. Understand the Back tracking and randomized algorithms.

Text Book:

1. Horowitz, Sahni, Rajasekaran, Fundamentals of Computer Algorithms, Universities Press Pvt Ltd, 2008.

References:

1. Donald E. Knuth, *The Art of Computer Programming Volume 3, Sorting and Searching*, 2nd Edition, Pearson Education, Addison-Wesley, 1997.
2. GAV PAI, *Data structures and Algorithms*, Tata McGraw Hill, Jan 2008.At the end of this course,

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester VI

Elective – I

INTERNET OF THINGS

Credits:4	**Theory:5Hours**	**Tutorials: -**
Max Marks: 100	**External: 75-Marks**	**Internal :25-Marks**

Course Objectives:

The objective of the course is to introduce the concepts of IoT; their applications for the efficient use of IoT technology in a smart city environment.

SYLLABUS

Unit I:

Introduction to IoT : Origin of Terminology-Machine to Machine (M2M)-Characteristics-IoT Market Share-Evaluation of Connected Devices -IoT Enablers- Connectivity Layers -Baseline Technologies - IoT vs. M2M -IoT vs. WoT-Terminological Interdependence -IoT Resulting in Address Crunch - Connectivity Terminologies - IoT Network Configurations - Gateway Prefix Allotment - Impact of Mobility on Addressing - Gateways - Multi- homing - IPv4 -IPv6.

Unit II:

Sensing: Definition-Sensors-Transducers-Sensor vs. Transducer-Sensor Features-Sensor Resolution-Sensor Classes-Analog Sensors-Digital Sensors-Scalar Sensors-Vector Sensors-Sensor Types-Sensorial Deviations-Non-linearity.**Actuation:**Actuator-Actuator Types-Hydraulic Actuators-Pneumatic Actuators-Electric Actuators-Thermal or Magnetic Actuators-Mechanical Actuators-Soft Actuators.

Unit III:

IoT Networking-I: Convergence of Domains-IoT Components-Functional Components of IoT-IoT Interdependencies-IoT Service Oriented Architecture-IoT Categories-IoT Gateways-IoT and Associated Technologies-Technical Deviations from Regular Web-Key Technologies for IoT-IoT Challenges-Considerations-Complexity of Networks.

Unit IV:

IoT Networking-II: Wireless Networks-Scalability-Functionality-based IoT Protocol Organization-MQTT-Introduction-MQTT Methods-Communication-MQTT Topics-Applications-SMQTT-CoAP-Introduction-CoAP Position-CoAP Message Types-CoAP Request-Response Model-Features

UNIT V:

Connectivity Technologies: Communication Protocols-IEEE 802.15.4-Features of IEEE 802.15.4-IEEE 802.15.4 Variants-IEEE 802.15.4 Types-IEEE 802.15.4 Frames-Beacon Enabled Networks-Non-Beacon Enabled Networks-Zigbee-Features of ZigBee-Important Components-ZigBee Topologies-ZigBee Mesh-ZigBee Types-ZigBee Network Layer-Applications. 6LoWPAN-Introduction-Features of 6LoWPANs-Addressing in 6LoWPAN-6LowPAN Packet Format-Header Type. RFID-Introduction-RFID Features-Working Principle–Applications - Sensor Networks- Machine-to-Machine Communications.

Outcomes:

1. Apply the concepts of IOT and identify the different technology.
2. Analysis and evaluate the data received through sensors and Actuators in IoT.
3. Attain basic knowledge on networking.
4. Analysis and evaluate protocols used in IOT.
5. Analysis and evaluate the connectivity technicalities in IOT.

