UG Program (4 Years Honors)
CBCS-2020-21

BCA
BACHELOR OF COMPUTER APPLICATIONS

SYLLABUS

PRINCIPAL
Aditya Degree College
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1. **Program Structure for UG program (4 years Honors):** (3rd and 4th year detailed design will be followed as per APSCHE GUIDELINES)

CBCS CURRICULAR FRAMEWORK (2020 - 2021 ONWARDS) - BACHELOR OF ARTS/commerce/BBA/BCA														
Subjects/Semesters		I		II		III		IV		V		VI		
		Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	
Languages												THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester		FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two
English		4	3	4	3	4	3							
Language (H/T/S)		4	3	4	3	4	3							
Life Skill Courses		2	2	2	2	2+2	2+2							
Skill Development Courses		2	2	2+2	2+2	2	2							
Core Papers														
M - 1	C1 to C5	5	4	5	4	5	4	5 5	4 4					
M - 2	C1 to C5	5	4	5	4	5	4	5 5	4 4					
M - 3	C1 to C5	5	4	5	4	5	4	5 5	4 4					
M - 1	SEC (C6,C7)									5 5	4 4			
M - 2	SEC (C6,C7)									5 5	4 4			
M - 3	SEC (C6,C7)									5 5	4 4			
Hrs/W (Academic Credits)		27	22	29	24	29	24	30	24	30	24	0	12	4	4
Project Work															
Extension Activities (Non Academic Credits)															
NCC/NSS/Sports/Extra Curricular									2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Credits)		27	22	29	24	29	25	30	27	30	24	0	12	4	4

M= Major; C= Core

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DETAILS OF COURSE STRUCTURE

S.No	Semester	Hours/ Week	No of Credits	Max.Marks	Max. Marks University Exam	Total Marks
				Internal assessment		
1	I	30	25	125	625	750
2	II	32	27	125	675	800
3	III	32	27	125	675	800
4	IV	36	30	150	750	900
5	V	36	30	150	750	900
#6	VI					
TOTAL		**166**	**139**	**675**	**3475**	**4150**

Note: It is to be noted that, Basic Computer Applications under Life Skill Courses should not be opted by the student under any semester.

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I-Semester

1. LIFE SKILL AND SKILL DEVELOPMENT COURSES

Life /Skill development courses: 4 courses of LSC and 4 courses of SDC with options

Each course of 2 hrs/ week containing 3 units of syllabi for 30 hrs teaching with 2 credits based on 50 marks evaluation. No internal assessment. University sem-end exam:50 marks (2 Hrs)

Question paper would be in two sections (Section A and Section B) for 50 marks

Section A consisting of 8 questions covering two questions from each unit and the remaining to be from any unit. Student has to write 4 questions and each question carries 5 marks (i.e., 5 X 4 = 20 marks). Each question to be answered with 5-7 points/10-15 lines of answer with necessary diagram/equations/ figure/flow charts, if necessary.

Section B consisting of 6 questions covering all units (i.e., from each unit two questions to be given with either or choice). Student has to write 3 questions and Each question carries 10 marks. (i.e., 10 X 3 = 30 marks). Each question to be answered with 10 to 15 points or 20 to 35 lines along with diagrams/equations/ figure/flow charts, if necessary.

List of Life Skill courses

Sem	No. of Courses	Course name	Preferred teaching department
I	1	Human Values and Professional Ethics (HVPE)	English/Telugu/Any Dept
		Entrepreneurship Development (ED)	Commerce
II	1	Information and Communication Technology (ICT)	Computers
		Indian Culture and Science (ICS)	History/Telugu
III	Compulsory	Environmental Education (EE)	Botany/Zoology/Environmental Science/ Any dept.
	1	Personality Development and Leadership (PDL)	English/Any Dept
		Analytical Skills (AS)	Maths/Statistics

List of Skill Development Courses along with their Semester-wise allotment with choices.

SEM	No. of courses	Names of courses		Preferred teaching department
I	One	1. Tourism Guidance (or)		History/Any dept
		2. Plant Nursery (or)		Botany
		3. Electrical Appliances (or)		Physics
		4. Insurance Promotion		Commerce
II	Two (1 from A group and 1 from B Group)	'A' Group	1. Survey & Reporting (or)	Economics/History
			2. Business communication (or)	English
			3. Solar Energy (or)	Physics
			4. Agricultural Marketing	Commerce/Economics
		'B' Group	1. Social Work Methods (or)	Political science/social work
			2. Advertising (or)	Commerce
			3. Dairy Technology (or)	Zoology
			4. Performing Arts	Telugu
III	one	1. Disaster Management (or)		English/Telugu/Any dept
		2. Online Business (or)		Commerce
		3. Poultry Farming (or)		Zoology
		4. Financial Markets		Economics/Commerce

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S.No	Paper Code	Subject	Hours/ Week	No of Credits	Max. Marks	Max. Marks University Exam	Total Marks
					Internal assessment		
1.		English – I	4	3	25	75	100
2.		Language(H/T/S) – I	4	3	25	75	100
3.		Life Skill Course – I	2	2	-0-	50	50
4.		Skill Development Course – I	2	2	-0-	50	50
5.	C1	Computer Fundamentals & Office tools	4	4	25	75	100
	C1-P	Computer Fundamentals & Office tools-Lab	2	1	-0-	50	50
6	C2	Programming in C	4	4	25	75	100
	C2-P	Programming in C Lab	2	1	-0-	50	50
7.	C3	Numerical and Statistical Methods	4	4	25	75	100
	C3-P	Numerical and Statistical Methods- Lab	2	1	-0-	50	50
Total			30	25	125	625	750

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II Semester

S.No	Paper Code	Subject	Hours/ Week	No of Credits	Max.Marks	Max. Marks University Exam	Total Marks
					Internal assessment		
1.		English – II	4	4	25	75	100
2.		Language(H/T/S) – II	4	3	25	75	100
3.		Life Skill Course – II	2	2	-0-	50	50
4.		Skill Development Course – II	2	2	-0-	50	50
5.		Skill Development Course – III	2	2	-0-	50	50
6.	C4	Data Structures	4	4	25	75	100
	C4-P	Data Structures Lab	2	1	-0-	50	50
7.	C5	Introduction to Python Programming	4	4	25	75	100
	C5-P	Introduction to Python Programming Lab	2	1	-0-	50	50
8.	C6	Database Management Systems	4	4	25	75	100
	C6-P	Database Management Systems Lab	2	1	-0-	50	50
Total			32	28	125	675	800

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III Semester

S.No	Paper Code	Subject	Hours/ Week	No of Credits	Max.Marks Internal assessment	Max. Marks University Exam	Total Marks
1.		English –III	4	3	25	75	100
2.		Language(H/T/S) – III	4	3	25	75	100
3.		Life Skill Course – III	2	2	-0-	50	50
4.		Life Skill Course – IV	2	2	-0-	50	50
5.		Skill Development Course – IV	2	2	-0-	50	50
6.	C7	Accounting and Financial Management	4	4	25	75	100
	C7-P	Accounting and Financial Management Lab	2	1	-0-	50	50
7.	C8	Object Oriented Programming Through Java	4	4	25	75	100
	C8-P	Object Oriented Programming Through Java Lab	2	1	-0-	50	50
8.	C9	Operating Systems	4	4	25	75	100
	C9-P	Operating Systems Lab	2	1	-0-	50	50
Total			32	27	125	675	800

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IV Semester

S.No	Paper Code	Subject	Hours/ Week	No of Credits	Max.Marks	Max. Marks University Exam	Total Marks
					Internal assessment		
1.	C10	Cyber Laws	4	4	25	75	100
	C10-P	Cyber Laws Lab	2	1	-0-	50	50
2.	C11	Data Mining and Data Warehousing	4	4	25	75	100
	C11-P	Data Mining and Data Warehousing Lab	2	1	-0-	50	50
3.	C12	Web Programming	4	4	25	75	100
	C12-P	Web Programming Lab	2	1	-0-	50	50
4.	C13	Data Communications & Networks	4	4	25	75	100
	C13-P	Data Communications & Networks Lab	2	1	-0-	50	50
5.	C14	Data Analytics using R	4	4	25	75	100
	C14-P	Data Analytics using R Lab	2	1	-0-	50	50
6.	C15	Object Oriented Software Engineering	4	4	25	75	100
	C15-P	Object Oriented Software Engineering Lab	2	1	-0-	50	50
Total			36	30	150	750	900

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V Semester

S.No	Paper Code	Subject	Hours/ Week	No of Credits	Max.Marks	Max. Marks University Exam	Total Marks
					Internal assessment		
1.	SEC1		4	3	25	75	100
	SEC1-P		2	2	-0-	50	50
2.	SEC2		4	3	25	75	100
	SEC2-P		2	2	-0-	50	50
3.	SEC3		4	3	25	75	100
	SEC3-P		2	2	-0-	50	50
4.	SEC4		4	3	25	75	100
	SEC4-P		2	2	-0-	50	50
5.	SEC5		4	3	25	75	100
	SEC5-P		2	2	-0-	50	50
6.	SEC6		4	3	25	75	100
	SEC6-P		2	2	-0-	50	50
Total			36	30	150	750	900

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Skill Enhancement Courses (SECs) for Semester -V,

From 2022-23(Syllabus-Curriculum)

Structure of SECs for Semester–V

(To choose One pair from the Four alternate pairs of SECs)

S. No.	Paper Code	Subject	Hours per week	Credits	Max. Marks		Total Marks
					Internal	External (University Exams)	
1	SEC-1	Machine Learning Using Python	4	4	25	75	100
	SEC-1P(Lab)	Python Lab	2	1	--	50	50
2	SEC-2	Digital Imaging	4	4	25	75	100
	SEC-2P(Lab)	Digital Imaging Lab	2	1	--	50	50
3	SEC-3	Cyber Security and Malware Analysis	4	4	25	75	100
	SEC-3P(Lab)	Cyber Security and Malware Analysis Lab	2	1	--	50	50
4	SEC-4	Internet of Things	4	4	25	75	100
	SEC-4P(Lab)	Internet of Things Lab	2	1	--	50	50
5	SEC-5	Mobile Application Development	4	4	25	75	100
	SEC-5P(Lab)	Mobile Application Development Lab	2	1	--	50	50
6	SEC-6	PC Hardware And Networking	4	4	25	75	100
	SEC-6P(Lab)	Computer Networking and PC trouble shooting Labs	2	1	--	50	50
TOTAL			36	30	150	750	900

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

Note: FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations)

***Note**: THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester

Note-1:*The Number of hours per week and credits are assigned to each course as per the course structure which was already approved at the time of finalizing the first FOUR semesters of BCA programme under CBCS by the concerned committee.*

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Note-2: *One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate practical skills related to the domain subject in students. The syllabus of SEC will be skill oriented and hence, teachers shall impart practical training to students on the skills embedded in syllabus citing related real field situations.*

Note-3: *Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer. Faculty are advised to engage students in practical based assignments so as to ensure better understanding of the practical usage of the particular skill based subject in real application domain.*

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UG(English)	Semester - I	Credits: 03
Course - 1	A Course In Communication And Soft Skills	Hrs/Week: 04

Learning Outcomes:

By the end of the course the learner will be able to :

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

UNIT I: Listening Skills

i. Importance of Listening
ii. Types of Listening
iii. Barriers to Listening
iv. Effective Listening

UNIT II: Speaking Skills

a. Sounds of English: Vowels and Consonants
b. Word Accent
c. Intonation

UNIT III: Grammar

a) Concord
b) Modals
c) Tenses (Present/Past/Future)
d) Articles
e) Prepositions
f) Question Tags
g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
h) Error Correction

UNIT IV: Writing

v. Punctuation
vi. Spelling
vii. Paragraph Writing

UNIT V: Soft Skills

a. SWOC
b. Attitude
c. Emotional Intelligence
d. Telephone Etiquette
e. Interpersonal Skills

పాఠ్య ప్రణాళిక

యూనిట్-I

రాజనీతి - నన్నయ

మహాభారతం-సభాపర్వం-ప్రథమాశ్వాసం-(26-57 పద్యాలు)

యూనిట్-II

దక్షయజ్ఞం - నన్నెచోడుడు

కుమారసంభవం-ద్వితీయాశ్వాసం-(49-86 పద్యాలు)

యూనిట్-III

ధౌమ్య ధర్మోపదేశము - తిక్కన

మహాభారతం-విరాటపర్వం-ప్రథమాశ్వాసం-(116-146) పద్యాలు

యూనిట్-IV

పలనాటి బెబ్బులి - శ్రీనాథుడు (పలనాటి వీరచరిత్ర-ద్విపద కావ్యం పుట 108-112
'బాలచంద్రుడు భీమంబగు సంగ్రామం బొనర్చుట.. (108)..
..... వెఱగంది కుంది' (112) సం. అక్కిరాజు ఉమాకాంతం
ముద్రణ.వి.కె.స్వామి, బెజవాడ 1911.

యూనిట్-V

సీతారావణ సంవాదం - మొల్ల

రామాయణము-సుందరకాండము-(40-87 పద్యాలు)

✦**వ్యాకరణం**

సంధులు: ఉత్వ, త్రిక, ద్రుతప్రకృతిక, నుగాగమ,ద్విరుక్తటకారాదేశ, యణాదేశ, వృద్ధి, శ్చుత్వ, జశ్త్వ, అనునాసిక సంధులు.

సమాసాలు: అవ్యయీభావ, తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి.

అలంకారాలుః

అర్థాలంకారాలు ः ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, అర్థాంతరన్యాస, అతిశయోక్తి.

శబ్దాలంకారాలు ः అనుప్రాస (వృత్యనుప్రాస, ఛేకానుప్రాస లాటానుప్రాస, అంత్యానుప్రాస)

ఛందస్సు

వృత్తాలు: ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము;

జాతులు : కందం, ద్విపద; ఉపజాతులు : ఆటవెలది, తేటగీతి, సీసం మరియు ముత్యాలసరాలు

UG Courses	Semester - I	Credits:03
Course: 1	Poetry, Prose & Grammar	Hrs/Weeks:04

UNIT – I OLD POETRY: 1. "**Arya Padukabhishekaha**",

Valmiki Ramayanam- Ayodhya Kanda, Sarga-100 Geetha Press, Gorakhpur.

2. " **YakshaPrasnaha**", Mahabharatam of Vedavyasa, Vanaparva, Adhyaya -313, Geeta Press, Gorakhpoor.

UNIT – II MODERN POETRY: 1." **Mevada Rajyastapanam**" 4th Canto, Srimat Pratapa Ranayanam, Mahakavyam, Pt.Ogeti Parikshit sarma, Published by, Pt.Ogeti Parikshitsarma, 10/11, Sakal nagar, Pune, 1989.

2.**"VivekanandaSuktayaha"**, Vivekanandasuktisudha by Dr.SamudralaLakshmanaiah, Published by Author, 18-1-84, Yasoda Nagar, Tirupati. Selected Slokas 25.

UNIT – III PROSE: 1. "**Atyutkataihi papapunyairihaiva phalamasnute**",

Hitopadesaha-Mitralabha 2 & 3 stories, Pages 61-84.

2. " **Sudraka -Veeravarakatha"**, Hitopadesaha-Vigraham, 8th story, Pages 63-70,Chowkhamba krishadas academy,Varanasi, 2006.

UNIT - IV GRAMMAR: 1.**DECLENSIONS**Nouns ending in vowels
Deva, Kavi, Bhanu, Dhatru, Pitru, Go, Ramaa, Mati.

2.CONJUGATIONS

1st Conjugation - Bhoo, Gam, Shtha, Drusir, Labh, Mud.

2nd Conjugation - As. 10th Conjugation – Bhaash.

UNIT – V GRAMMAR: 1. **SANDHI** - **Swara Sandhi** : Savarnadeergha, ayavayava, Guna,Vruddhi, yaanadesa.
-**Halsandhi**:Schutva, Stutva, Anunasika.2.**SAMASA**
Dwandwa, Tatpurusha, Karmadharaya,, Dwigu.

UG(General HINDI)	Semester - I	Credits:03
Course :1	Prose, Short Stories, Grammar and Letter Writing	Hrs/Weeks:04

UNIT 1

गद्य संदेश (Prose)(सं. डा .वी. एल. नरसिंहम शिवकोटि)

1. साहित्य की महत्ता

2. मित्रता

3.पृथ्वीराज की आँखें

UNIT 2

कथा लोक (Short Stories)(सं. डा. घनश्याम)

1.मुक्तिधन

2.गूदउसाई

3.उसने कहा था

UNIT 3

व्याकरण (Grammar)(सरल हिन्दी व्याकरण, दक्षिण भारत हिन्दी प्रचार सभा, मद्रास)

लिंग, वचन, काल, वाच्य।

UNIT 4

कार्यालयीन शब्दावली : अंग्रेजी से हिंदी और हिंदी से अंग्रजी

(Changing Administrative Terminology Hindi to English and English to Hindi)

UNIT 5

पत्र लेखन : वैयक्तिक पत्र(छुट्टी पत्र, पिता, मित्र के नाम पत्र, पुस्तक विक्रेता के नाम पत्र

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UG- LIFE SKILL COURSE

HUMAN VALUES AND PROFESSIONAL ETHICS (HVPE)

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 hrs)
I	Life skill course	Human values and professional ethics (HVPE)	30	2	2	50 Marks

Objective: Learning Outcome: On completion of this course, the UG students will be able to

- Understand the significance of value inputs in a classroom and start applying them in their life and profession
- Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
- Understand the value of harmonious relationship based on trust and respect in their life and profession
- Understand the role of a human being in ensuring harmony in society and nature.
- Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

UNIT: 1 - Introduction – Definition, Importance, Process & Classifications of Value Education: Understanding the need, basic guidelines, content and process for Value Education Understanding the thought provoking issues; need for Values in our daily life Choices making – Choosing, Cherishing & Acting, Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values.

UNIT: 2 - Harmony in the Family – Understanding Values in Human Relationships:
Understanding harmony in the Family- the basic unit of human interaction, Understanding the set of proposals to verify the Harmony in the Family; Trust (*Vishwas*) and Respect (*Samman*) as the foundational values of relationship, Present Scenario: Differentiation (Disrespect) in relationships on the basis of body, physical facilities, or beliefs.
Understanding the Problems faced due to differentiation in Relationships. Understanding the harmony in the society (society being an extension of family): *Samadhan, Samridhi, Abhay, Sah-astitva* as comprehensive Human Goals Visualizing a universal harmonious order in society- Undivided Society (*AkhandSamaj*), Universal Order (*SarvabhaumVyawastha*)- from family to world family.

UNIT: 3 - Professional Ethics in Education: Understanding about Professional Integrity, Respect & Equality, Privacy, Building Trusting Relationships.Understanding the concepts; Positive co-operation, Respecting the competence of other professions. Understanding about Taking initiative and Promoting the culture of openness. Depicting Loyalty towards Goals and objectives.

Text Books:

1. R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
2. Bhatia, R. & Bhatia, A (2015) Role of Ethical Values in Indian Higher Education.

References books:

1. Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and Harper Collins
2. E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
3. Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
4. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Limits to Growth – Club of Rome's report, Universe Books.
5. A Nagraj, 1998, JeevanVidyaEkParichay, Divya Path Sansthan, Amarkantak.
6. P L Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
7. A N Tripathy, 2003, Human Values, New Age International Publishers.

Co-curricular Activities:

1. Visit to an Old Age Home and spending with the inmates for a day.
2. Conduct of Group Discussions on the topics related to the syllabus.
3. Participation in community service activities.
4. Working with a NGO like Rotary Club or Lions International, etc.

UG- LIFE SKILL COURSE
ENTREPRENEURSHIP DEVELOPMENT (ED)
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 hrs)
I	Life skill course	Entrepreneurship Development	30	2	2	50 Marks

Course Objective: A Generic Course that is intended to inculcate an integrated personal Life Skill to the student.

Learning Outcomes:

After successful completion of the course the student will be able to;

- Understand the concept of Entrepreneurship, its applications and scope.
- Know various types of financial institutions that help the business at Central, State and Local Level
- Understand Central and State Government policies, Aware of various tax incentives, concessions
- Applies the knowledge for generating a broad idea for a starting an enterprise/start up
- Understand the content for preparing a Project Report for a start up and differentiate between financial, technical analysis and business feasibility.

Unit-I: Entrepreneurship: Definition and Concept of entrepreneurship - Entrepreneur Characteristics – Classification of Entrepreneurs –Role of Entrepreneurship in Economic Development –Start-ups.

Unit-II: Idea Generation and Project Formulation: Ideas in Entrepreneurships – Sources of New Ideas – Techniques for Generating Ideas – Preparation of Project Report –Contents; Guidelines for Report preparation – Project Appraisal Techniques –Economic Analysis-Financial Analysis-Market Analysis.

Unit-III: Institutions Supporting and Taxation Benefits: Central level Institutions: NABARD; SIDBI,– State Level Institutions –DICs – SFC - Government Policy for MSMEs - Tax Incentives and Concessions.

Reference Books:

1. Arya Kumar, Entrepreneurship, Pearson, Delhi
2. Poornima MCH, Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi
3. Sangeetha Sharma, Entrepreneurship Development, PHI Learning
4. KanishkaBedi, Management and Entrepreneurship, Oxford University Press, Delhi
5. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi
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
9. Dr B E V L Naidu, Entrepreneurship. Seven Hills Publishers

Suggested Co-Curricular Activities (As far as possible)

1. Group Discussion
2. Debate
3. Seminar
4. Visit to an SSI and preparing of an outline Report
5. Invited Lecture by a Bank Employee on the Bank Support to a Start Up.
6. Chart showing tax concessions to SSI, MSME both direct and indirect.

UG- SKILL DEVELOPMENT COURSE
TOURISM GUIDANCE
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
I	Skill Development Course	Tourism Guidance	30	2	2	50 Marks

Learning Outcomes:
By successful completion of the course, students will be able to:

- Understand the basic tourism aspects .
- Comprehend the requirements, role and responsibilities of profession of a Tourist Guide
- Apply the knowledge acquired in managing different groups and guiding in a tour
- Explain basic values related to tourism and heritage

Unit I: (06 hrs)
Tourism – What is Tourism - Characteristics of Tourist Places – Guidance in Tourism - Meaning of Guidance – Types of Tour Guidance - Government/Department Regulations

Unit II: (10 hrs)
Types of Guides – Characteristics of a Guide - Duties and Responsibilities of a Guide - The Guiding Techniques –Guide's personality- Training Institutions – Licence.
Leadership and Social Skills - Presentation and Communication Skills - Working with different age and linguistic groups - Working under difficult circumstances – Precautions at the site -Relationship with Fellow Guides and Officials.

Unit III: (10 hrs)
Guest Relationship Management- Personal and Official - Arrangements to Tourists – Coordinating transport - VISA/Passport -Accident/Death -Handling Guests with Special Needs/ Different Abilities – Additional skills required for Special/Adventure Tours - Knowledge of Local Security and Route Chart – Personal Hygiene and Grooming - Checklist - Code of Conduct

Co-curricular Activities Suggested: (04 hrs)

1. Assignments, Group discussion, Quiz etc.
2. Invited lecture/training by local tourism operators/expert/guides
3. Visit to local Tourism Department office and a tourist service office
4. Organisation of college level short-duration tours to local tourist sites.

Reference Books:

1. Jagmohan Negi (2006); Travel Agency and Tour Operations, Kanishka Publishers, New Delhi
2. Mohinder Chand (2009); Travel Agency and Tour Operations: An Introductory Text, Anmol Publications Pvt. Limited, New
3. Pat Yale(1995); Business of Tour Operations, Longman Scientific & Technical, New Delhi
4. Websites on Tourism guidance.

UG- SKILL DEVELOPMENT COURSE
PLANT NURSERY
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
I	Skill Development Course	Plant Nursery	30	2	2	50 Marks

Learning Outcomes: On successful completion of this course students will be able to;

- Understand the importance of a plant nursery and basic infrastructure toestablish it.
- Explain the basic material, tools and techniques required for nursery.
- Demonstrate expertise related to various practices in a nursery.
- Comprehend knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector.

Unit-1: Introduction to plant nursery: **(06 Hrs)**

1. Plant nursery: Definition, importance.
2. Different types of nurseries –on the basis of duration, plants produced, structure used.
3. Basic facilities for a nursery; layout and components of a good nursery.
4. Plant propagation structures in brief.
5. Bureau of Indian Standards (BIS-2008) related to nursery.

Unit- 2: Necessities for nursery: **(09 Hrs)**

1. Nursery beds – types and precautions to be taken during preparation.
2. Growing media, nursery tools and implements, and containers for plant nursery, in brief.
3. Seeds and other vegetative material used to raise nursery in brief.
4. Outlines of vegetative propagation techniques to produce planting material.
5. Sowing methods of seeds and planting material.

Unit-3: Management of nursery: **(09 Hrs)**

1. Seasonal activities and routine operations in a nursery.
2. Nursery management – watering, weeding and nutrients; pests and diseases.
3. Common possible errors in nursery activities.
4. Economics of nursery development, pricing and record maintenance.
5. Online nursery information and sales systems.

Suggested Co-curricular activities: **(6 Hrs)**

1. Assignments/Group discussion/Quiz/Model Exam.
2. Demonstration of nursery bed making.
3. Demonstration of preparation of media for nursery.
4. Hands on training on vegetative propagation techniques.
5. Hands on training on sowing methods of seeds and other material.
6. Invited lecture cum demonstration by local expert.
7. Watching videos on routine practices in plant nurseries.
8. Visit to an agriculture/horticulture /forest nursery.
9. Case study on establishment and success of a plant nursery.

Reference books:

1. Ratha Krishnan, M., et.al. (2014) *Plant nursery management: Principles and practices*, Central Arid Zone Research Institute (ICAR), Jodhpur, Rjasthan
2. Kumar, N., (1997) *Introduction to Horticulture*, Rajalakshmi Publications, Nagercoil.
3. Kumar Mishra, K., N.K. Mishra and Satish Chand (1994) *Plant Propagation*, John Wiley & Sons, New Jersey.

UG- SKILL DEVELOPMENT COURSE
ELECTRICAL APPLIANCES
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
I	Skill Development Course	Electrical Appliances	30	2	2	50 Marks

Learning Outcomes: By successful completion of the course, students will be able to:

- Acquire necessary skills/hand on experience/ working knowledge on multimeters, galvanometers, ammeters, voltmeters, ac/dc generators, motors, transformers, single phase and three phase connections, basics of electrical wiring with electrical protection devices.
- Understand the working principles of different household domestic appliances.
- Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiring faults.

UNIT-I : **(6 hrs)**

Voltage, Current, Resistance, Capacitance, Inductance, Electrical conductors and Insulators, Ohm's law, Series and parallel combinations of resistors, Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, Electrical energy, Power, Kilowatt hour (kWh), consumption of electrical power

UNIT-II : **(10 hrs)**

Direct current and alternating current, RMS and peak values, Power factor, Single phase and three phase connections, Basics of House wiring, Star and delta connection, Electric shock, First aid for electric shock, Overloading, Earthing and its necessity, Short circuiting, Fuses, MCB, ELCB, Insulation, Inverter, UPS

UNIT-III: **(10 hrs)**

Principles of working, parts and servicing of Electric fan, Electric Iron box, Water heater; Induction heater, Microwave oven; Refrigerator, Concept of illumination, Electric bulbs, CFL, LED lights, Energy efficiency in electrical appliances, IS codes & IE codes.

Co-curricular Activities (Hands on Exercises): **(04 hrs)**

[Any four of the following may be taken up]

1. Studying the electrical performance and power consumption of a given number of bulbs connected in series and parallel circuits.
2. Measuring parameters in combinational DC circuits by applying Ohm's Law for different resistor values and voltage sources
3. Awareness of electrical safety tools and rescue of person in contact with live wire.
4. Checking the specific gravity of lead acid batteries in home UPS and topping-up with distilled water.
5. Identifying Phase, Neutral and Earth on power sockets.
6. Identifying primary and secondary windings and measuring primary and secondary voltages in various types of transformers.
7. Observing the working of transformer under no-load and full load conditions.
8. Observing the response of inductor and capacitor with DC and AC sources.
9. Observing the connections of elements and identify current flow and voltage drops.
10. Studying electrical circuit protection using MCBs, ELCBs
11. Assignments, Model exam etc.

Reference Books:

1. A Text book on Electrical Technology, B.L.Theraja, S.Chand& Co.,
2. A Text book on Electrical Technology, A.K.Theraja.
3. Performance and design of AC machines, M.G.Say, ELBSEdn.,
4. Handbook of Repair & Maintenance of domestic electronics appliances; BPB Publications
5. Consumer Electronics, S.P.Bali, Pearson
6. Domestic Appliances Servicing, K.P.Anwer, Scholar Institute Publications

DETAILS OF COURSE-WISE SYLLABUS

BCA	Course Code	Semester: I	Credits: 04
	C1	Computer Fundamentals and Office Tools	Hrs/Wk:04

Course Objectives:

- To introduce the concepts of computer fundamentals and their applications for the efficient use of office technology in a business environment.
- To introduce the fundamentals of computing devices and reinforce computer vocabulary, particularly with respect to personal use of computer hardware and software.
- To provide hands-on use of Word, Excel and PowerPoint.

Course Outcomes:

- Describe the usage of computers and why computers are essential components in business and society.
- Identify categories of programs, system software and applications. Organize and work with files and folders.
- Compose, format and edit a word document and working with macros.
- Create work sheets and using various functions.
- Make presentations and inserting multimedia in them.

UNIT – I:

Introduction: Characteristics of Computer, The evolution of Computers, The Computer Generations. **Basic Computer Organization:** Input Unit, Output Unit, Storage Unit, Arithmetic Logic Unit, Control Unit, Central Processing Unit.
Secondary Storage Devices: Magnetic Disk, Optical Disk. Magneto optical Disk, Mass Storage Devices, Flash Drive and Other related Concepts.

UNIT – II:

Computer Software: Types of Software, Logical systems Architecture, Acquiring Software, Software developmental Steps. **Computer Languages:** Machine Language, Assembly Language, High Level Language, Some High Level Languages, Characteristics of good Programming Language. **Number Systems:** Binary, Hexa Decimal, Conversion from one number system to another system.

UNIT –III:

MS-Word: Features of MS-Word, MS-Word Window components, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, Formatting characters, changing cases, Paragraph formatting, Indents, Drop Caps, Using format painter, Page formatting, Header & footer, Bullets & numbering, Tabs, Forming tables. Finding &replacing text, go to (F5) command, proofing text (Spell check, Auto correct), Reversing actions, Macros, Inserting pictures, Hyperlinks, Equation editor, Mail merging, Printing documents.

UNIT-IV:

MS-Excel: Excel Features, Spreadsheets, workbooks, creating, saving & editing a workbook, Renaming sheet, cell entries (numbers, labels, and formulas), find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Filters, Formatting worksheet, Functions and its parts, Some useful Functions in excel (SUM, AVERAGE, COUNT, MAX, MIN, IF), Cell referencing (Relative, Absolute, Mixed), What-if analysis Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet.

UNIT V:

MS-PowerPoint: Features of PowerPoint, Uses, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding subheadings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip arts and auto shapes. Various presentation, Working in slide sorter view (deleting, duplicating, rearranging slides), adding transition and animations to slide show, inserting music or sound on a slide, viewing slide show, Printing slides.

TEXT BOOKS:

1. Computer Fundamentals – Pradeep .K.Sinha: BPB Publications. Fundamentals of Computers - ReemaThareja, Oxford University Press India

REFERENCES:

1. Fundamentals of Computers – V. Rajaraman, Prentice Hall of India Introduction to Computers – Peter Norton Mcgraw Hill.

BCA	Course Code	Semester: I	Credits: 01
	C1-P	Computer Fundamentals and Office Tools Lab	Hrs/Wk:02

List of Experiments:

1) Design a visiting card for managing director of a company as per the following specification.
   - Size of visiting card is 3 ½×2
   - Name of the company with big font
   - Phone number, Fax number and E-mail address with appropriate symbols.
   - Office and Residence address separated by a line
2) Create a table with following columns and display the result in separate cells for the following
   - Emp Name, Basic pay, DA, HRA, Total salary.
   - Sort all the employees in ascending order with the name as the key
   - Calculate the total salary of the employee
   - Calculate the Grand total salary of the employee
   - Find highest salary and
   - Find lowest salary
3) Prepare an advertisement to company requiring software professional with the following
   - Attractive page border
   - Design the name of the company using WordArt
   - Use at least one clipart.
   - Give details of the company (use bullets etc)
   - Give details of the Vacancies in each category of employee's (Business manager, Software engineers, System administrators, Programmers, Data entry operators) qualification required.
4) Create a letterhead of a company with the following specifications
   - Name of the company on the top of the page 2 with big font and good style
   - Phone no, Fax no and E-mail address with symbols.
   - Main products manufactured by the company
   - Slogans if any should be specify in bold at the bottom
5) Create two pages of curriculum vitae of a graduate with the following specifications
   - Table to show qualifications with proper headings
   - Appropriate left and right margins
   - Format ½ page using two-column approach about yourself
   - Name on each page at the top right side
   - Page no. in the footer on the right side.
6) Write a macro format document as below
   - Line spacing "2"(double)
   - Paragraph indent of 0.1
   - Justification formatting style
   - Arial font and Bold of 14pt-size
7) Create a letter as the main document and create 10 records for the 10 persons use mail merge to create letter for selected persons among 10.
8) Create an electronic spread sheet in which you enter the following decimal numbers and convert them into octal, Hexadecimal and binary numbers and vice-versa.

   Decimal Numbers: 35,68,95,78,165,225,355,375,465
   Binary Numbers: 101,1101,11101,11111,10001,11101111

9) Calculate the net pay of the employees following the conditions below.

	A	B	C	D	E	F	G	H	I
1	Employee Number	Employee name	Basic pay	DA	HRA	GPF	Gross pay	Income tax	Net pay
2									

DA: - 56% of the basic pay if Basic pay is greater than 20000 or else 44%.
HRA: - 15% of the Basic pay subject to maximum of Rs.4000.
GPF: - 10% of the basic pay.
INCOME TAX: - 10% of basic if Basic pay is greater than 20000. Find who is getting highest salary& who is get lowest salary?

10) The ABC Company shows the sales of different product For 5 years. Create BAR Graph,3D and Pie chart for the following.

A	B	C	D	E	F
S.No.	Year	Pro 1	Pro 2	Pro 3	Pro 4
1	1989	1000	800	900	1000
2	1990	800	80	500	900
3	1991	1200	190	400	800
4	1992	400	200	300	1000
5	1993	1800	400	400	1200

11) Create a suitable examination database and find the sum of the marks (total) of each student and respective, class secured by the student.
Pass: if marks in each subject >=35
Distinction: if average >=75
First class: if average >=60 but <75
Second class: if average >=50 but less than 60 **Third class:** if average>=35 but less than 50 **Fail:** if marks in any subject <35

12) Enter the following data into the sheet.

Name	Department	Salary
Anusha	Accounts	12000
Rani	Engineering	24000
Lakshmi	Accounts	9000
Purnima	Marketing	20000
Bindu	Accounts	4500
Tejaswi	Accounts	11000
Swetha	Engineering	15000
Saroja	Marketing	45000
Sunitha	Accounts	5600
Sandhya	Engineering	24000
Harika	Marketing	8000

- Extract records for department in Accounts and Salary>10000
- Sort the data by salary with the department using "sortcommands".
- Calculate total salary for each department using Subtotals

13) Enter the following data into the sheet.

	Raju	Rani	Mark	Rosy	Ismail	Reshma
English	76	89	43	51	76	87
2nd Lang	55	85	78	61	47	33
Maths	65	82	34	58	52	65
Computers	45	91	56	72	49	56
Human Values	51	84	54	64	32	64

Apply the conditional formatting for marks

- 35 belowRed
- 35 to 50Blue
- 51 to 70Green
- 71 to 100 Yellow

14) Create a presentation using templates.
15) Create a Custom layout or Slide Master for professional presentation.
16) Create a presentation with slide transitions and animation effects.
17) Create a table in PPT and apply graphical representation Unit.

BCA	Course Code	Semester: I	Credits: 04
	C2	Programming In C	Hrs/Wk:04

Course Objectives:

- Provides knowledge on Algorithms, Flow chart and different programming languages.
- To train the students with basic concepts of programming using C.
- Provides complete knowledge of C language.
- Helps to develop logics which will help them to create program and applications in C.
- Learning the basic programming constructs, they can easily switch over to any other language in future.

Course Outcomes:

Upon successful completion of this course, students will be able to-

- Understand the basic terminology used in computer programming.
- Write, compile and debug programs in C language.
- Use different data types in a computer program.
- Design programs involving decision structures, loops and functions.
- Understand the dynamics of memory by the use of pointers and Structures.
- Apply different operations in File handling.

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:

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

UNIT - III:

Arrays and Strings: ***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, Accessing one dimensional array, two dimensional Arrays, Accessing two dimensional arrays. ***Strings:*** Introduction, String Operations using String functions.

UNIT - IV:

Functions: Introduction, Using functions – Function declaration/ prototype – Function definition, Function call – Return statement – Passing parameters, Passing one dimensional array to function, Scope of variables, Storage Classes, Recursive functions.

UNIT – V:

Pointers, Structures and Unions: ***Pointers:*** Understanding Computer Memory – Introduction to Pointers, Declaring Pointer Variable, Dynamic Memory Allocation, Drawbacks of Pointers. ***Structures***: Introduction to structures, Nested Structures. ***Union***: Introduction to Union – accessing union elements.

File Handling: ***Files***: Introduction to Files, Using Files in C, Reading Data from Files, Writing Data from Files.

PRESCRIBED TEXT BOOKS:

1. Computer Fundamentals and Programming in C by REEMA THAREJA from OXFORD UNIVERSITY PRESS

REFERENCE BOOKS:

1. E. Balagurusamy, COMPUTING FUNDAMENTALS &C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
2. Ashok N Kamthane: Programming with ANSI and Turbo C,Pearson Edition Publ, 2002.
3. Henry Mullish& Huubert L.Cooper: The Sprit of C, Jaico Pub, House,1996.
4. Teach your C Skills-Kanithker

BCA	Course Code	Semester: I	Credits: 01
	C2-P	Programming In C Lab	Hrs/Wk:02

List of Experiments

1. Write a C program to convert hours into seconds.
2. Write a C program to check given number is even or odd
3. Write a C program to check given year is leap year or not.
4. Write a C program to check whether the given number is Prime or Not.
5. Write a C program to find the sum of individual digits of a given number.
6. Write a program to check whether given number is Palindrome or Not.
7. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
8. Write a C program to print the numbers in triangular form.