Text Book:

1. "The Internet of Things- Enabling Technologies, Platforms, and Use Cases", by Pethuru Raj and Anupama C. Raman (CRC Press)
2. "Internet of Things- A Hands-on Approach", by ArshdeepBahga and VijayMadisetti (Universities Press)

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester VI

Elective – I

ARTIFICIAL INTELLIGENCE

Credits: 4	**Theory: 5 Hours**	**Tutorials: -**
Max Marks: 100	**External:75Marks**	**Internal: 25 Marks**

Course Objectives:

1. Learn about the AI related fields, Problems and Problem Characteristics
2. Evaluation on Searching Techniques.
3. Identify different types and approaches of Knowledge representation.
4. Understand the various types of logics and conversion steps for clausal forms.
5. Explain about Planning and Learning techniques

SYLLABUS

Unit I:

Introduction: what is A. I –Definitions – foundations and history of A. I- related fields and applications and goal of A.I. Distinguishes between A.I and conventional programming languages.

Problem solving Through A.I: Definitions of State space representation and problem reduction with examples, Analyzing problems and its characteristics.

Unit II:

Searching Techniques: Uninformed search strategies (Brute Force Search)- BFS & DFS, Informed search strategies (Heuristic Search)-Generate and Test, Best-First Search, A* algorithm, constraint satisfaction, Means-Ends Analysis.

Unit III:

Knowledge Representations: Representations and Mappings, Knowledge Representation approaches, Types of knowledge's, Procedural and Declarative knowledge.

Advanced Knowledge Representations: Semantic Nets, Frames, and Scripts.

Unit IV:

Logical Reasoning: Propositional logic – Inference Rules – first-order predicate logic (FOPL), Conversion of Clausal forms, Resolution Principle.

Matching: Definition of Matching, Types of matching's, RETE Matching Algorithm

UNIT V:

Planning: Planning Definition – Components of Planning, Types of planning's. Terminology of planning, Identifying solutions for state-space search and goal stake planning.

Learning: Introduction to learning – Types of learning's - Decision trees learning.

Outcomes:

1. Ability to understand the basics of Artificial intelligence, importance and Applications of A.I.
3. Analyzes the problems in A.I and can solve general purpose problems through A.I
3. Learns the concepts of Knowledge Representation andlogics.
4. Gains the knowledge in planning's to solve the real-worldproblems.
5. Understands the environment learning systems and learn fromexperiences.

Text Book:

Introduction to Artificial Intelligence – Dawn W Patterson. Pearson Education.

References:

1. Introduction to Artificial Intelligence -ElainRitch andKnight.
2. David Poole, Alan Mackworth, Randy Goebel, (2004), “Computational Intelligence: alogical approach”, Oxford UniversityPress.
3. Luger.G, (2002), “Artificial Intelligence: Structures and Strategies for complex problemsolving”, Fourth Edition, PearsonEducation.
4. Nilsson.J, (1998), “Artificial Intelligence: A new Synthesis”, ElsevierPublishers

Gayatri Vidya Parishad College for Degree and PG Courses (AUTONOMOUS)

Department of Computer Applications

B.C.A-Semester VI

Elective – I

CLOUD COMPUTING

Credits: 4	Theory: 5 Hours	Tutorials: -
Max Marks: 100	External: 75 Marks	Internal: 25 Marks

Course Objectives:

1. Discuss, with confidence, what is cloud computing and what are key security and control considerations within cloud computing environments.
2. Identify various cloud services.
3. Assess cloud characteristics and service attributes, for compliance with enterprise objectives.
4. Explain the four primary cloud category "types".
5. Evaluate various cloud delivery models.

SYLLABUS

Unit I:

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics–On-demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service.

Unit II:

Cloud scenarios – Benefits: scalability, simplicity, vendors, security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits. **Regularity issues**: Government policies

Unit III:

Cloud Architecture: Cloud delivery model – SPI framework, SPI evolution, SPI vs. traditional IT Model. **Software as a Service (SaaS)**: SaaS service providers – Google App Engine, Salesforce.com and google platform – Benefits – Operational benefits - Economic benefits – Evaluating SaaS. **Platform as a Service (PaaS)**: PaaS service providers – Right Scale – Salesforce.com – Rack space – Services and Benefits.

Unit IV:

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2, Go Grid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits. **Cloud deployment model**: Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing.