   1
   1 2
   1 2 3
   1 2 3 4
9. Program to display number of days in given month using Switch –Case.
10. Write a program to find given number in an array (linear search).
11. Write a C program to perform addition of two matrices.
12. Write a C program to determine if the given string is a palindrome or not.
13. Write a C program to find the factorial of a given integer using recursive function.
14. Write a C program to swap two numbers using Call by Value and Call by Reference.
15. Program to display Student Details using Structures.
16. Write a C program to
    i. Write data into a File.
    ii. Read data from a File.

BCA	Course Code	Semester: I	Credits: 04
	C3	Numerical and Statistical Methods	Hrs/Wk:04

Course Objectives:

- To learn how to perform error analysis for arithmetic operations.
- To demonstrate working of various numerical methods.
- To provide a basic understanding of the derivation and use of methods of interpolation and numerical integration.
- To impart knowledge of various statistical techniques.
- To develop students understanding through laboratory activities to solve problems related to above stated concepts.

Course Outcomes:

- Skill to choose and apply appropriate numerical methods to obtain appropriate solutions to difficult mathematical problems.
- Ability to apply various statistical techniques such as Measures of Central Tendency and Dispersion.
- Understanding of relationship between variables using the method of Correlation and Fit Analysis.
- Skill to execute programs of various Numerical Methods and Statistical techniques for solving mathematical problems.

UNIT - I:

Solution of equations (polynomial and transcendental equations) interval having methods, secant, Regula – Falsi, Newton – Raphson methods, Fixed point Iteration method.

UNIT - II:

Solution of system of linear equations: Gauss – Elimination method, Gauss – Jordan, Gauss – Siedel iteration method, LU- Decomposition method, Eigen values and Eigen vectors of a square matrix.

UNIT - III:

Interpolation: Forward and backward differences, Newton's forward and backward formula, Lagrange's interpolation and Lagrange's inverse interpolation formula.

Numerical differentiation, integration: Numerical differentiation forward and backward formula, Trapezoidal and Simpsons formulas.*Statistical Methods:*

UNIT- IV:

Basic concepts and definition of statistics: Mean, Median, Mode , standard deviation, coefficient of variation ,skewness and kurtosis ,Karl Pearson Correlation coefficient ,Rank Correlation and illustrated examples .

UNIT V:

Probability : Basic concepts and definition of probability , Probability axioms , Conditional probability , Addition and Multiplication theorem of probability (Based on set theory concepts) , Bayes theorem , problems and applications .

TEXT BOOKS:

1) Sunil S .Patil Numerical and Statistical Methods EBPB.
2) S.S.Shastry Introductory methods of Numerical Analysis PHI (New Delhi).

REFERENCE BOOKS:

3) Gupta S.C & Kapuram VK Fundamentals of Mathematical Statistics.
4) Numerical Analysis, Sultan Chand & Sons New Delhi.

BCA	Course Code	Semester: I	Credits: 01
	C3-P	Numerical and Statistical Methods Lab	Hrs/Wk:02

UNIT - I

1) Find the root of the Equation x x = 1.2 by using Regula - Falsi method.
2) Solve the Equation sin x = 5x – 2 by Iteration method.
3) Apply Newton - Raphson method , to find and approximate root , correct to three decimal places , of the Equation $x^3 - 3x - 5 = 0$, which lies near x = 2 .
4) Find the root of the Equation x sin x + cos x = 0 by using Newton – Raphson method.
5) Find the root of the Equation $x^3 + x - 1 = 0$ by Iteration method, given that a root lies near

UNIT - II

1) Solve the system of Equations 3x+y-z = 3 , 2x-8y+z=-5 , x-2y+9z=8 using Gauss – Elimination method.
2) Using Gauss –Jordan method solve the system, 2x+y+z=10, 3x+2y+3z = 18, x+4y+9z=16.
3) Solve the Equations 2x+3y+z=9, x+2y+3z=6, 3x+y+2z=8 by LU – Decomposition method.
4) Solve the system of Equations , 8x-3y+2z=20 , 4x+11y-z=33, 6x+3y+12z=35 by using Gauss- Seidel method.
5) Find the Eigen values & Eigen vectors of a square matrix A=[8 − 62 − 67 − 42 − 43].

UNIT - III:

1) Using Newton's forward interpolation formula ,the given table of values ,

X	1.1	1.3	1.5	1.7	1.9
f(x)	0.21	0.69	1.25	1.89	2.61

Obtain the value of f(x) when x = 1.4

2) Using Lagrange's Interpolation formula , find the value of y , corresponding to x = 10

3) from the following table

X	5	6	9	11
Y	12	13	14	16

4) From the following table of values of x & y , obtain $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ for x = 1.5

X	1.5	2.0	2.5	3.0	3.5	4.0
Y	3.375	7.0	13.625	24.0	38.875	59.0

5) Evaluate $\int_0^1 x^2 dx$ with five sub-intervals by Trapezoidal rule.
6) Evaluate $\int_0^1 \frac{1}{1+x} dx$ using Simpson's 3/8 rule taking h = 1/6.

UNIT - IV

1) Find the Karl Pearson's coefficient of skewnwss for the following data :

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No.of students	10	12	18	25	16	14	8

2) Find Bowley's coefficient of skewness for the following data :

Salary	500-600	600-700	700-800	800-900	900-1000	1000-1100	1100-1200	1200-1300
No.of persons	10	28	40	64	25	18	9	6

3) Find the standard deviation from Assumed mean method for the following data :

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	1	4	17	45	26	5	2

4) Find the coefficient of skewness for the following data :

Variable	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	2	5	7	13	21	16	8	3

5) Find the rank correlation coefficient for the following data:

X 65	45	67	38	48	50	26	47	70	62
Y 64	40	58	46	52	49	38	47	59	60

UNIT - V

1) Three dice are tossed together. Find the probability that exactly two of the three numbers that show on them are equal.
2) What is the probability that a card drawn at random from the pack of playing cards may be either a Queen or a Jack?
3) If two cards are drawn from a well shuffled pack, find the probability that at least one of the two is Hearts.
4) A bag contains 4 Red, 6 Blue balls and a second bag contains 4 Blue & 6 Green balls. A ball is taken out from each bag. Find the probability that one ball is red and the other ball is Green. The probability that an event A happens in one trail of an experiment is 0.4. Three independent trails of the experiment are performed. Find the probability that the event A happens at least once

UG(English)	Semester -II	Credits: 03
Course - 2	A Course In Reading & Writing Skills	Hrs/Week: 04

Learning Outcomes:
By the end of the course the learner will be able to :

- Use reading skills effectively
- Comprehend different texts
- Interpret different types of texts
- Analyse what is being read
- Build up a repository of active vocabulary
- Use good writing strategies
- Write well for any purpose
- Improve writing skills independently for future needs

UNIT I:

Prose : 1. How to Avoid Foolish Opinions Bertrand Russell
Skills : 2. Vocabulary: Conversion of Words
: 3. One Word Substitutes
: 4. Collocations

UNIT II:

Prose : 1. The Doll's House Katherine Mansfield
Poetry : 2. Ode to the West Wind P B Shelley
Non-Detailed Text : 3. Florence Nightingale Abrar Mohsin
Skills : 4. Skimming and Scanning

UNIT III:

Prose : 1. The Night Train at Deoli Ruskin Bond**Poetry** : 2. Upagupta Rabindranath Tagore
Skills : 3. Reading Comprehension
: 4. Note Making/Taking

UNIT IV

Poetry : 1. Coromandel Fishers Sarojini Naidu
Skills : 2. Expansion of Ideas
: 3. Notices, Agendas and Minutes

UNIT V:

Non-Detailed Text : 1. An Astrologer's Day R K Narayan
Skills : 2. Curriculum Vitae and Resume
: 3. Letters
: 4. E-Correspondence

పాఠ్య ప్రణాళిక

యూనిట్-I : ఆధునిక కవిత్వం

1. ఆధునిక కవిత్వం- పరిచయం
2. కొండవీడు - దువ్వూరి రామిరెడ్డి
   ('కవికోకిల' గ్రంథావళి-ఖండకావ్యాలు-నక్షత్రమాల సంపుటి నుండి)
3. మాతృసంగీతం - అనిసెట్టి సుబ్బారావు ('అగ్నివీణ' కవితాసంపుటి నుండి)
4. 'తాతకో నూలుపోగు' - బండారు ప్రసాదమూర్తి ('కలనేత' కవితాసంపుటి నుండి)

యూనిట్-II : కథానిక

5. తెలుగు కథానిక - పరిచయం
6. భయం (కథ) - కాళీపట్నం రామారావు
7. స్వేదం ఖరీదు....? - (కథ) - రెంటాల నాగేశ్వరరావు

యూనిట్-III : నవల

8. తెలుగు 'నవల' - పరిచయం
9. రథచక్రాలు (నవల) - మహీధర రామ్మోహన రావు (సంక్షిప్త ఇతివృత్తం మాత్రం)
10. రథచక్రాలు (సమీక్షా వ్యాసం) - డా॥ యల్లాప్రగడ మల్లికార్జునరావు

యూనిట్-IV: నాటకం

11. తెలుగు 'నాటకం' - పరిచయం
12. యక్షగానము (నాటిక) - ఎం.వి.ఎస్. హరనాథరావు.
13. "అపురూప కళారూపాల విధ్వంసదృశ్యం 'యక్షగానము' (సమీక్షా వ్యాసం)"
    -డా॥కందిమళ్ళసాంబశివరావు

యూనిట్-V: విమర్శ

14. తెలుగు సాహిత్య విమర్శ - పరిచయం
15. విమర్శ-స్వరూప స్వభావాలు; ఉత్తమ విమర్శకుడు-లక్షణాలు

UG(General HINDI)	Semester - II	Credits:03
Course : 2	Prose, Short Stories, Grammar and Letter Writing	Hrs/Weeks:04

Unit 1

गद्य संदेश (Prose) (सं. डा.वी.एलण्नरसिंहम शिवकोटि)

1. बिंदा

2. भारत एक है

3.एच.आई.वी/एड्स

Unit 2

कथा लोक (Short Stories) (सं. डा. घनश्याम)

1.भूख हडताल

2.परमात्मा का कुत्ता

3.और वह पढ गई...

Unit 3

व्याकरण (Grammar) (सरल हिन्दी व्याकरण, दक्षिण भारत हिन्दी प्रचार सभा,मद्रास)

संधि विच्छेद, वाक्यों की शुद्धि

Unit 4

कार्यालयीन हिंदी : पदनाम ... हिंदी से अंग्रेजी और अंग्रेजी से हिंदी

(Changing Administrative Terminology Hindi to English and English to Hindi)

Unit 5

पत्र लेखन : (Letter Writing)

नौकरी केलिए आवेदन पत्र

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UG Courses	Semester - II	Credits:03
Course: 2	Poetry, Prose & Grammar	Hrs/Weeks:04

UNIT – I OLD POETRY:

1."**Indumateeswayamvaram**", Raghuvamsam of kalidasa, 6th canto, Chowkhamba krishadas academy, Varanasi-2012.

2. "**Deekshaapradanam**", Buddacharitam of Aswagosha, 16th canto. Selected verses.

UNIT – II MODERN POETRY:

1. "**Gangavataranam**", Bhojas Champu Ramayanam, Balakanda.
2. "**Mohapanodaha**", 4th cant. Dharma Souhrudam by P.Pattabhi Ramarao, , Published by Author, Ramanth Nagar.
3. "**VandeKasmeerabharatam**", by Doolypala Ramakrishna from Samskrita pratibha, sahitya academy , New Delhi -2018.

UNIT – III PROSE:

1. "**Avantisundarikatha**", 5th Chapter. Dasakumara Charitam, Purva peetika.
2. "**Charudattacharitam**", Bhasakathasaraha by Y.Mahalingasastry.

UNIT - IV GRAMMAR:

1. **DECLENSIONS** :Nouns ending in vowels
Nadee, Janu, vadhoo, Matru, Phala, Vaari & Madhu.
2. **CONJUGATIONS**
III Conjugation- Yudh, IV Conjugation- Ish, VIII Conjugation- Likh, Kru, IX Conjugation-Kreen X, Conjugation-Kath, Ram, Vand.

UNIT – V GRAMMAR:

1. **SANDHI** - Halsandhi : Latva, Jastva
-Visarga sandhi: Utva, Visargalopa, Rephadesa, Ooshma.

2.**SAMASA**
Avyayeebhava, Bahruvrihi.

UG- LIFE SKILL COURSE
INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 hrs)
II	Life skill course	Information and Communication Technology (ICT)	30	2	2	50 Marks

Objectives: This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.

Course outcomes: After completion of the course, student will be able to;

- Understand the literature of social networks and their properties.
- Explain which network is suitable for whom.
- Develop skills to use various social networking sites like twitter, flickr, etc.
- Learn few GOI digital initiatives in higher education.
- Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
- Get acquainted with internet threats and security mechanisms.

UNIT-I:Fundamentals of Internet: What is Internet?, Internet applications, Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser–Types of Browsers, Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp.

UNIT-II: E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management. G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

UNIT-III: Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues. What are GOI digital initiatives in higher education? (SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

RECOMMENDED CO-CURRICULAR ACTIVITIES: Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/ independent and group learning.

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz and Group Discussion
4. Slip Test
5. Try to solve MCQ's available online.
6. Suggested student hands on activities:

a. Create your accounts for the above social networking sites and explore them, establish a video conference using Skype.
b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.
c. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

Reference Books:

1. In-line/On-line: Fundamentals of the Internet and the World Wide Web, 2/e –By Raymond Green law and Ellen Hepp, Publishers: TMH
2. Internet technology and Web design, ISRD group, TMH.
3. Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.

UG- LIFE SKILL COURSE
INDIAN CULTURE AND SCIENCE(ICS)
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam(2 Hrs)
II	Life skill course	Indian culture and science(ICS)	30	2	2	50 Marks

Learning Outcomes: By successful completion of the course, students will be able to:

- Understand the evolution of India's culture
- Analyze the process of modernization of Indian society and culture from past to future
- Comprehend objective education and evaluate scientific development of India in various spheres
- Inculcate nationalist and moral fervour and scientific temper

Unit – I: Unity in Diversity in India: **(09 hrs)**

Coexistence of various religions since ancient times - Hinduism, Buddhism, Jainism and Atheism, and later Sikhism, Islam and Christianity The Bhakti (Vishnavite and Saivaite) and Sufi Movements. The concepts of seela, karuna, kshama, maitri, vinaya, santhi and ahimsa Achievements in Literature, Music, Dance, Sculpture and Painting - Craftsmanship in cloth, wood, clay, metal and ornaments Cultural diversity, Monogamy, Family system, Important seasonal festivals

Unit – II: Social Reforms and Modern Society: **(09 hrs)**

Reforms by Basaveswara - Raja Rama Mohan Roy – Dayananda Saraswathi –Swamy Vivekananda –Mahatma Gandhi - B. R. Ambedkar - Reforms in Andhra by Vemana,Veerabrahmam, Gurajada, Veeresalingam and Gurram Jashua (only reforms in brief, biographies not needed). Modern Society: Family unity, Community service, Social Harmony, Civic Sense, Gender Sensitivity, Equality, National Fervor

Unit – III: Science and Technology: **(11 hrs)**

Objectivity and Scientific Temper – Education on Scientific lines (Bloom's Taxonomy) - Online Education. Developments in Industry, Agriculture, Medicine, Space, Alternate Energy, Communications, Media through ages

Co-curricular Activities Suggested: Assignments, Group discussions, Quiz etc

1. Invited Lecture by a local expert
2. Visit to a scientific institutions, local heritage sites, museums, industries etc.

Reference Books:

1. History of India and Culture (Upto 1526 A.D), Telugu Academy
2. History of India and Culture (1526 A.D to 1964), Telugu Academy
3. Basham, A.L (ed), A Cultural History of India
4. Hana S. Noor Al-Deen&J.A.Hendricks, Social Media : Usage and Impact
5. Bipan Chandra, Aditya Mukherjee, Mridula Mukherjee, India After Independence
6. S.K.Thakur, ISRO: History and Achievements
7. V. Ramakrishna, Social Reform Movement Andhra, Vikas Publications

UG- SKILL DEVELOPMENT COURSE

SURVEY & REPORTING

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group 'A'	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course		Survey & Reporting	30	2	2	50 Marks

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Understand the basics of survey and reporting needs and methods
- Comprehend designing of a questionnaire
- Conduct a simple and valid survey and Collect data
- Organize and interpret data and Prepare and submit report.

Unit I: (08Hrs)

Survey: Meaning and Definition –Identifying need for survey - Identifying Sample –Characteristics of Sample - Types of Survey – Survey Methods – Advantages and Disadvantages of Survey – Essential Steps in Survey – Online Survey.

Unit II: (09Hrs)

Preparing Questionnaire: Types and Parts of Questionnaire – Qualities of good Questionnaire – Precautions in Preparing Questionnaire. Administering/Piloting Questionnaire –Collection of data - Dealing with People – Maintaining objectivity/neutrality.

Unit III: (10 Hrs): Methods of Organizing data – Forms of data presentation - Tables and Figures – Basic Statistical Methods of Analysis of data –Percentages - Mean, Mode and Median –Simple Ways of showing Results– Tables/Graphs/Diagrams

Report Writing: Forms of Reporting - Parts of a Report - Title page to Acknowledgements - Characteristics of a Good Report – Style of language to be used - Explaining Data in the Report – Writing fact-based Conclusions – making Recommendations – Annexing required material.

Recommended Co-curricular Activities (3 hrs):

1. Invited Lecture/Training by a Local Expert
2. Collection and study of questionnaires
3. Preparation of sample questionnaire and conduct a live sample survey
4. Preparation of a sample Report
5. Assisting a real time field survey and report writing
6. Assignments, Group discussion, Quiz etc.

Reference books:

1. Denscombe M., The Good Research Guide: For Small-Scale Social Research Projects, Open Uni. Press, 1998
2. Sudman S &Bradburn N.M., Asking Questions, 1973

UG- SKILL DEVELOPMENT COURSE
BUSINESS COMMUNICATION
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group 'A'	Course Title	Hrs/ Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course		Business Communication	30	2	2	50 Marks

Learning Outcomes:
After successful completion of this course, students will be able to;
- Understand the types of business communication and correspondence
- Comprehend the processes like receiving, filing and replying
- Acquire knowledge in preparing good business communications
- Acquaint with organizational communication requirements and presentations.

UNIT I: **(06hrs)**
Introduction and Importance of communication an overview - meaning and process of communication - organizational communication and its barriers.

UNIT II: **(10hrs)**
Types of Business Communications –Categories, methods and formats - Business vocabulary - Business idioms and collocations – Organisational Hierarchy - Various levels of communication in an organization – Top-down, Bottom-up and Horizontal-Business reports, presentations– Online communications.