Unit V:

Virtualization: Virtualization and cloud computing - Need of virtualization – cost, administration, fast deployment, reduce infrastructure cost – limitations. **Types of hardware virtualization**: Full virtualization - partial virtualization - para virtualization. **Desktop virtualization**: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization–Network virtualization

Outcomes:

1. Understands the core concepts of the cloud computing paradigm.
2. Gains the knowledge about cloud scenarios with security issues.
3. Familiarize with the cloud architecture and their categories
4. learns the functionality of Infrastructure as a Service and Cloud deployment models
5. Analyse the concept of Virtualization mechanisms.

Text Book:

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill, New Delhi – 2010
1. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008.

GUIDELINES FOR PREPARING THE REPORT OF THE PROJECT WORK

FORMAT FOR PREPARATION OF PROJECT REPORT FOR B.C.A

1. LIST OF CONTENTS:

a. Abstract
b. Introduction
c. Literature survey
    a. Introduction
    b. Current system
    c. Problem statement
    d. Proposed system
    e. Objectives
    f. Functional and Non-Functional Requirements

4 UML Modeling
5 Design and description of algorithms (Examples included)
6 Coding
7 Testing
8 Results and Conclusions
9 References
    a. Research references
    b. Book references
10 Appendix
    a. List of tables
    b. List of figures
    c. Glossary

2. PAGE DIMENSIONS AND BINDING SPECIFICATIONS:

The dimension of the project report should be on A4 size with margin specifications 1.5inch space for all sides like top, bottom and left, Right. The project report should be bound using flexible cover of the thick white art paper. The cover should be **printed in black letters** and the text for printing should be identical.

3. PREPARATION FORMAT:

3.1 Cover Page & Title Page – A specimen copy of the Cover page & Title page of the project report is given in **Appendix 1.**

3.2 Bonafide Certificate: The Bonafide Certificate shall be in double line spacing using Font Style Times New Roman and Font Size 12, as per the format in **Appendix 2.**

The **certificate** shall carry the supervisor's signature and shall be followed by the supervisor's Name, academic designation (not any other responsibilities of administrative nature), Department and full address of the institution where the supervisor has guided the student.

The term **'SUPERVISOR'** must be typed in capital letters between the supervisor's names And academic designation.

3.3 Abstract – Abstract should be one-page synopsis of the project report typed double line Spacing, Font Style 'Times New Roman' and Font Size '12'.

3.4 Table of Contents – The table of contents should list all material following it as well as any Material which precedes it. The title page and Bonafide Certificate will not find a place Among the items listed in the Table of Contents but the page numbers of which are in lower Case Roman letters. 1.5" spacing should be adopted for typing the matter under this Head.

3.5 List of Tables – The list should use exactly the same captions as they appear above the Tables in the text. One and a half spacing should be adopted for typing the matter under this head.

3.6 List of Figures – The list should use exactly the same captions as they appear below the Figures in the text. One and a half spacing should be adopted for typing the matter under this head.

3.7 List of Symbols, Abbreviations and Nomenclature – One and a half spacing should be Adopted or typing the matter under this head. Standard symbols, abbreviations etc. should be Used.

3.8 Chapters – The chapters may be broadly divided into 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the project work (iii) and Conclusion.

The main text will be divided into several chapters and each chapter may be further divided Into several divisions and sub-divisions.

- Each chapter should be given an appropriate title, Font Style Times New Roman and Font Size 14 with bold.
- Tables and figures in a chapter should be placed in the immediate vicinity of the Reference where they are cited.
- Footnotes should be used sparingly. They should be typed single space and placed Directly underneath in the very same page, which refers to the material they annotate.

1.9 Appendices:

- Appendices are supplemental to a thesis in nature and, when included, appear after the references/bibliography.
- Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc.
- Appendices, Tables and References appearing in appendices should be numbered and referred to as appropriate places just as in the case of chapters.
- Appendices shall carry the title of the work reported and the same title shall be made in The contents page also.

1.10 List of References:

The listing of references should be typed 4 spaces below the heading "REFERENCES" in alphabetical order in single spacing left – justified. The reference material should be listed in the alphabetical order of the first author. The name of the author/authors should be immediately followed by the year and other details. A typical illustrative list given below relates to the citation example quoted above.