UNIT III: **(10hrs)**
Receiving business communications -Filing and processing -Sending replies. Routine cycle of communications – Writing Communications - Characteristics of a good business communication - Preparation of business meeting agenda – agenda notes - minutes –circulation of minutes – Presentations of communication using various methods.

Recommended Co-curricular Activities **(04hrs):**
1. Collection of various model business letters
2. Invited lecture/field level training by a local expert
3. Reading of various business reports and minutes and its analysis
4. Presentations of reports, charts etc.
5. Assignments, Group discussion, field visit etc.

Reference books:

1. Chaturvedi. P.D.Chaturvedi.M - Business Communication concepts, Cases and applications - Pearsons Education.
2. Kaul Asha - Effective Business Communication - PHI Learning pvt Ltd .
3. www.swayam.gov.in
4. Websites on business communication

UG- SKILL DEVELOPMENT COURSE
SOCIAL WORK METHODS
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course	'B'	Social work Methods	30	2	2	50 Marks

Learning Outcomes: By successful completion of the course, students will be able to:

- Understand the basic concepts relating to social work practice, values, principles of social work and social problems in India
- List out different approaches of providing help to the people in need.
- Acquaint the process of primary methods of social work
- Get to know the skills of working with individuals, groups and communities.

Unit-I: (07Hrs)- Introduction to social work and concepts related to social work : Introduction to Social Work- Definition- Scope- objectives - Functions- social service, social welfare services, social reform, major social problems in India; Social work philosophy, values, objectives, principles, methods and fields of social work.

Unit-II: (09Hrs) Methods of Working with Individuals and Groups

Social case work –Definition-scope and importance of social case work, principles and process of social case work -Tools and techniques in social case work- Counselling skills.

Social Group Work-Definition-scope- the need for social group work –Group work process - Principles of Group Work -Stages of Group Work-Facilitation skills and techniques.

Unit-III: (09Hrs) Working with Communities and Field Work in social work

Community – definition - characteristics- types- community organisation as a method of social work-definition-objectives-principles- phases of community organization - 3 concepts of community development, community participation and community empowerment.

Field work in social work – Nature, objectives and types of field work - Importance of field work supervision.

Suggested Co-curricular Activities: (05 hours)

1. Divide the students into groups, each group containing not exceeding 10 students depending upon the total number of students in a class or section. Each group can search in internet about any one of the institutions which work for the welfare of children or women or elderly or scheduled caste and scheduled tribe children or differently abled persons or Juvenile homes or Correctional homes or hospitals or Mahila Pragathi pranganam or Swadhar project or any social welfare project or non governmental organizations (NGOs) to have an idea about welfare agencies working for the needy.
2. Ask each group to exchange and discuss the information with other groups in the classroom with the information they collected on Internet.
3. Group Discussion with the students- what type of community problems they observe in their villages/towns/cities? Ask them to tell what are the line departments which will help to solve the problems of their communities and suggest them what type strategies help the communities to empower.
4. Invited lectures/Training by local experts
5. Visit to a community
6. Assignments, Quiz etc.

Reference books:

1. Chowdhary, Paul. D. (1992). Introduction to Social Work. New Delhi: Atma Ram and Sons.
2. Friedlander W.A. (1955). Introduction to social welfare, New York, Prentice Hall.
3. Government of India, (1987). Encyclopedia of Social Work in India (Set of 4 Volumes). New Delhi, Publications Division, Ministry of Information and Broadcasting.
4. Lal Das, D.K. (2017). Practice of Social Research – Social Work Perspective, Jaipur, Rawat Publications.
5. Madan, G.R. (2009). Indian Social Problems (Volume 1 & 2). New Delhi: Allied publishers Private Limited.
6. Siddiqui, H.Y. (2007). Social Group Work. Jaipur: Rawat Publications
7. Pasty McCarthy &Carolin Hatcher, (2002). Presentation skills. The Essential Guide for Students. New Delhi, Sage Publications.
8. Websites on Social work methods.

UG- SKILL DEVELOPMENT COURSE

SOLAR ENERGY

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group 'A'	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course		Solar Energy	30	2	2	50 Marks

Learning Outcomes: After successful completion of the course, students will be able to:

- Acquire knowledge on solar radiation principles with respect to solar energy estimation.
- Get familiarized with various collecting techniques of solar energy and its storage
- Learn the solar photovoltaic technology principles and different types of solar cells for energy conversion and different photovoltaic applications.
- Understand the working principles of several solar appliances like Solar cookers, Solar hot water systems, Solar dryers, Solar Distillation, Solar greenhouses

UNIT-I – Solar Radiation: **(6 hrs)**

Sun as a source of energy, Solar radiation, Solar radiation at the Earth's surface, Measurement of Solar radiation-Pyroheliometer, Pyranometer, Sunshine recorder, Prediction of available solar radiation, Solar energy-Importance, Storage of solar energy, Solar pond

UNIT-II – Solar Thermal Systems: **(10 hrs)**

Principle of conversion of solar radiation into heat, Collectors used for solar thermal conversion: Flat plate collectors and Concentrating collectors, Solar Thermal Power Plant, Solar cookers, Solar hot water systems, Solar dryers, Solar Distillation, Solar greenhouses.

UNIT-III – Solar Photovoltaic Systems: **(10 hrs)**

Conversion of Solar energy into Electricity - Photovoltaic Effect, Solar photovoltaic cell and its working principle, Different types of Solar cells, Series and parallel connections, Photovoltaic applications: Battery chargers, domestic lighting, street lighting and water pumping

Co-curricular Activities (Hands on Exercises): **(04 hrs)**

[Any four of the following may be taken up]

1. Plot sun chart and locate the sun at your location for a given time of the day.
2. Analyse shadow effect on incident solar radiation and find out contributors.
3. Connect solar panels in series & parallel and measure voltage and current.
4. Measure intensity of solar radiation using Pyranometer and radiometers.
5. Construct a solar lantern using Solar PV panel (15W)
6. Assemble solar cooker
7. Desigining and constructing photovoltaic system for a domestic house requiring 5kVA power
8. Assignments/Model Exam.

Reference Books:

1. Solar Energy Utilization, G. D. Rai, Khanna Publishers
2. Solar Energy- Fundamentals, design, modeling& applications, G.N. Tiwari, Narosa Pub., 2005.
3. Solar Energy-Principles of thermal energy collection & storage, S.P. Sukhatme, Tata Mc-Graw Hill Publishers,1999.
4. Solar Photovoltaics- Fundamentals, technologies and applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd.,
5. Science and Technology of Photovoltaics, P. Jayarama Reddy, BS Publications, 2004.

UG- SKILL DEVELOPMENT COURSE

AGRICULTURAL MARKETING

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group	Course Title	Hrs/ Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course	'A'	Agricultural Marketing	30	2	2	50 Marks

Learning Outcomes:

By the successful completion of this course, the student will be able to;

- Know the kinds of agricultural products and their movement
- Understand the types, structure and functioning of agricultural marketing system
- Comprehend related skills and apply them in sample situations
- Extend this knowledge and skills to their production/consumption environment

Unit- I: **(06hrs)**

Introduction of Agriculture and agricultural products (including agriculture, horticulture, sericulture, floriculture, aquaculture- genetic culture and dairy product) - Agricultural Marketing - Role of marketing - Concepts - Goods and services - Movement of product from farm to consumer –Middlemen – Moneylenders - Types of agricultural markets (basic classification).

Unit- II: **(09hrs)**

Basic structure and facilities of an agricultural market – Primary, secondary and tertiary markets– Functioning of Market Yards–Market information – Rythu Bharosa Kendras (RBK) – Govt market policies and regulations- Contract farming -Govt Apps for marketing of agri products.

Unit- III: **(10hrs)**

Planning production – assembling – grading - transportation– storage facilities. Price fixation. Dissemination of market information –and role of ICT. Marketing - Mix- Product element- Place element- Price element- Promotion element. Selection of target market. Government programs in support of Agricultural marketing in India.

Suggested Co-curricular Activities: **(05hrs)**

1. Study visit to agricultural markets and Rythu Bharosa Kendras (RBK)
2. Invited lecture by field expert
3. Survey of various involved activities e.gassembling, grading, storage, transportation and distribution
4. Identify the demand for food processing units
5. Application of Govt Apps as one Nation and one Market
6. Assignments, Group discussion, Quiz etc.

Reference books:

1. S.S.Acharya & N.L.Agarwala, Agricultural Marketing in India - Oxford and IBH Publications
2. K.S.Habeeb - Ur - Rahman Rural Marketing in India - Himalaya publishing
3. S.S.Chinna Agricultural Marketing in India - KALYANI publishers
4. Publications of National Institute of Agricultural Marketing, Odisha
5. Wikiepedia and other websites on Agricultural Marketing.

UG- SKILL DEVELOPMENT COURSE
ADVERTISING
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course	'B'	Advertising	30	2	2	50 Marks

Learning Outcomes:
After Successful completion of this course, the students are able to;

- Understand the field of Advertising
- Comprehend opportunities and challenges in Advertising sector
- Prepare a primary advertising model
- Understand applying of related skills
- Examine the scope for making advertising a future career

UNIT I: **(06hrs)**
Introduction of advertising concepts- functions - Types of advertising - Creative advertising messages - Factors determining opportunities of a product/service/Idea

UNIT II: **(10 hrs)**
Role of advertising agencies and their responsibilities - scope of their work and functions - - Ethical issues - Identifying target groups -Laws in advertising. Advertising Statutory Bodies in India - Role of AAAI (Advertising Agencies Association of India), ASCI (Advertising Standard Council of India)

UNIT III: **(10hrs)**
Types of advertising – Basic characteristics of a typical advertisement –Reaching target groups - Local advertising – Feedback on impact of advertisement - Business promotion.

Recommended Co-curricular Activities: **(04 hrs)**

1. Collection and segmentation of advertisements
2. Invited Lectures/skills training on local advertising basics and skills
3. Visit to local advertising agency
4. Model creation of advertisements in compliance with legal rules
5. Assignments, Group discussion, Quiz etc.

Reference books:

1. Bhatia. K.Tej - Advertising and Marketing in Rural India - Mc Millan India
2. Ghosal Subhash - Making of Advertising - Mc Millan India
3. JethWaneyJaishri& Jain Shruti - Advertising Management - Oxford university Press
Publications of Indian Institute of Mass Communications
4. Websites on Advertising

UG- SKILL DEVELOPMENT COURSE

DAIRY TECHNOLOGY

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group 'B'	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course		Dairy Technology	30	2	2	50 Marks

Learning Outcomes:

After successful completion of the course, students will be able to;

- Understand the pre-requisites for starting a Dairy farm
- Recognize different breeds of Cows & buffaloes following safety precautions.
- Prepare and give recommended feed and water for livestock
- Maintain health of livestock along with productivity
- Vaccination of cattle, nutrients requirements
- Entrepreneurship i.e., Effectively market dairy products
- Ensure safe and clean dairy farm and Standard safety measures to be taken Efficiently start and manage to establish or develop a Dairy Industry

Unit- I (Introduction and Establishment of a Dairy Farm): **(05 Hrs)**

1.1 Dairy development in India – Dairy Cooperatives (NDRI, NDDB, TCMPF) (1hr)

1.2 Constraints of Present Dairy Farming and Future Scope of Dairy Farmer. (1 hr)

1.3 Selection of site for dairy farm; Systems of housing – Loose housing system, Conventional Dairy Farm; Records to be maintained in a dairy farm. (2 hrs)

Unit - II (Livestock Identification and Management): **(13 Hrs)**

2.1 Breeds of Dairy Cattle and Buffaloes – Identification of Indian cattle and buffalo breeds and Exotic breeds; Methods of selection of Dairy animals. (5 hrs)

2.2 Systems of inbreeding and crossbreeding. (2 hrs)

2.3 Weaning of calf, Castration, Dehorning, Deworming and Vaccination programme (3 hrs)

2.4 Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.(3 hrs)

Unit- III (Feed Management, Dairy Management, Cleaning and Sanitation): **(8 Hrs)**

3.1 Basic Principles of Feed, Important Feed Ingredients, Feed formulation and Feed Mixing (2 hrs)

3.2 Operation Flood –Definition of Milk and Nutritive value of milk and ICMR recommendation of nutrients –Per Capita Milk production and availability in India and Andhra Pradesh – Methods of Collection and Storage of Milk–Labelling and Storage of milk products (4 hrs)

3.3 Cleaning and sanitation of dairy farm – Safety precautions to prevent accidents in an industry. (2 hrs)

Co-curricular Activities Suggested: (4 hrs)

1. Group discussion & SWOT analysis
2. Visit to a Dairy Farm
3. Visit to Milk Cooperative Societies
4. Visit to Feed Milling Plants
5. Market Study and Identification of Government Schemes, Insurance and Bank Loans in relation

Reference books:

1. Dairy Science: Petersen (W.E.) Publisher – Lippincott & Company
2. Principles and practices of Dairy Farm –Jagdish Prasad
3. Text book of Animal Husbandry - G C Benarjee
4. Hand book of Animal Husbandry - ICAR Edition
5. Outlines of Dairy Technology – Sukumar (De) – Oxford University press
6. Indian Dairy Products – Rangappa (K.S.) & Acharya (KT) – Asia Publishing House.
7. The technology of milk Processing – Ananthakrishnan, C.P., Khan, A.Q. and Padmanabhan, P.N. – Shri Lakshmi Publications.
8. Dairy India 2007, Sixth edition
9. Economics of Milk Production – Bharati Pratima Acharya Publishers.
10. http://www.asci-india.com/BooksPDF/Dairy%20Farmer%20or%20Entrepreneur.pdf
11. https://labour.gov.in/industrial-safety-health

UG- SKILL DEVELOPMENT COURSE

PERFORMING ARTS

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Group 'B'	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
II	Skill Development Course		Performing Arts	30	2	2	50 Marks

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Acquire the basic knowledge in performing arts
- Understand the modern stage and performance on the stage
- Comprehend and improve the skills related to performing arts on the stage
- Understand various Telugu folk arts and their significance
- Know the modes of presentation and skills pertaining to folk arts.

Unit-I: Introduction to performing Arts (06 Hrs)

Arts – and its definition; Fine Arts; Arts - Learning &Imitation – Rasaas, Bhaavas and Rasa Sutra. Dasaroopakaas; Nrittha, Nrithya,Natya; Action – Kinds of Actions; Ancient Costume style

Unit-II: Performing Arts – Stage Arts (10 Hrs)

Origin of Drama (Theatre); Features of Stage; Varieties of Modern Telugu Drama; Famous Telugu Dramas. Stage performance; Dramatic Actor and its definition; Actor–characteristics, Functions and Responsibilities. Traits of an Actor – Diction, Articulation, Dialogue modulation, Time sense, Observation, Mime, Improvisation, Commentary, Dress code, Make-up, lighting &Stage Direction.

Unit-III: Performing Arts – Forms (10 Hrs)

Folk Arts, their nature and significance – Brief introduction to Pagativeshaalu, Bommalaatalu, Veedhinaatakaalu, Yakshagaanaalu, Harikathalu, Burrakathalu, Oggukathalu, Chindu,Yakshagaanam, KolaatamandPulivesham.

Co-curricular Activities Suggested: (4 hrs)

1. Collection of information on modern stage plays, natakasamajams and audio visual material.
2. Providing training classes/inviting lectures with the help of local artists
3. Visit to a real time performing folk arts, if possible.
4. Mock experience classes of Stage plays and Folk arts.
5. Assignments, Group discussion, Quiz etc.

Reference books:

1. Andhra Naataka Ranga Charithra –Mikkilineni Radha Krishna Murthy
2. Telugu SahithyaSameeksha (Vol-II) – Dr. G. Nagaiah
3. Telugu NaatakaVilaasam – Dr.P.S.RAppa Rao
4. Telugu JaanapadaVignanam – Prof. Tangirala Venkata Subba Rao
5. JaanapadaVignandhyayanam – Prof. G.S. Mohan
6. NaatyaSasthramu (VisleshanathmakaAdhyayanam) – Dr.P.S.RAppa Rao
7. SahithyaSilpaSameeksha – Prof. PingaliLakshmikantham
8. Nurella Telugu NatakaRangam – Prof. ModaliNagabhushanaSarma
9. Websites on Performing Arts.

BCA	Course Code	Semester: II	Credits: 04
	C4	Data Structures	Hrs/Wk:04

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 course is to develop effective software engineering practice, emphasizing such principles as decomposition, procedural abstraction, and software reuse.

Course Outcomes:

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

1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
4. Demonstrate different methods for traversing trees
5. Compare alternative implementations of data structures with respect to performance
6. Compare and contrast the benefits of dynamic and static data structures implementations
7. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack.
8. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

UNIT- I:

Concept of Abstract Data Types (ADTs)- Data Types, Data 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, Stacks using Array and Linked representations, expressions, notations.

Queues: Definition, Queue using Array and Linked representations, Circular Queues, Dequeues.

UNIT- III:

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

Binary Search Trees (BST) - Definition, Operations and Implementations. B Trees, B+ Trees Implementation

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.

REFERENCE BOOKS:

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 andObject-OrientedProgramming, Tata McGraw-l lill. 2002. (Chapters I and14).
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 AllenWeiss

BCA	Course Code	Semester: II	Credits: 01
	C4 - P	Data Structures Lab	Hrs/Wk:02

List of Lab Experiments

1. Write Programs to implement the Stack operations using an array.
2. Write Programs to implement the Queue operations using an array.
3. Write Programs to implement the Stack operations using Linked lists.
4. Write Programs to implement the Queue operations using Linked lists.
5. Write a program for postfix expression evaluation.
6. Write a program to convert prefix to postfix.
7. Write a program for Binary search Tree Traversals
8. Write a program to implement dequeue using a doubly linked list.
9. Write a program to search an item in a given list using
   (i) LinearSearch
   (ii) BinarySearch.
10. Write a program for
    (i) BubbleSort
    (ii) Quick Sort
    (iii) Merge Sort.

BCA	Course Code	Semester: II	Credits: 04
	C5	Introduction to Python Programming	Hrs/Wk:04

Objective:

To introduce the student to the basic features of python programming and impart skills in an Industry standard programming language

Outcomes: On the completion of this course, the student will be able to

- Understand the concepts of python programming
- Students should be able to develop logic for Problem Solving.
- Students should be able to apply the problem solving skills using syntactically simple language
- Create new GUI based programming to solve industry standard problems

UNIT-I:

Introduction to Python - Features of Python - Executing python program using command line window and IDLE graphics window, Python Virtual Machine - Identifiers - Reserved Keywords – Variables, Comments in Python – Input , Output and Import Functions - Operators – Data Types and Operations – int, float, complex, Strings, List, Tuple, Set, Dictionary - Mutable and Immutable Objects – Data Type Conversion, Illustrative programs

UNIT-II:

Decision Making -conditional (if), alternative (if-else), if..elif..else -nested if - Loops for, range(), while, break, continue, pass; **Functions, Arrays-** Fruitful functions- return values, parameters, local and global scope, function composition, recursion; **Strings:** string slices, immutability, string functions and methods, string module; Python arrays, Access the Elements of an Array, array methods.