REFERENCES

1. Ariponnammal, S. and Natarajan, S. (1994) 'Transport Phonomena of SmSel – X Asx', Pramana – Journal of Physics Vol.42, No.1, pp.421-425.

2. Barnard, R.W. and Kellogg, C. (1980) 'Applications of Convolution Operators to Problems in Univalent Function Theory', Michigan Mach, J., Vol.27, pp.81–94.

3. Shin, K.G. and Mckay, N.D. (1984) 'Open Loop Minimum Time Control of Mechanical Manipulations and its Applications', Proc.Amer.Contr.Conf., San Diego, CA, pp. 1231-1236.

1.10.1 Tables and Figures:

All numerical data in the body of the project report should be designed in a tabular form. All other non-verbal materials used in the body of the project work and appendices such as charts, graphs, maps, photographs and diagrams may be designated as figures.

4. TYPING INSTRUCTIONS:

1. The impression on the typed copies should be black in color.
2. 1.5" spacing should be used for typing the general text.
3. The general text shall be typed in the Font style 'Times New Roman' with Font size is 12.
4. All side headings shall be typed in the Font style 'Times New Roman' and Font Size is 12 with Bold.

*** * * * ***

GAYATRI VIDYA PARISHAD

COLLEGE FOR DEGREE and PG COURSES (Autonomous)

(Affiliated to Andhra University)

VISAKHAPATNAM

Department of Computer Applications

Certificate

This is to certify that the project report entitled **"----------"** is the bona fide record of project work carried out by **Mr/Mrs/Miss. XXXXXXX (Regd. No. ----------),** a student of this college, during the academic year **20XX-20XX**, in partial fulfillment of the requirements for the award of the degree of Bachelor of Computer Applications.

Project Guide	**Head of the Department**
Name	Name
Designation	**Designation**

External Examiner

DECLARATION

I, **Mr/Mrs/Miss. XXXXXXX** hereby declare that the project report entitled "----------" is an original work done at **Gayatri Vidya Parishad College for Degree And PG Courses(A), Visakhapatnam,** submitted in partial fulfillment of the requirements for the award of Bachelor of Computer Applications, to Gayatri Vidya Parishad College for Degree And PG Courses(A), affiliated to Andhra University. I assure that this project is not submitted by me in any other University or college.

(Mr/Mrs/Miss. XXXXXXX)

ACKNOWLEDGEMENT

I consider it as a privilege to thank all those people who helped me a lot for successful completion of the project "----------".

First of all, I would like to thank Dr/Prof----------, Principal of **Gayatri Vidya Parishad College for Degree and PG Courses(A),** who has provided full- fledged lab and infrastructure for successful completion of my project work.

I would like to thank Dr/Prof ----------, Director of Department of Computer Applications, **Gayatri Vidya Parishad College for Degree and PG Courses(A)**, who has given me a lot of support and encouragement during my project work.

I would like to thank our ever-accommodating Head of the Department of Computer Applications Dr/Prof----------, and my guide Dr/Prof-------- has obliged in responding to every request though they are busy with their hectic schedule of administration and teaching.

I thank all the **Teaching & Non-Teaching staff** who has been a constant source of support and encouragement during the study tenure.

(Mr/Mrs/Miss. XXXXXXX)

CERTIFICATE FOR STUDENTS WHO HAD DONE PROJECT IN THE INDUSTRY /ORGANISATION

CERTIFICATE FROM INDUSTRY

This is to certify that it is a bonafide record of the Dissertation work entitled "_____" done by <STUDENT NAME> , a student of BCA in the Department of Computer Applications, GayatriVidyaParishad College for Degree and PG Courses during the period 200 - 200 in partial fulfillment of the requirements for the Award of Degree of BACHELOR OF COMPUTER APPLICATIONS. This work is not submitted to any University for the award of any Degree / Diploma. This work is carried out in GayatriVidyaParishad Degree and PG College (Autonomous), Rushikonda, Visakhapatnam-530045.

INTERNAL GUIDE **HEAD OF THE DEPARTMENT**