UNIT-III:

LISTS, TUPLES, DICTIONARIES- Lists: List operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters, list comprehension; **Tuples:** Tuple assignment, tuple as return value, tuple comprehension; **Dictionaries**: operations and methods, comprehension;

UNIT-IV:

FILES, EXCEPTIONS, MODULES, PACKAGES- Built-in Modules - Creating Modules - Import statement - Locating modules - Namespaces and Scope - The dir() function - The reload function – Some useful Packages in Python (datetime, time, OS , calendar, math module)

Files and exception: text files, reading and writing files Renaming and Deleting files Exception handling exceptions, Exception with arguments, Raising an Exception - User defined Exceptions - Assertions in

UNIT-V:

GUI Programming- Introduction – Tkinter Widgets – Label – Message Widget – Entry Widget – Text Widget – tk Message Box – Button Widget – Radio Button- Check Button – List box Frames – Top level Widgets – Menu Widget

TEXT BOOKS:

1. "Taming PYTHON By Programming", Jeeva Jose Khanna Publications
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist'", 2nd edition,

REFERENCE BOOKS:

1. Kenneth A. Lambert, "Fundamentals of Python: First Programs", CENGAGE Learning, 2012.
2. Learning Python, Mark Lutz, Orielly
3. Python Programming: A Modern Approach, Vamsi Kurama, Pearson.

BCA	Course Code	Semester: II	Credits: 01
	C5 - P	Introduction to Python Programming Lab	Hrs/Wk:02

List of Lab Experiments

1. Enter the number from the user and depending on whether the number is even or odd, print out an appropriate message to the user.
2. Write a program to generate the Fibonacci series.
3. Write a program that prints out all the elements of the given list list that are less than 5.
4. Write a program that takes two lists and returns True if they have at least one common member.
5. Write a Python program to clone or copy a list
6. Write a Python program to demonstrate arrays with list comprehension
7. Write a Python script to sort (ascending and descending) a dictionary by value.
8. Write a Python program to sum all the items in a dictionary
9. Write a program with a function that accepts a string and returns number of vowels, consonants and special symbols in it.
10. Write a Python program to read an entire text file.
11. Write a Python program to append text to a file and display the text.
12. Write a program to implement exception handling.
13. Write a GUI program that converts Celsius to fahrein heat temperature using widgets

BCA	Course Code	Semester: II	Credits: 04
	C6	Data Base Management System	Hrs/Wk:04

Course Objective:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases.

Course Learning Outcomes:

On completing the subject, students will be able to:

1. Gain knowledge of Database and DBMS.
2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
4. Model databaseusing ER Diagrams and design database schemas based on the model.
5. Create a small database using SQL.
6. Store, Retrieve data in database.

UNIT -I:

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Components of Database Management System, three schema architecture of database.

UNIT -II:

Data Models, Entity-Relationship Model: Introduction, the building blocks of ER model, classification of entity sets, attribute classification, relationship degree, relationship classification. Enhanced entity-relationship model (EER model), generalization and specialization, Inheritance - IS A relationship, constraints on specialization and generalization, advantages of EER modelling.

UNIT -III:

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra. **Normalization:** Functional dependencies and normal forms upto 3NF.

UNIT -IV:

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL (DDL, DML, DCL, TCL), Data Types in SQL, Aggregate functions, Join Operation, Set Operations, View, Sub Query.

UNIT -V:

PL/SQL: Introduction, Structure of PL/SQL, Data Types, Operators Precedence, Control Structure, Program, Iterative Control, Cursors, Procedure, Function, Database Triggers, Types of Triggers.

TEXT BOOKS:

1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill
2. Database Management Systems by Raghu Ramakrishnan, McGrawhill
3. Principles of Database Systems by J. D. Ullman
4. Fundamentals of Database Systems by R. Elmasri and S. Navathe
5. SQL: The Ultimate Beginners Guide by Steve Tale.

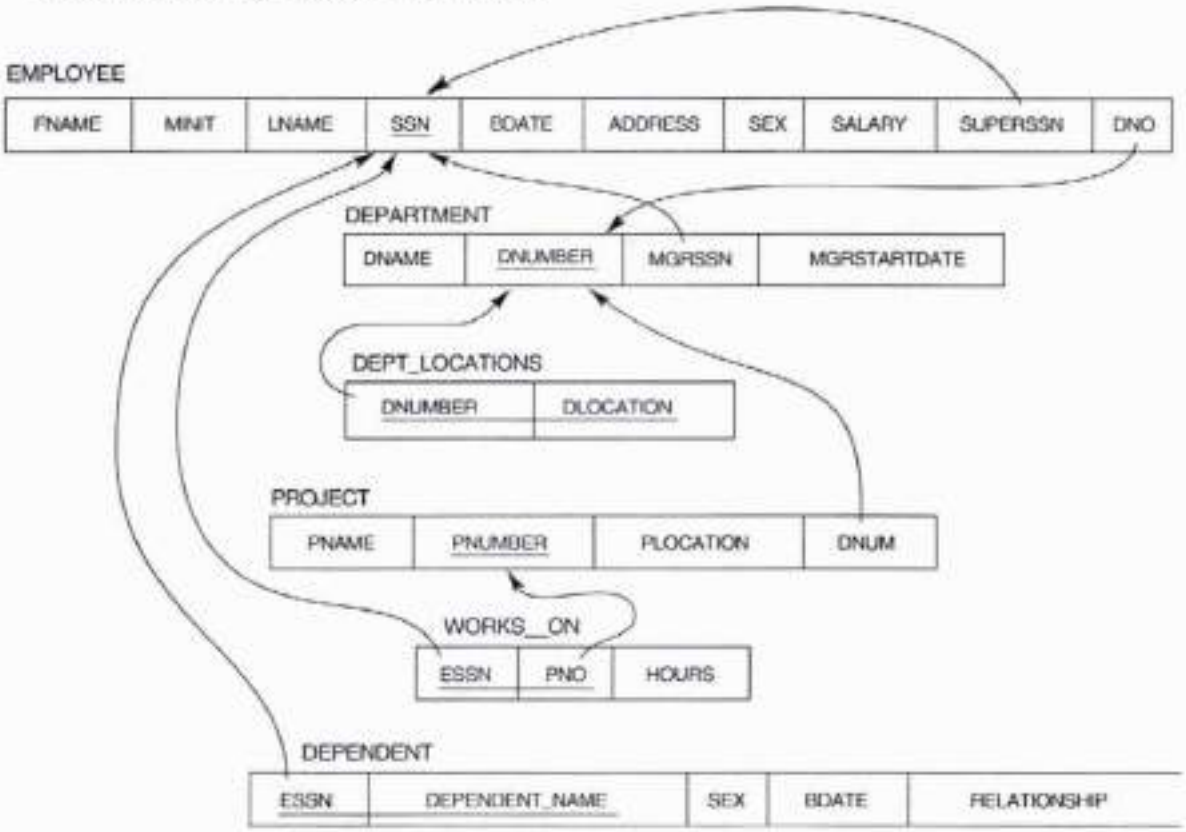
REFERENCES BOOKS:

1. Database Principles, Programming, and Performance, P.O'Neil, E.O'Neil,2nd ed.,ELSEVIER.
2. Database Systems, A Practical approach to Design implementation and Management Fourth edition, Thomas Connolly, carolynBegg, Pearson education.
3. Database Systems Concepts, Peter Rob & Carlos Coronel, Cengage Learning, 2008.

BCA	Course Code	Semester: II	Credits: 01
	C6 - P	Data Base Management System Lab	Hrs/Wk:02

1. Draw ER diagram for hospital administration
2. Creation of college database and establish relationships between tables
3. Relational database schema of a company is given in the following figure.

Relational Database Schema - COMPANY



Questions to be performed on above schema

1. Create above tables with relevant ***Primary Key, Foreign Key and other constraints***
2. Populate the tables with data
3. Display all the details of all employees working in the company.
4. Display ssn, lname, fname, address of employees who work in department no 7.
5. Retrieve the Birthdate and Address of the employee whose name is 'Franklin T. Wong'

6. Retrieve the name and salary of every employee
7. Retrieve all distinct salary values
8. Retrieve all employee names whose address is in 'Bellaire'
9. Retrieve all employees who were born during the 1950s
10. Retrieve all employees in department 5 whose salary is between 50,000 and 60,000(inclusive)
11. Retrieve the names of all employees who do not have supervisors
12. Retrieve SSN and department name for all employees
13. Retrieve the name and address of all employees who work for the 'Research' department
14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
16. Retrieve all combinations of Employee Name and Department Name
17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.
18. Increase the salary of all employees working on the 'ProductX' project by 15%. Retrieve employee name and increased salary of these employees.
19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
20. Select the names of employees whose salary does not match with salary of any employee in department 10.
21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.
22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.
23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.
24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.
25. Delete all dependents of employee whose ***ssn is '123456789'***.
26. Perform a query using alter command to drop/add field and a constraint in Employee table.

UG(English)	Semester -III	Credits: 03
Course - 3	A Course In Conversational Skills	Hrs/Week: 04

Learning Outcomes

By the end of the course the learner will be able to :

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

UNIT I:

Speech : 1. Tryst with Destiny Jawaharlal Nehru
Skills : 2. Greetings
: 3. Introductions

UNIT II:

Speech : 1. Yes, We Can Barack Obama
Interview : 2. A Leader Should Know How to Manage Failure Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton
Skills : 3. Requests

UNIT III:

Interview : 1. Nelson Mandela's Interview With Larry King
Skills : 2. Asking and Giving Information
: 3. Agreeing and Disagreeing

UNIT IV:

Interview : 1. JRD Tata's Interview With T.N.Ninan
Skills : 2. Dialogue Building
: 3. Giving Instructions/Directions

UNIT V:

1. **Speech** : 1. You've Got to Find What You Love Steve Jobs
Skills : 2. Debates
: 3. Descriptions
: 4. Role Play

పాఠ్య ప్రణాళిక

యూనిట్-I: వ్యక్తీకరణ నైపుణ్యాలు

1. భాష-ప్రాథమికాంశాలు: భాష-నిర్వచనం, లక్షణాలు, ఆవశ్యకత, ప్రయోజనాలు
2. వర్ణం-పదం-వాక్యం', వాక్య లక్షణాలు, సామాన్య-సంయుక్త-సంశ్లిష్టవాక్యాలు
3. భాషా నిర్మాణంలో 'వర్ణం-పదం-వాక్యం' ప్రాధాన్యత

యూనిట్-II సృజనాత్మక రచన

4. కవితా రచన : ఉత్తమ కవిత - లక్షణాలు
5. కథారచన : ఉత్తమ కథ - లక్షణాలు
6. వ్యాస రచన : ఉత్తమ వ్యాసం-లక్షణాలు

యూనిట్-III: అనువాద రచన

7. అనువాదం-నిర్వచనం, అనువాద పద్ధతులు,
8. అనువాద సమస్యలు-భౌగోళిక,భాషా,సాంస్కృతిక సమస్యలు, పరిష్కారాలు
9. అభ్యాసము : ఆంగ్లం నుండి తెలుగుకు,తెలుగు నుండి ఆంగ్లానికి ఒక పేరానుఅనువదించడం

యూనిట్ IV మాధ్యమాలకు రచన-1 (ముద్రణామాధ్యమం/ప్రింట్ మీడియా)

10. ముద్రణామాధ్యమం (అచ్చుమాధ్యమం) : పరిచయం, పరిధి, వికాసం
11. వివిధ రకాల పత్రికలు-పరిశీలన, పత్రికాభాష, శైలి, వైవిధ్యం
12. పత్రికా రచన : వార్తా రచన, సంపాదకీయాలు, సమీక్షలు-అవగాహన

యూనిట్ V మాధ్యమాలకు రచన-2 (ప్రసార మాధ్యమం/ఎలక్ట్రానిక్ మీడియా)

13. ప్రసారమాధ్యమాలు : నిర్వచనం, రకాలు, విస్తృతి, ప్రయోజనాలు
14. శ్రవణ మాధ్యమాలు - రచన: రేడియో రచన, ప్రసంగాలు, నాటికలు, ప్రసార సమాచారం
15. దృశ్యమాధ్యమాలు - రచన: వ్యాఖ్యానం (యాంకరింగ్), టెలివిజన్ రచన

UG(General HINDI)	Semester III	Credits:03
Course : 3	Old and Modern Poetry, History of Hindi Literature ,Essays (Translation and Functional Hindi)	Hrs/Weeks:04

Unit 1

1. काव्यदीप (Ancient and Modern Poetry) (सं.बी.राधाकृष्णमूर्ति)

साखी...1..10 दोहे

सूरदास...बाल वर्णन

मातृभूमि...मैथिलीशरण गुप्त

तोडती पत्थर...सूर्यकांत त्रिपाठी निराला

भारतमाता...सुमित्रानंदन पंत

Unit 2

2. हिंदी साहित्य का इतिहास (History of Hindi Literature) (डा. बाबू गुलाबराय)

हिंदी साहित्य का काल विभाजन (डा. रामचन्द्र शुक्ल)

भक्तिकाल की विशेषताएँ

ज्ञानाश्रयी शाखा ... कबीर

प्रेमाश्रयी शाखा ... जायसी

Unit 3

3. निबंध (General Essays)

1.समाचार पत्र 2.बेकारी समस्या

3.पर्यावरण और प्रदूषण 4. साहित्य और समाज

Unit 4

4. अनुवाद (Translation) अंग्रेजी से हिंदी (Five Simple Sentences)

Unit 5

5. प्रयोजनमूलक हिंदी (Functional Hindi)

राष्ट्रभाषा, राजभाषा, संपर्क भाषा

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UG Courses	Semester - III	Credits:03
Course: 3	Drama, Upanishad, Alankara and History of Literature.	Hrs/Weeks:04

UNIT – I : **OLD DRAMA**

1."**Madhyamavyayogaha**". Bhasa Natakachakram.
krishadas academy, Varanasi 1998.

UNIT – II :MODERN DRAMA

"Sankalpabalam" by Prof.G.S.R.Krishna Murthy,
Published by Semushi, R.S.Vidyapeetam, Tirupati-2019.

UNIT – III :UPANISHAD

1."**Sishyanusasanam**" – Sikshavalli of Taittireeyopanishad.

2. **"Sraddatrayavibhagayoga"**,

17th Chapter, Bhagavadgita, Geetapress, Gorakhpoor.

UNIT - IV : **1. ALANKARAS**:

1. Upama 2. Ananvaya 3. Utpreksha 4. Deepakam

5. Aprastutaprasamsa 6.Drushtanta 7. Prateepa.

2.HISTORY OF SANSKRIT LITERATURE

1.Panini 2.Kautilya 3.Bharatamuni 4. Bharavi 5.Magha

6.Bhavabhuti 7. Sankaracharya, 8.Jagannatha. 9. Dandi.

UNIT – V : **HALANTA SABDAS**

1.Jalamuch 2.Vaach 3.Marut 4.Bhagavat 5.Bhavat

6.Pachats 7. Naman 8.Rajan 9.Gunin 10.Vidwas 11. Manas.

UG- LIFE SKILL COURSE

ENVIRONMENTAL EDUCATION (EE) (Mandatory)

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Life skill course	Environmental Education(EE)	30	2	2	50 Marks

Course objective: A Generic Course intended to create awareness that the life of human beings is an integral part of environment and to inculcate the skills required to protect environment from all sides.

Learning outcomes: On completion of this course the students will be able to .....

- Understand the nature, components of an ecosystem and that humans are an integral part of nature.
- Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment.
- Evaluate the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities.
- Discuss the laws/ acts made by government to prevent pollution, to protect biodiversity and environment as a whole.
- Acquaint with international agreements and national movements, and realize citizen's role in protecting environment and nature.

Unit 1: Environment and Natural Resources: **(06hrs)**

1. Multidisciplinary nature of environmental education; scope and importance.
2. Man as an integral product and part of the Nature.
3. A brief account of land, forest and water resources in India and their importance.
4. Biodiversity: Definition; importance of Biodiversity - ecological, consumptive, productive, social, ethical and moral, aesthetic, and option value.
5. Levels of Biodiversity: genetic, species and ecosystem diversity.

Unit-2: Environmental degradation and impacts: **(10hrs)**

1. Human population growth and its impacts on environment; land use change, land degradation, soil erosion and desertification.
2. Use and over-exploitation of surface and ground water, construction of dams, floods, conflicts over water (within India).
3. Deforestation: Causes and effects due to expansion of agriculture, firewood, mining, forest fires and building of new habitats.
4. Non-renewable energy resources, their utilization and influences.
5. A brief account of air, water, soil and noise pollutions; Biological, industrial and solid wastes in urban areas. Human health and economic risks.
6. Green house effect - global warming; ocean acidification, ozone layer depletion, acid rains and impacts on human communities and agriculture.
7. Threats to biodiversity: Natural calamities, habitat destruction and fragmentation, over exploitation, hunting and poaching, introduction of exotic species, pollution, predator and pest control.

Unit 3: Conservation of Environment: **(10hrs)**

Concept of sustainability and sustainable development with judicious use of land, water and forest resources; a forestation.

1. Control measures for various types of pollution; use of renewable and alternate sources of energy.
2. Solid waste management: Control measures of urban and industrial waste.
3. Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.
4. Environment Laws: Environment Protection Act; Act; Wildlife Protection Act; Forest Conservation Act.
5. International agreements: Montreal and Kyoto protocols; Environmental movements: Bishnois of Rajasthan, Chipko, Silent valley.

Suggested activities to learner: (4 hours)

1. Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc
2. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural site.
3. Study of common plants, insects, birds and basic principles of identification.
4. Study of simple ecosystems-forest, tank, pond, lake, mangroves etc.
5. Case study of a Forest ecosystem or a pond ecosystem.

Suggested text book:

1. Erach Barucha (2004) *Text book of Environmental Studies for Undergraduate courses* (Prepared for University Grants Commission) Universities Press.
2. Purnima Smarath (2018) *Environmental studies* Kalyani Publishers, Ludhiana

Reference books:

1. Odum, E.P., Odum, H.T. & Andrews, J. (1971) *Fundamentals of Ecology*. Philadelphia: Saunders.
2. Pepper, I.L., Gerba, C.P. &Brusseau, M.L. (2011). *Environmental and Pollution Science*. Academic Press.
3. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. (2012) *Environment. 8th edition*. John Wiley & Sons.
4. Singh, J.S., Singh, S.P. and Gupta, S.R. (2014) *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
5. Sengupta, R. (2003) Ecology and economics: An approach to sustainable development. OUP.
6. Wilson, E. O. (2006) *The Creation: An appeal to save life on earth*. New York: Norton.
7. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll (2006) *Principles of Conservation Biology*. Sunderland: Sinauer Associates.

UG- LIFE SKILL COURSE
PERSONALITY ENHANCEMENT AND LEADERSHIP (PDL)
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam(2 Hrs)
III	Life skill course	Personality enhancement and leadership(PDL)	30	2	2	50 Marks

Learning Outcomes:

By successful completion of the course, students will be able to:

- Develop comprehensive understanding of personality
- Know how to assess and enhance one's own personality
- Comprehend leadership qualities and their importance
- Understand how to develop leadership qualities

Unit – I: (7 hrs)

Meaning of Personality – Explanations of Human Personality – Psychodynamic Explanations – Social Cognitive Explanation – Big Five traits of Personality

Unit – II: (8 hrs)

Assessment of Personality - Projective& Self Report Techniques - Building Self-Confidence – Enhancing Personality Skills

Unit – III: (10 hrs)

Leadership Characteristics – Types of Leaders – Importance of Leadership – Leadership Skills – Building and Leading Efficient Teams – Leadership Qualities of Abraham Lincoln, mahatma Gandhi, Prakasam Pantulu, Dr. B. R. Ambedkar & J.R.D.Tata

Co-curricular Activities Suggested: (05 hrs)

- Assignments, Group discussions, Quiz etc
- Invited Lecture by a local expert
- Case Studies (ex., on students behavior, local leaders etc.)

Reference Books:

1. Girish Batra, Experiments in Leadership, Chennai: Notion Press, 2018
2. Mitesh Khatri, Awaken the Leader in You, Mumbai: Jaico Publishing House, 2013
3. Carnegie Dale, Become an Effective Leader, New Delhi: Amaryllis, 2012
4. Hall, C.S., Lindzey. G. & Campbell, J.B Theories of Personality. John Wiley & Sons,1998

UG- LIFE SKILL COURSE

ANALYTICAL SKILLS(AS)

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (LS)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Life skill course	Analytical skills(AS)	30	2	2	50 Marks

Course Objective: Intended to inculcate quantitative analytical skills and reasoning as an inherent ability in students.

Course Outcomes:

After successful completion of this course, the student will be able to;

- Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills.
- Acquire competency in the use of verbal reasoning.
- Apply the skills and competencies acquired in the related areas
- Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outside the campus.

UNIT – 1: (10 Hrs)

Arithmetic ability: Algebraic operations BODMAS, Fractions, Divisibility rules, LCM & GCD(HCF).

Verbal Reasoning: Number Series, Coding & Decoding, Blood relationship, Clocks, Calendars.

UNIT – 2: (10 Hrs)

Quantitative aptitude: Averages, Ratio and proportion, Problems on ages, Time-distance–speed.

Business computations: Percentages, Profit & loss, Partnership, simple compound interest.

UNIT – 3: (07 Hrs)

Data Interpretation: Tabulation, Bar Graphs, Pie Charts, line Graphs. Venn diagrams.

Recommended Co-Curricular Activities (03 Hrs)

Surprise tests / Viva-Voice / Problem solving/Group discussion.

Text Book:

Quantitative Aptitude for Competitive Examination by R.S. Agrawal, S.Chand Publications.

Reference Books:

1. Analytical skills by Showick Thorpe, published by S Chand And Company Limited, Ramnagar, New Delhi-110055.
2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.
3. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw Hill Publications.

UG- SKILL DEVELOPMENT COURSE
DISASTER MANAGEMENT
(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Skill Development Course	Disaster Management	30	2	2	50 Marks

Learning Outcomes:
After successful completion of the course, the students are able to;

- Understand the nature, cause and effects of disasters
- Comprehend the importance of Disaster Management and the need of awareness
- Acquire knowledge on disaster preparedness, recovery remedial measures and personal precautions
- Volunteer in pre and post disaster management service activities

UNIT-I: **(06 hrs)**
Introduction of Disaster - Different types of disasters- Natural- (flood, cyclone, earthquake, famine and pandemic) - Accidental- (Fire, Blasting, Chemical leakage, Rail, Aviation, Road boat tragedies and nuclear pollution) - Disaster Management Act 2005

UNIT-II: **(09hrs)**
Causes and immediate effects of Disasters - Preparedness of disasters –Precautions – Dissemination of information - Nature and concepts - Role of National Disaster Management Authority and Role of Government and non governmental organizations in protecting human livestock and natural resources.- Use of technology -Role of Citizens and Youth in the prevention.

UNIT-III: **(09 hrs)**
Post disaster effects - short term - Procedures for Rehabilitation and Recovery - Role of volunteers and Safety Precautions - Long term remedial and preventive measures – Collection, filing and storage of information - Case studies

Suggested co curriculum Activities: **(06 hrs)**

1. Invite lectures by local experts
2. Training on preparedness, post disaster services
3. Analysis of Case studies
4. Visit to a disaster management office and facility
5. Assignments, Group discussion, quiz etc.

Reference books:

1. Jagbirsingh - Disaster Management Future challenges and opportunities- - K.W.Publishers
2. GOI - UNDP Disaster Management Guidelines
3. J.P.Singhal - Disaster Management - Laxmi Publications
4. www. ndma. gov.in
5. Wikipedia and other websites on Disaster management.

UG- SKILL DEVELOPMENT COURSE

ONLINE BUSINESS

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Skill Development Course	Online Business	30	2	2	50 Marks

Learning Outcomes:

After successful completion of the course, students will be able to;

- Understand the online business and its advantages and disadvantages
- Recognize new channels of marketing, their scope and steps involved
- Analyze the procurement, payment process, security and shipping in online business
- Create new marketing tools for online business
- Define search engine, payment gateways and SEO techniques.

Unit-I: **(06 Hrs)**

Introduction to Online-business-Definition-Characteristics-Advantages of Online Business-Challenges-Differences between off-line business, e-commerce and Online Business.

Unit-II: **(10 Hrs)**

Online-business Strategies-Strategic Planning Process- Procurement -Logistics & Supply Chain Management- Customer Relationship management.

Unit-III: **(10 Hrs)**

Designing Online Business Website – Policies - Security & Legal Issues - Online Advertisements - Payment Gateways - Case Study

Co-curricular Activities Suggested: **(4 hrs)**

1. Assignments, Group discussion, Quiz etc.
2. Short practical training in computer lab
3. Identifying online business firms through internet
4. Invited Lectures by e-commerce operators
5. Working with Google and HTML advertisements.
6. Visit to a local online business firm.

Reference books:

1. David Whiteley, "E-Commerce", Tata McGraw Hill, 2000.
2. E Business by Jonathan Reynolds from Oxford University Press.
3. Soka, From EDI to Electronic Commerce, McGraw Hill.
4. Websites on Online business.

UG- SKILL DEVELOPMENT COURSE

POULTRY FARMING

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Skill Development Course	Poultry Farming	30	2	2	50 Marks

Learning Outcomes: By successful completion of the course, students will be able to;

- Understand the field level structure and functioning of insurance sector and it's role in protecting the risks
- Comprehend pertaining skills and their application for promoting insurance coverage
- Prepare better for the Insurance Agent examination conducted by IRDA
- Plan 'promoting insurance coverage practice' as one of the career options.

Unit I (Introduction to Poultry Farming): **(10Hrs)**

1.1 General introduction to poultry farming -Definition of Poultry; Past and present scenario of poultry industry in India.

1.2 Principles of poultry housing. Poultry houses. Systems of poultry farming.

1.3 Management of chicks, growers and layers. Management of Broilers.

1.4 Preparation of project report for banking and insurance

Unit II (Feed and Livestock Health Management): **(10 Hrs):**

2.1 Poultry feed management – Principles of feeding, Nutrient requirements for different stages of layers and broilers. Feed formulation and Methods of feeding.

2.2 Poultry diseases – viral, bacterial, fungal and parasitic(two each); symptoms, control and management; Vaccination programme.

Unit III (Harvesting of Eggs and Sanitation): **(10 Hrs)**

3.1 Selection, care and handling of hatching eggs. Egg testing. Methods of hatching.

3.2 Brooding and rearing. Sexing of chicks.

3.3 Farm and Water Hygiene, Recycling of poultry waste.

Co-curricular Activities Suggested: **(4 hrs)**

1. Group discussion& SWOT analysis
2. Visit to a poultry farm
3. Invited Lectures by Concerned officers of government or private farms
4. Cheap and Healthy Feed preparation by students based on government standards
5. Market study and Survey (Monitoring of daily price hike in poultry market and analysis)
6. Online Swayam Moocs course on poultry farming (see reference 9 below)

Reference books:

1. Sreenivasaiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. 2. Jull A. Morley, 2007. Successful Poultry Management. 2nd Edition. Biotech Books, New Delhi"
3. Hurd M. Louis, 2003. Modern Poultry Farming. 1st Edition. International Book Distributing Company, Lucknow.
4. Life and General Insurance Management
5. Financial services, Tata McGraw hill
6. http://www.asci-india.com/BooksPDF/Small%20Poultry%20Farmer.pdf
7. https://nsdcindia.org/sites/default/files/MC_AGR-Q4306_Small-poultry-farmer-.pdf
8. http://ecoursesonline.iasri.res.in/course/view.php?id=335
9. https://swayam.gov.in/nd2_nou19_ag09/preview

UG- SKILL DEVELOPMENT COURSE

FINANCIAL MARKETS

(w.e.f. 2020-2021 A.Y.)

Semester	Course Code (SD)	Course Title	Hrs/Sem	Hrs/wk	Credits	Sem End Exam (2 Hrs)
III	Skill Development Course	Financial Markets	30	2	2	50 Marks

Learning Outcomes:

After successful completion of this course, the students will be able to;

- Acquire knowledge of financial terms
- Know the concepts relating to and markets and different avenues of investment
- Understand the career skills related to Stock Exchanges
- Comprehend the personal financial planning and money market skills

UNIT-I: **(06hrs)**

Indian Financial System- its components - Financial markets and institutions

UNIT-II: **(10hrs)**

Capital Market - its function - organizations - elements - (shares, debentures, bonds, mutual funds) debt market - Equity market (SEBI) and secondary market (NSE)

UNIT-III: **(10hrs)**

Money market - Organized - Unorganized - Sub market (call money, commercial bills, Treasury bill, Certificate of Deposit, Commercial papers)

Co-curricular activities: **(04 hrs)**

1. Collection and study of pamphlets, application forms etc.
2. Invited lectures on the field topics by local experts
3. Introducing Online classes from NSE
4. Field visit to mutual fund offices/share brokers
5. Observation, study and analysis of selected companies share prices
6. Assignments, Group discussion, quiz etc.

Reference books:

1.T.R. Jain R.L.Sarma - Indian Financial System- VK Global publisher
2. Jithendra Gala - Guide to Indian Stock markets Buzzing Stock publishing house
3. Saha Siddhartha- Indian financial System- and Markets - McGraw hill
4. Websites on Indian Financial markets.

BCA	Course Code	Semester: III	Credits: 04
	C7	Accounting and Financial Management	Hrs/Wk:04

Course Objectives:

- This paper is designed to impart knowledge regarding concepts of Financial Accounting. This course is useful for Students to get placements in different offices as well as companies in Accounts departments.

Course Outcomes:

- Company Setup &Configurations.
- Recording Financial Transactions.
- Financial Reports Analysis.

UNIT - I:

Fundamentals of Accounting: Meaning of Accounting, its scope; Objects and limitations; Meaning and application of double entry system , Books of Accounts , Ledgers -Debtors ledger, Creditors ledgers and General ledger; Cash Book and Bank Reconciliation Statement.

UNIT - II:

Financial Statements: Meaning and Components of Financial statements, Preparation of Financial Statements, Trading Account, Profit and loss Account, Meaning and Purpose of Balance Sheet, Steps for preparation of Balance Sheet, Marshalling of Balance Sheet, Format of Balance Sheet

UNIT - III:

Accounting Ratio and Cash Flow Statement: Ratio Analysis, Objectives of Ratio Analysis, Classification of Accounting Ratios, Advantages of Ratio Analysis, Analysis of Financial Statement through Ratios, Cash Flow Statement, Meaning of Cash Flow Statement, Importance of Cash Flow Statement, Cash Flow Statement as per as 3, Illustration Preparation of Cash Flow Statement.

UNIT -IV:

Cost Concepts and Cost Sheet: Meaning of Cost, Classification of Cost, Various Cost Concepts, Cost Centre, Types of Cost Centres, Cost Unit, Elements of Costs, Cost Sheet.

UNIT - V:

Budgetary Control and Marginal Costing: Meaning of Budget, Purpose of Budget, Budgetary Control: Meaning and Essentials, Merits OF budgetary Control system, Steps in preparation of budgets, Classification of budgets, Standard cost and standard costing, Variance analysis, Marginal cost and marginal costing, Advantages of marginal costing, Managerial Application of marginal costing, Break Even Analysis. **Capital and Working Capital:** Meaning of capital, cost of capital, shares, debentures, capitalisation and capital structure; Meaning of working capital, its components and estimation

SUGGESTED READINGS:

1. Financial Accounting, Ashis Bhattacharya, prentice-Hall India Publication.
2. Financial Accounting, S.N. Maheshwari, Vikas Publication House Pvt. Ltd., New Delhi.
3. Theory and Practice of Accountancy By B. B. Dam, R. A. Maheswari, R. Barman and BKalita

BCA	Course Code	Semester: III	Credits: 01
	C7 - P	Accounting and Financial Management Lab	Hrs/Wk:02

List of Lab Experiments

1) Create Company using Accounts only.
2) Alter a Company, Shut a Company and Delete a Company in Tally?
3) Splitting Company Data.
4) Creation of Group Companies.
5) Single Ledger Creation with Interest parameters setting.
6) Multi Ledger creation any Ten Accounts.
7) Bank Reconciliation Statement in Tally.
8) Creation of Tally Vault & Change Tally vault Password.
9) Creating Contra voucher.
10) Creating Payment voucher.
11) Creating Receipt voucher.
12) Creating Journal voucher.
13) Creating Sales voucher.
14) Creating Credit Note voucher.
15) Creating Purchases voucher.
16) Creating Debit Note voucher.
17) Displaying Day Book.
18) Displaying Trial Balance.
19) Displaying Profit and Loss Account.
20) Displaying Balance Sheet.

BCA	Course Code	Semester: III	Credits: 04
	C8	Object Oriented Programming through Java	Hrs/Wk:04

Course Objectives:

To make the students understand fundamentals of Java programming.

- To expose the students to develop OOPs Concepts
- To make the students to design appropriate Exception Handling in Java
- To make the students to understand the concepts of Threads, Files and
- I/O Streams, Applets, Servlets in java.

Course Outcomes:

The student would become competent enough to write, debug, and document well-structured java applications

- Demonstrate good object-oriented programming skills in Java
- Able to describe, recognize, apply and implement selected design patterns in Java
- Understand the capabilities and limitations of Java
- Be familiar with common errors in Java and its associated libraries
- Develop excellent debugging skills

UNIT -I:

Object Oriented Programming: Introduction to OOP, Objects and Classes, Characteristics of OOP, Difference between OOP and Procedure Oriented Programming. **Introduction to Java Programming:** Introduction, Features of Java, Comparing Java and other languages (C & C++), Java Development Kit, Structure of Java Program, Prerequisites for Compiling and Running Java Programs.

UNIT - II:

Java Language Fundamentals: Data types, variable declarations, Operators and Assignment, Control structures, Arrays, Strings, The String Buffer Class. **Java as an OOP Language:** Defining classes, Constructors, Overloading, Modifiers, Packages.

UNIT - III:

Inheritance, Interfaces, Exception Handling: Inheritance, Types of Inheritance, Interfaces, Interface Implementation, Exception Handling in Java, Throwing User-defined Exceptions, Advantages of Exception. **Multithreading:** An Overview of Threads, Creating Threads, Thread Life–cycle, Thread Priorities, Thread Synchronization, Daemon Threads, Communication of Threads.

UNIT - IV:

Files and I/O Streams: An Overview of I/O streams, Java I/O, File Streams, FileInputStream and File Output Stream, Filter streams, Random Access File, Serialization. **Applets:** Introduction, Java applications versus Java Applets, Applet Life-cycle, Working with Applets, The HTML Applet Tag.

UNIT - V:

Database Handling Using JDBC: An Overview of DBMS, JDBC Architecture, Working with JDBC

Servlets: Introduction, How to run servlets, The Life–cycle of the servlet, servlet API, Multitier Applications using JDBC from a servlet.

TEXT BOOKS:

1. **Object Oriented Programming through Java,** Universities Press (2008),by P. Radha Krishna.

REFERENCE BOOKS:

1. Learn Object Oriented Programming using Java, Venkateswarlu, EVPrasad, S. Chand
2. Programming in Java2, DrKSoma Sundaram, JAICO Publishing house
3. JAVA8, R Nageswararao, Core Java Black Book. An Integrated approach

BCA	Course Code	Semester: III	Credits: 01
	C8 - P	Object Oriented Programming through Java Lab	Hrs/Wk:02

List of Lab Experiments

1. Write a Java program that prints all roots of quadratic equation ax2 +bx + c = 0.
2. Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
3. Write a Java program to create a Student class with following fields
   i. Hall ticket number
   ii. Student Name
   iii. Department
   Create 'n' number of Student objects where 'n' value is passed as input to constructor
4. Write Java program to implement Hierarchical Inheritance
5. Write Java program to implement multiple inheritance through interface
6. Write a Java program to demonstrate String comparison using == and equals method.
7. Write a Java program that creates three threads. First thread displays "Good Morning" everyone second, the second thread displays "Hello" every two seconds and the third thread displays "Welcome" every three seconds
8. Write a Java program to demonstrate Exception Handling
9. Write a Java program that displays the number of characters, lines and words in a text file
10. Write a Java Program to create Applet for timer
11. Write a Java program to connect to Database using JDBC
12. Write a Java program to demonstrate Servlet life cycle

BCA	Course Code	Semester: III	Credits: 04
	C9	Operating Systems	Hrs/Wk:04

Course Objectives:

1. To know the basic Structure, Components and Organization of Operating System.
2. To learn the notation of a Process-a Program in Execution, Management, Scheduling and Classic Problems of Synchronization.
3. To gain knowledge in various Memory Management Techniques.
4. To understand Unix Operating System and Various File operations.

Course Outcomes:

The students will be able to:

1. Understand the main components and Structure of Operating System& their functions.
2. Analyze various ways of Process Management& CPU Scheduling Algorithms.
3. Evaluate various device and resources like Memory, Time and CPU Management techniques in distributed systems.
4. Apply different methods for Preventing Deadlocks in a Computer System.
5. Create and build an Application/Service over the UNIX operating system.

UNIT - I:

Introduction: What Operating Systems do, Computer system organization, Computer system architecture, Operating system structure. **System Structure:** Operating system services, User operating system interface, System Calls, Types of System Calls, Overview of UNIX Operating System, Basic features of Unix operating System.

UNIT - II:

Process Concept: Process Concept, Process Scheduling, Operation on Process. **Process Scheduling:** Basic Concepts, Scheduling Criteria, Scheduling Algorithms, CPU Scheduling in UNIX.

UNIT - III:

Synchronization: Background, The critical section problem. **Semaphores:** Usage, Implementation, Deadlocks and Starvation, Classic problems of synchronization. **Deadlocks:** System Model, Deadlock Characterization, Deadlock Prevention.

UNIT - IV:

Memory Management: Background, Basic hardware, Address Binding, Swapping, Contiguous memory allocation, **Paging:** Basic Method, Hardware Support, Protection, Memory Management in UNIX.

UNIT - V:

Files and Directories in UNIX, File Structure, File System Implementation of Operating System Functions, File permission, Basic Operation on Files, Changing Permission Modes, Standard files, Processes Inspecting Files, Operating On Files

TEXT BOOKS

1. Operating system Concepts: Abraham Silberschatz, Peter B. Galvin, Greg Gagne, 8th Edition,Wiley.
2. Unix and shell Programming by B.M Harwani, OXFORD University Press

REFERENCE BOOKS:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8thEdition, Wiley Student Edition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press
3. Unix Concept and application-Sumitabha das
4. Unix Shell Programming-Yashwant Kanetkar

BCA	Course Code	Semester: III	Credits: 01
	C9 - P	Operating Systems Lab	Hrs/Wk:02

List of Experiments

1. Introduction to UNIX Operating System, Compare with Windows OS. Writing and executing simple Hello World C Program in UNIX Environment.
2. Working with vi editor: Creating and editing a text file using the standard commands.
3. Getting hands-on on basic UNIX Commands.
4. Execute of various file/directory handling commands.
5. Write a Simple shell script for basic arithmetic and logical calculations.
6. Write Shell scripts to check various attributes of files and directories.
7. Write Shell scripts to perform various operations on give n strings.
8. Write Shell scripts to explore system variables such as PATH, HOME etc.
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.
13. Write C programs to implement the following Scheduling Algorithms:
    i. First Come First Serve.
    ii. Shortest Job First.
    iii. Round Robin.

Reference Text Books:

1. Brian W. Kernighan and Rob Pike, "The UNIX Programming Environment" Prentice Hall India (Edition available in LRC and in the form of E Book on student resource).
2. Yashwant Kanetkar, "UNIX Shell Programming" BPB Publications (First Edition).

BCA	Course Code	Semester: IV	Credits: 04
	C10	Cyber Laws	Hrs/Wk:04

Course Objectives:

- Enable learners to understand, explore, and acquire a critical understanding of CyberLaw.
- Develop competencies for dealing with frauds and deceptions (confidence tricks, scams) and other cyber-crimes for example, child pornography etc. that are taking place via the Internet.
- Make learners conversant with the social and intellectual property issues emerging from 'Cyberspace'.
- Explore the legal and policy developments in various countries to regulate Cyberspace.
- Develop the understanding of relationship between commerce and cyberspace; and give learners in depth knowledge of Information Technology Act and legal frame work of Right to Privacy, Data Security and Data Protection.

Course Outcomes:

At the end of the course, students should be able to:

- Critically evaluate ongoing developments in law relating to information technologies.
- Display an understanding of how these developments relate to one another.
- Examine areas of doctrinal and political debate surrounding rules and theories;
- Evaluate those rules and theories in terms of internal coherence and practical outcomes.
- Draw on the analysis and evaluation contained in primary and secondary sources.

UNIT - I:

Introduction: Computers and its Impact in Society, Overview of Computer and Web Technology, Need for Cyber Law, *Cyber Jurisprudence* at International and Indian Level.

UNIT II:

Cyber Law- International Perspectives: UN &International Telecommunication Union (ITU)Initiatives, Council of Europe -Budapest Convention on Cybercrime, Asia-Pacific Economic Cooperation(APEC), Organization for Economic Co-operation and Development(OECD), World Bank, Commonwealth of Nations.

UNIT -III: Constitutional& Human Rights Issues in Cyberspace: Freedom of Speech and Expression in Cyberspace, Right to Access Cyberspace – Access to Internet, Right to Privacy, Right to Data Protection.

UNIT - IV: cyber Crimes& Legal Framework: Cyber Crimes against Individuals, Institution and State, Hacking,DigitalForgery,CyberStalking/Harassment,CyberPornography,IdentityTheft&Fraud, Cyber terrorism, Cyber Defamation, Different offences under IT Act,2000.

UNIT - V:

Cyber Torts: Cyber Defamation, Different Types of Civil Wrong sunder the IT Act, 2000, Intellectual Property Issues in Cyber Space, Interface with Copyright Law, Interface with Patent Law, Trade marks &Domain Names Related issues

Reference Books

1. Chris Reed& John Angel, *Computer Law*, OUP, NewYork,(2007).
2. Justice Yatindra Singh, *Cyber Laws*, Universal Law Publishing Co, New Delhi, (2012).
3. VermaK,MittalRaman, *LegalDimensionsofCyberSpace*,IndianLawInstitute,NewD elhi,(2004)
4. JonthanRosenoer, *Cyber Law*, Springer, New York,(1997).
5. SudhirNaib,TheInformationTechnologyAct,2005:AHandbook,OUP,NewYork,(20 11)
6. S.R.Bhansali, *Information TechnologyAct,2000*, UniversityBookHousePvt.Ltd.,Jaipur (2003).
7. Vasu Deva, *Cyber Crimes and Law Enforcement*, Commonwealth Publishers, New Delhi,(2003).

BCA	Course Code	Semester: IV	Credits: 01
	C10 - P	Cyber Laws Lab	Hrs/Wk:02

Lab Experiments

1. Write a program for recovering deleted files from a hard disk.
2. Write a program for gathering evidence.
3. Write a program for viewing files of various formats.
4. Write a program for locating files needed for a forensics investigation.
5. Write a program for performing image and file conversions.
6. Write a program for handling evidence data.
7. Write a program for creating a disk image file of a hard disk partition.
8. Give at least ten cyber crime scenarios to students and make them analyse the scenario and submit report citing cyber laws which are violated.

BCA	Course Code	Semester: IV	Credits: 04
	C11	Data Mining and Ware Housing	Hrs/Wk:04

Course Objectives:

- Be familiar with mathematical foundations of data mining tools.
- Understand and implement classical models and algorithms in data warehouses and data mining
- Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.
- Master data mining techniques in various applications like social, scientific and environmental context. Develop skill in selecting the appropriate data mining algorithm for solving practical problems.

Course Outcomes:

At the end of the course, the student will demonstrate the following. The students will be able to:

- Examine the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system.
- Apply preprocessing statistical methods for any given raw data
- Discover interesting patterns from large amounts of data to analyze and extract patterns to solve problems, make predictions of outcomes
- Comprehend the roles that data mining plays in various fields and manipulate different data mining techniques
- Select and apply proper data mining algorithms to build analytical applications.
- Evaluate and implement a wide range of emerging and newly-adopted methodologies and technologies to facilitate the knowledge discovery.

UNIT -I:

Introduction: Data Mining and Importance, Relational Databases, Data Warehouses, Transactional Databases. Data Mining Functionalities, Kinds of Patterns.Data Preprocessing: Why Preprocess the Data?, Descriptive Data Summarization: Measuring the Central Tendency, Measuring the Dispersion of Data, Data Cleaning, Data Integration and Transformation, Data Reduction.

UNIT - II:

Data Warehouse and OLAP Technology: An Overview, What Is a Data Warehouse? , A Multidimensional Data Model, From Tables and Spreadsheets to Data Cubes, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional databases, Examples, Measures: Their Categorization and Computation, Concept Hierarchies, OLAP Operations in the Multidimensional Data Model.

Data Warehouse Architecture: Steps for the Design and Construction of Data Warehouses, A Three-Tier Data Warehouse Architecture, Data Warehouse Back-End Tools and Utilities. Data Warehouse Implementation.

UNIT - III:

Mining Frequent Patterns, Associations, and Correlations: Basic Concepts, Mining Methods: The Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation, Generating Association Rules from Frequent Itemsets, Improving the Efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation. Mining various kinds of Association Rules: Mining Multilevel Association Rules, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses.

UNIT - V:

Tree Induction, Attribute Selection Measures. Bayesian Classification: Naïve Bayesian Classification **Classification and Prediction:** Classification, Prediction, Regarding Classification and Prediction, Decision, **Rule-Based Classification**: Using IF-THEN Rules for Classification, Rule Extraction from a Decision Tree, Rule Induction Using a Sequential Covering Algorithm.

UNIT V:

Cluster Analysis: Cluster Analysis, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering, Density-Based Methods, Outlier Analysis.

PRESCRIBED TEXT BOOK:

1. Data Mining: Concepts and Techniques Second Edition Jiawei Han University of Illinois at Urbana-Champaign Micheline KambeR.

REFERENCES:

1. Data Mining by VikramPudi, P. Radha Krishna, Oxford UniversalPress
2. Data Warehousing by ReemaThareja, Oxford UniversityPress
3. J. Han, M. Kamber and J. Pei, Data Mining: Concepts and Techniques, 3rd.Edition Morgan Kaufmann,2011
4. Introduction to data mining –G. K. Gupta,PHI
5. Data mining, Data warehouse &Olap-Berson, Tata McGrawHill

STUDENT ACTIVITY:

1. Predict the course taken by a student based on his activities and way of learning
2. Learn visual patterns of any real time data

BCA	Course Code	Semester: IV	Credits: 01
	C11 - P	Data Mining and Ware Housing Lab	Hrs/Wk:02

List of Experiments

1. Demonstration of preprocessing on datasetstudent.arff.
2. Demonstration of preprocessing on datasetlabor.arff.
3. Demonstration of Association rule process on dataset contactlenses.arff using Apriori algorithm.
4. Demonstration of Association rule process on dataset test.arff using Apriori algorithm.
5. Demonstration of classification rule process on dataset student.arff using j48algorithm.
6. Demonstration of classification rule process on dataset employee.arff using j48 algorithm.
7. Demonstration of classification rule process on dataset employee.arff using id3 algorithm.
8. Demonstration of classification rule process on dataset employee.arff using naïve bayes algorithm.
9. Demonstration of clustering rule process on dataset iris.arff using simple k-means.
10. Demonstration of clustering rule process on dataset student.arff using simple k-means.

BCA	Course Code	Semester: IV	Credits: 04
	C12	Web Programming	Hrs/Wk:04

Course Objectives:

- To learn about the Building Blocks of PHP, Arrays.
- To learn about PHP functions and file handling.
- To learn about working with Forms, Sessions, Cookies.
- To learn about Java Script basics.

Course Outcomes:

- Able to use Building Blocks of PHP, Access array elements.
- Able to use various functions and handle data using files..
- Able to use working with Forms, Sessions, Cookies.
- Able to implement JavaScript.

UNIT - I:

Basics of HTML & Java Script: Basic structure of an HTML document, HTML Tags, Lists, Tables and Frames, Forms and controls. **Java Script**: Introduction – Basic commands – Variables – Operators – Control structures – Arrays - Window and document object – Forms and form elements – String, math and dates – multiple windows.

UNIT -II:

Basics of PHP :Introduction to PHP, Identifiers, Variables, Constants, Data Types, Operators, Conditional Statements, PHP Loops.

Working with **Arrays:** Arrays, Creating Arrays, some Array-Related Functions. Working with Objects: Creating Objects, Object Instance. Working with Strings, Dates and Time: Formatting Strings with PHP), Investigating Strings with PHP , Manipulating Strings with PHP, Using Date and Time Functions in PHP.

UNIT - III:

Advanced PHP: Functions, Advantages of Using functions, Types of functions, creating and invoking functions, returning values, recursive functions Object Oriented Concepts, File handling and Data Storage: creating, open/close a file, file operations: read, write, append. File truncate, file uploading, EOF in PHP.

UNIT IV: Working with Forms in PHP:

Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user.

PHP with MySQL: Creating Database in MySQL, Connecting to MYSQL, Reading and Writing form data from MYSQL

UNIT - V:

Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsettling Variables, Using Sessions in an Environment with Registered Users.

REFERENCE BOOKS:

1. Fundamentals Of Open Source Software, Mn Rao, Phi,2015.
2. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education (2007).
3. Web Technologies, A. a. Puntambekar, 2013, Technical Publications

BCA	Course Code	Semester: IV	Credits: 01
	C12 - P	Web Programming Lab	Hrs/Wk:02

Lab experiments

1. Create a basic student registration form and add validations using JavaScript
2. Create a PHP program to find odd or even number from given number.
3. Write a PHP program to find maximum of three numbers.
4. Demonstrating while loop in PHP for accessing array elements.
5. Demonstrating for each loop in PHP.
6. Write a PHP program to demonstrate various string functions.
7. Write a PHP program to demonstrate Date and Time functions.
8. Write a PHP program to perform read and write operations on a file.
9. Creating user login form in PHP with MYSQL.
10. Demonstrating File Uploads.
11. Demonstrating Working with Cookies.
12. Demonstrating User Sessions.

BCA	Course Code	Semester: IV	Credits: 04
	C13	Data Communications & Networking	Hrs/Wk:04

Course Objectives:

This course will enable the students to

1. Appreciate the use of computer networking in various walks of life, describe the types of networks, network configurations and network topologies. Also Write the OSI and TCP/IP reference models for networking.
2. Explain responsibilities of data link layer, its implementation and associated protocols, algorithms/pseudo codes.
3. Explain the various techniques used to access a shared channel in the network and IEEE specifications for LANs.
4. List types of networking devices, backbone networks and Internet Protocol (IP) addressing.
5. Explain the responsibilities of network, transport and application layers.

Course Outcomes:

At the end of the course the student will be able to

1. Define computer networks, list network configurations, types, topologies, the applications of computer networks in different fields, network models and description of physical layer.
2. Reason the need for flow and error control at the data link layer and explain the associated protocols.
3. Enumerate the shared channel access methods, associated protocols and Wired & Wireless LAN standards and implementations.
4. List the types of networking devices / equipments and also explain the addressing scheme used at the network layer.
5. Explain how network layer, transport layer and application layer facilitates the transfer of message from one node to another in a global network

UNIT - I:

Introduction toData communications, Network Criteria, point-to-point and multi point connection, physical topology, Local Area Networks, Metropolitan Area Networks, Wide Area Networks, Wireless Networks, protocols and standards.

Network Models: Layered tasks, Connection-Oriented and Connectionless Services, Service Primitives, The OSI Reference Model, The TCP/IP Reference Model, Comparison of the OSI and TCP/IP Reference Models, addressing.

UNIT – II:

Physical Layer: Basis for Data Communication: Transmission of digital signals: Bit rate, bit length, baseband and broadband transmission, transmission impairment, data rate limits, performance, Guided Transmission Media Twisted Pair Coaxial Cable and Fiber Optics

Data Link Layer: Framing, Error Control, Flow Control, Error-Detection and correction: Introduction, Error detection using CRC. Data Link Protocols: Simplest Protocol, Stop-and-Wait Protocol, Stop-and-Wait ARQ, GoBack-N ARQ, Selective Repeat ARQ, HDLC.

UNIT – III:

Multiple Accesses. Random Access: ALOHA, Carrier Sense Multiple Access (CSMA) Protocols, CSMA with Collision Detection, CSMA with Collision Avoidance. Controlled Access: Reservation, Polling and Token Passing. Channelization: FDMA, TDMA, CDMA.

Wired LAN: Ethernet, IEEE standards, Standard Ethernet.Changes in the standards, Fast Ethernet, Gigabit Ethernet, **Wireless LAN (802.11).**

UNIT - IV:

Connecting LANs, Backbone and Virtual LANs: Connecting devices, Back bone Networks, Virtual LANs. Network Layer: Need for network layer, Logical addressing, Ipv4 addresses, Ipv6 addresses, Ipv4 and Ipv6 datagrams, Transition from Ipv4 to Ipv6.

UNIT - V:

Network Layer: Delivery, Forwarding, Types of Routing protocols, Unicast Routing Protocols, The **Transport Layer**: Process to process Delivery, User Datagram Protocol (UDP) and TCP. **Application layer:** Domain name space, Distribution of name space, Resolution.

TEXT BOOKS:

1. Data communications and Networking-4th edition BeharouzA.Forouzan, TMH

REFERENCE BOOKS:

1. Data Communications and Computer Networks By Prakash C. Gupta, PHI Publishers.
2. Computer Networks By Andrew S.Tanenbaum, Pearson Education.
3. Wireless Technologies Circuits, Systems and Devices by Krzysztof Iniewski CRC Press.
4. Wireless Networking Technology: From Principles to Successful Implementationby Stephen A. Rackley.

BCA	Course Code	Semester: IV	Credits: 01
	C13 - P	Data Communications & Networking Lab	Hrs/Wk:02

List of Experiments

1) Study of different types of Network cables
2) Study of various Network connecting devices
3) Configure Host IP, Subnet Mask and Default Gateway in a System in LAN (TCP/IP Configuration)
4) Configure Internet connection and use IPCONFIG, PING / Tracer and Net stat utilities to debug the network issues.
5) Study of basic network command and Network configuration commands
6) Implementation of character stuffing and destuffing
7) Implementation of parity checker
8) Implementation of CRC
9) Implementation of checksum.
10) Implementation of shortest path protocol
11) Implementation of string encryption and decryption
12) To find out details of network from IP addressing scheme using 'C' code

BCA	Course Code	Semester: IV	Credits: 04
	C14	**Data Analytics Using R**	Hrs/Wk:04

Course Objectives:

This course will cover all the fundamental algorithms and techniques used in Data Analytics and provide exposure to theory as well as practical knowledge through R used in data analytics.

After completing the course, student will learn,

- Fundamental basics of statistics used in analysing the data
- How to find the pattern in the given dataset
- How to interpret the data graphically
- How to apply different types of algorithms for the given dataset

Course Outcomes:

- Data-Visualization tools and techniques offer executives and other knowledge workers new approaches to dramatically improve their ability to grasp information hiding in their data.
- Data visualization is a general term that describes any effort to help people understand the significance of data by placing it in a visual context.
- Patterns, trends and correlations that might go undetected in text-based data can be exposed and recognized easier with data visualization software.
- It isn't just the attraction of the huge range of statistical analyses afforded by R that attracts data people to R. The language has also developed a rich ecosystem of charts, plots and visualizations over the years.
- ggplot2 is a data visualization package for the statistical programming language R.

UNIT - I:

Introduction: Introducing to R Data Structures –Help functions in R –Vectors –Scalars –Declarations – recycling –Common Vector operations –Using all and any –Vectorized operations –NA and NULL values –Filtering – Vectorised if-then else –Vector Equality –Vector Element names **Matrices, Arrays and Lists:** Creating matrices –Matrix operations –Applying Functions to Matrix Rows and Columns – Adding and deleting rows and columns –Vector/Matrix Distinction –Avoiding Dimension Reduction –Higher Dimensional arrays –lists –Creating lists –General list operations – Accessing list components and values – applying functions to lists –recursive lists

UNIT - II:

Data Frames & Packages in R: Creating Data Frames –Matrix-like operations in frames –Merging Data Frames –Applying functions to Data frames –Factors and Tables –factors and levels –Common functions used with factors –Working with tables -Other factors and table related functions -Control statements – Arithmetic and Boolean operators and values –Default values for arguments -Returning Boolean values **Packages :** Tidyr, ggplot2, ggraph, dplyr, tidyquant, dygraphs.

UNIT - III:

Introduction to Data analytics: Overview of Bigdata, Need of Data Analytics, Applications of Data Analytics, Datasets, tools for data analytics **Basic Statistics**: Mean, Median, Standard Deviation, Variance, Correlation, Covariance. **Basic Analysis Techniques:** Chi-Square Test, t-Test, Analysis of Variance, Corrleation Analysis.

UNIT - IV:

Data Analysis Techniques: Linear Regression, Logistic Regression, Classification Techniques, Clustering Techniques, Ensemble model.

UNIT V:

Data Visualization Using R: Data Visualization, Libraries used for Data Visualization in R, Bar chart, Histogram, Heatmap, Scatter plot, Box Plot, Correlogram, Area Chart

TEXT BOOK:

1. Data Analytics using R, McGrawHill Publications,Seema Acharya
2. R for Data Science: Import, Tidy, Transform, Visualize, and Model DatabyHadley Wickham ,O'Reilly
3. Rumset D. J. (2010): Statistical Essentials for Dummies. Hoboken: Wiley Publishing

BCA	Course Code	Semester: IV	Credits: 04
	C15	**Object Oriented Software Engineering**	Hrs/Wk:04

Course Objective

- To develop background knowledge as well as core expertise in object oriented system.
- To provide the importance of the software design process.
- To assess the unified process and Unified Modeling Language

Course Outcomes

- To describe the three pillars of object-orientation methodologies and explain the benefits of each.
- To create use case documents that capture requirements for a software system.
- To create class diagrams that model both the domain model and design model of a software system.
- To create interaction diagrams that models the dynamic aspects of asoftware system.
- To understand the facets of the Unified Process approach to designing and building a software system.
- To build a model for the user interface (UI) of a software application

UNIT –I:

Software Engineering: Software engineering process paradigms, Process Models – Waterfall Model, Iterative Model, RAD Model, Prototype Model. Requirement Analysis, Analysis Model.

UNIT -II:

Introduction to OOAD – What is OOAD? – What is UML? What are the United process(UP) phases - Inception -Use case Modeling - Relating Use cases – include, extend and generalization.

UNIT -III:

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT -IV:

Basic Behavioral Modeling-I: Interactions, Interaction diagrams, Activity Diagrams. UML state diagrams and modeling, UML deployment and component diagrams

UNIT -V:

Object Oriented Testing: Overview of Testing, object oriented Testing, Types of Testing, Object oriented Testing strategies, Test case design for OO software.

REFERENCE BOOKS:

1. Object Oriented Analysis and Design By GradyBooch.
2. Craig Larman,"Applying UML and Patterns: An Introduction to object-oriented Analysis and Design and iterative development", Third Edition, Pearson Education,2005
3. Mike O'Docherty, "Object-Oriented Analysis & Design: Understanding SystemDevelopment with UML 2.0", John Wiley & Sons,2005.
4. James W- Cooper, Addison-Wesley, "Java Design Patterns – A Tutorial",2000.
5. Micheal Blaha, James Rambaugh, "Object-Oriented Modeling and Design withUML", Second Edition, Prentice Hall of India Private Limited,2007
6. Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides,"Design patterns: Elements of Reusable object-oriented software", Addison-Wesley,1995.

STUDENT ACTIVITY:

1. Develop a class diagram for the flight services available in your nearby airport
2. Develop a sequence diagram of activities of any automated device.

BCA	Course Code	Semester: IV	Credits: 01
	C15 - P	**Object Oriented Software Engineering Lab**	Hrs/Wk:02

List of Experiments

Case Studies:

Design Following Systems in Object Oriented Approach using UML with open source tools (Eclipse UML2 or any other Open source tools):

1. Online Examination System.
2. Online Railway Reservation.
3. Library Maintenance System.
4. Any E-Commerce Portal.
5. Biometric Attendance System.

Note: Student is expected to analyze the system in object oriented manner and design the system in object oriented approach using UML with open source tools

BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 6A	Machine Learning Using Python	Hrs/Wk:4

Course Educational Objective: The objective of the course provides the basic concepts and techniques of Machine Learning and helps to use recent machine learning software for solving practical problems. It enables students to gain experience by doing independent study and research.

Course Outcomes: At the end of this course, the student will be able to

CO1: Identify the characteristics of machine learning.**(Understand- L2)**

CO2: Summarize the Model building and evaluation approaches**(Understand- L2)**

CO3: Apply Bayesian learning and regression algorithms for real-world Problems.**(Apply- L3)**

CO4: Apply supervised learning algorithms to solve the real-world Problems. **(Apply- L3)**

CO5: Apply unsupervised learning algorithms for the real world data. **(Apply- L3)**

UNIT-I: Introduction to Machine Learning and Preparing to Model

Introduction to Machine Learning-Introduction, What is Human Learning? Types of Human Learning, What is Machine Learning? Types of Machine Learning, Problems Not To Be Solved Using Machine Learning, Applications of Machine Learning.

Preparing to Model-Introduction, Machine Learning Activities, Basic Types of Data in Machine Learning, Exploring Structure of Data, Data Quality and Remediation, Data Pre-Processing

UNIT-2: Modeling & Evaluation, Basics of Feature Engineering

Modeling & Evaluation-Introduction, Selecting a Model, Training a Model (for Supervised Learning), Model Representation and Interpretability, Evaluating Performance of a Model.

Basics of Feature Engineering-Introduction, Feature Transformation, Feature Subset Selection

UNIT-3: Bayesian Concept Learning and Regression

Bayesian Concept Learning - Introduction, Why Bayesian Methods are Important?, Bayes' Theorem, Bayes' Theorem and Concept Learning, Bayesian Belief Network.

Regression: Introduction, Regression Algorithms - Simple linear regression, Multiple linear regression, Polynomial Regression Model, Logistic Regression, Maximum Likelihood Estimation.

UNIT-4: Supervised Learning: Classification, Ensemble Learning

Classification-Introduction, Example of Supervised Learning, Classification Model, Classification Learning Steps, Common Classification Algorithms - k-Nearest Neighbour (kNN), Decision tree, Random forest model, Support vector machines.

Ensemble Learning- Boosting, Bagging

UNIT-5: Unsupervised learning

Unsupervised Learning- Introduction, Unsupervised vs Supervised Learning, Application of Unsupervised Learning, Clustering –Clustering as a Machine Learning task, Different types of clustering techniques, Partitioning methods, Hierarchical clustering, Density-based methods: DBSCAN.

Finding Pattern using Association Rule - Definition of common terms, Association rule, Apriori algorithm.

Text Books:

1. Subramanian Chandramouli, SaikatDutt, Amit Kumar Das, "Machine Learning",Pearson Education India ,1st edition.
2. Tom M. Mitchell, "Machine Learning', MGH, 1997.

Reference Books:

1. Shai Shalev-Shwartz, ShaiBen David, "Understanding Machine Learning: From Theory to Algorithms", Cambridge.
2. Peter Harington, "Machine Learning in Action" , Cengage, 1st edition, 2012.
3. Peter Flach, "Machine Learning: The art and science of algorithms that make sense of data", Cambridge university press,2012.
4. Jason Brownlee, "Machine Learning Mastery with Python Understand Your Data, Create Accurate Models and Work Projects End-To-End",Edition: v1.4, 2011.

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course: 6A	Machine Learning Using Python Lab	Hrs/Wk:2

1. EDA Analysis
2. Exploring Feature Selection Algorithms
   - Ranking
   - Wrapper methods
3. Dimensionality Reduction-PCA
4. Exploring Model Evolution Parameters.
5. Probabilistic Classification Algorithm
6. Regression Techniques: Linear, Logistic
7. Classification Techniques – Tree Based
8. Classification Techniques- Neural Network.
9. Ensemble Learning
10. Clustering &Apriori Algorithm.

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BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7A	Digital Imaging	Hrs/Wk:4

Course Objective:

Learn about different types of images and how to use basic and advanced features of GIMP Software for creating and image editing tools.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Gain knowledge about Types of Graphics, Types of Objects, Types of video editing tools
2. Show their skills in editing and altering photographs for through a basic understanding of the tool box.
3. Gain knowledge in using the layers.
4. Gain knowledge in using the selection tools, repair tools.
5. Gain knowledge in using selection tools , applying filters and can show their skills.

UNIT-I **12 HRS**

1.Types of Graphics
- 1.1 Raster vs Vector Graphics

2.Types of Objects
- 2.1 Audio formats
- 2.2 Video formats
- 2.3 Image formats
- 2.4 Text document formats

3. Types of video editing
4. Different color modes.
5. Image Scanner
- 5.1 Types of Image Scanners

UNIT-II **12 HRS**

1.What is GIMP
2.GIMP tool box window
3.layers Dialog
4.Tool Options Dialog
5.Image window
6.Image window menus

UNIT-III **12 HRS**

Improving Digital Photos

1.1 Opening files
- 1.1.1 rescaling saving files

1.2.Cropping
1.3. Brightening & Darkening
1.4. Rotating
1.5. Sharpening
1.6. Fixing Red Eye

Introduction to layers

2. What is layer
    - 2.1. Using layer to add text
    - 2.2. Using move tool
    - 2.3. Changing colors
    - 2.4. Simple effects on layers
    - 2.5 Linking layers together
    - 2.6 Performing operations on layers
    - 2.7 Using layers to copy and paste
    - 2.8 Tour of layers dialog

UNIT-IV Drawing: **12 HRS**

- 1.1 Drawing lines and curves
- 1.2 Changing colors and brushes
- 1.3 Erasing
- 1.4 Drawing rectangles
- 1.5 Circles, other shapes
- 1.6 Outlining and filling regions
- 1.7 Filling with patterns and gradients
- 1.8 Importing brushes or gradients or making your own.

Selection:

- 2.1 Working with selections
- 2.2 Select by color and fuzzy
- 2.3 Select Bezier paths
- 2.4 Intelligent scissors tool
- 2.5 Modifying selections with selection modes Dodge and burn tool

UNIT-V Erasing and Touching Up: **12 HRS**

- 1.1
- 1.2 Smudging tool
- 1.3 Clone tool
- 1.4 Sharpening using convolve tool
- 1.5 Blurring with Gaussian Blur
- 1.6 Correcting Color Balance
- 1.7 Hue
- 1.8 Saturation
- 1.9 Color balance using curves and levels.

Filters:

- 2.1 Filters
    - 2.1.1 Blur
    - 2.1.2 Enhance
    - 2.1.3 Distort
    - 2.1.4 Noise Filters

Text Book: Beginning GIMP From Novice to professional by Akkana Peck, Second Edition, Apress

Recommended Co-Curricular Activities (participation: total 15 weeks):

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion
2. Others

Recommended Continuous Assessment Methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Observation of practical skills,
5. Efficient delivery using seminar presentations,
6. Viva voce interviews.
7. Computerized adaptive testing, literature surveys and evaluations,
8. Peers and self-assessment, outputs form individual and collaborative work

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course: 7A	Digital Imaging Lab	Hrs/Wk:2

1. Designing a Visiting card
2. Design Cover page of a book
3. Paper add for calling tenders
4. Passport photo design
5. Design a Pamphlet
6. Brochure designing
7. Titles designing
8. Custom shapes creation
9. Black & white and color photo conversion
10. Image size modification
11. Background changes
12. Texture and patterns designing
13. Filter effects & Eraser effects

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BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 6B	Cyber Security And Malware Analysis	Hrs/Wk:4

COURSE OBJECTIVES:

The main objective of the course is to impart conceptual understanding on Cyber security and protection of electronic systems and information from malware attacks.

COURSE OUTCOMES:

Upon successful completion of this course, students should have the knowledge and skills to

1. Understand the computer networks, networking tools and cyber security
2. Learn about NIST Cyber Security Framework
3. Understand the OWASP Vulnerabilities
4. Implement various Malware analysis tools
5. Understand about Information Technology act 2000

UNIT-I: Introduction to Networks & cyber security **periods: 14**

- Computer Network Basics
- Computer network types
- OSI Reference model
- TCP/IP Protocol suite
- Difference between OSI and TCP/IP
- What is cyber, cyber-crime and cyber-security
- All Layer wise attacks
- Networking devices: router, bridge, switch, server, firewall
- How to configure: router
- How to create LAN
- Network tools
    - ❖ IP scanner
    - ❖ port scanner
    - ❖ vulnerability scanner
    - ❖ command tools-- netstack, traceroute, nslookup
    - ❖ tcpview

UNIT-II: NIST Cyber security framework **periods: 10**

- Introduction to the components of the framework
- Cybersecurity Framework Tiers
- What is NIST Cyber security framework
- Features of NIST Cyber security framework
- Functions of NIST Cyber security framework
- Turn the NIST Cybersecurity Framework into Reality/ implementing the framework

UNIT-III: OWASP **periods: 14**

- What is OWASP?
- OWASP Top 10 Vulnerabilities
  - Injection
  - Broken Authentication
  - Sensitive Data Exposure
  - XML External Entities (XXE)
  - Broken Access Control
  - Security Misconfiguration
  - Cross-Site Scripting (XSS)
  - Insecure Deserialization
  - Using Components with Known Vulnerabilities
  - Insufficient Logging and Monitoring
- OWASP Juice Shop
- Web application firewall

UNIT-IV: MALWARE ANALYSIS **periods: 12**

- What is malware
- Types of malware
  - Keyloggers
  - Trojans
  - Ransome ware
  - Rootkits
- Antivirus
- Firewalls
- Malware analysis
  - VM ware
  - How to use sandbox
  - How to create virtual machine
  - Process explorer
  - Process monitor
  - SYS-internals Suite
  -
- SOC-security operations controls - Solar winds (study the tools)
- Network intrusion detection
  - Wireshark
  - IDS
  - IPS
  - Snort

UNIT-V: CYBER SECURITY: Legal Perspectives **periods: 10**

- Cybercrime and the legal landscape around the world
- Indian IT ACT 2000 --Cybercrime and Punishments
- Weak areas of IT ACT 2000
- Challenges to Indian law and cybercrime scenario in India
- Amendments of the Indian IT Act

Text books:

1. Computer Networks | Fifth Edition | By Pearson (6th Edition)|Tanenbaum, Feamster&Wetherall
2. Computer Networking | A Top-Down Approach | Sixth Edition | By Pearson | Kurose James F. Ross Keith W.
3. Cyber Security by SunitBelapure, Nina Godbole|Wiley Publications
4. TCP/IP Protocol Suite |Mcgraw-hill| Forouzan|Fourth Edition

Website References:

- https://csrc.nist.gov/Projects/cybersecurity-framework/nist-cybersecurity-framework-a-quick-start-guide
- https://owasp.org/www-project-top-ten/
- https://owasp.org/www-project-juice-shop/

Co-Curricular Activities:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)

2. Student seminars (on topics of the syllabus and related aspects (individual activity))

3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion

2. Try to solve MCQ's available online.

Recommended Continuous Assessment Methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Practical assignments and laboratory reports,
4. Observation of practical skills,
5. Individual and group project reports.
6. Efficient delivery using seminar presentations,
7. Viva-Voce interviews.
8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course: 6B	Cyber Security And Malware Analysis Lab	Hrs/Wk:2

COURSE OBJECTIVES:

The purpose of this course is to impart practical understanding on Cyber security and protection of electronic systems and information from malware attacks.

1. configure a LAN by using a switch
2. configure a LAN by using Router
3. steps to attack a victim computer by using "ProRat" trojan tool
4. Perform the packet sniffing mechanism by download the "wireshark" tool and extract the packets
5. Perform the task of creating mail messages by using fake mail id by using the "fake mailer" website (https://emkei.cz)
6. Perform the IP scanning mechanism by using "tracert"and "arp" commands
7. Perform the port scanning mechanism by using NMAP tool
8. Perform an SQL Injection attack and its preventive measure to avoid Injection attack
9. Perform an activity to access a locked computer without knowing the user's password.

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BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7B	Internet Of Things	Hrs/Wk:4

Course description and objectives:

Students will be explored to the interconnection and integration of the physical world and the cyber space. They are also able to design & develop communication system among heterogeneous components i.e. IOT Devices.

Course Outcomes:

* Able to understand various applications of IOT in real world and industry domain
* Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
* Able to understand building blocks of Internet of Things and characteristics.
* Able to design and develop IOT devices.

UNIT-1

1.1 IOT. Explain Characteristics and component of IOT.
1.2 Advantages and disadvantages of IOT.
1.3 various application areas of IoT.
1.4 Time for Convergence for IoT.
1.5 reasons to converge the technologies and shift to IOT.
1.6 smart parking IOT application using figure.
1.7 smart home IOT application using figure.
1.8 smart health using IoT.
1.9 Smart City application of IoT

UNIT-2

2.1 M2M Value Chains.
2.2 IoT architecture outline withdiagram.
2.3 IOT Value Chains using figure.
2.4 shifting from M2M to IoT.
2.5 design principles and needed capabilities of IOT.
2.6 I-GVC using figure.
2.7 Global Value Chain
2.8 M2M Value Chains.
2.9 IoT-Architecture.

UNIT 3:

3.1 ETSI M2M high-level architecture.
3.2 IOT referencemodel.
3.3 IOT function view.
3.4 IOT reference architecture's deployment and operational view.
3.5 reference architecture of IOT using figure.
3.6 Functional View, Information View, Deployment and Operational View, Other Relevant architectural views of IOT reference architecture.
3.7 Architecture Reference Model of IOT using figure.
3.8 IoT Domain Model
3.9 Open Geospatial Consortium Architecture with a diagram.

UNIT 4

4.1 shopping basket can tell: IoT for retailing industry?
4.2 future factory concepts.
4.3 four aspects in your business to master IoT.
4.4 Needs of IoT for Oil and Gas Industry.
4.5 creation from big data and serialization.
4.6 challenges faced by industry related IoT Applications.
4.7 four Aspects in one's business to master IoT.
4.8 eHealth IOT applications.
4.9 security concerns for industry.
4.10 shopping basket can tell: IoT for retailing industry
4.11 future factory concepts.
4.12 IoT for Oil and Gas Industry
4.13 Smart factory.

UNIT 5

5.1 GAMBAS adaptive middleware.
5.2 smartie approach for IoT.
5.3 security, privacy and trust in IoT-Data-Platforms for smart cities
5.4 Data aggregation for the IoT in smart cities security.
5.5 contributions from FP7Projects.
5.6 smartie approach, properties and characteristics.
5.7 privacy-preserving sharing of IoTData.
5.8 activity chain - governance, privacy and security issues.

Co-Curricular Activities:

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4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.

Recommended Continuous Assessment Methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Practical assignments and laboratory reports,
4. Observation of practical skills,
5. Individual and group project reports.
6. Efficient delivery using seminar presentations,
7. Viva-Voce interviews.
8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course: 7B	Internet Of Things Lab	Hrs/Wk:2

IoT Lab Experiments:

1. Define and Explain Eclipse IoT Project
2. List and summarize few Eclipse IoT Projects.
3. Sketch the architecture of IoT Toolkit and explain each entity in brief.
4. Demonstrate a smart object API gateway service reference implementation in IoT toolkit.
5. Write and explain working of an HTTP-to-CoAP semantic mapping proxy in IoT toolkit
6. Describe gateway-as-a-service deployment in IoT toolkit.
7. Explain application framework and embedded software agents for IoT toolkit.
8. Explain working of Raspberry Pi.
9. Connect Raspberry Pi with your existing system components.
10. Give overview of Zetta.

BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 6C	Mobile Application Development	Hrs/Wk:4

Course objectives:

1. Interpret the features of Android operating systems
2. Configure Android Environment and Development tools
3. Develop user interfaces by using layouts an controls
4. Develop rich user interface in the given view
5. Understand the security services and able to publish android application

Learning Outcomes:

Upon successful completion of the course, a student will be able to:

CO 1. Identify basic terms ,tools and software related to android systems
CO 2. Describe components of IDE, understand features of android development tools
CO 3. Describe the layouts and controls
CO 4. Explain the significance of displays using the given view
CO 5. Explain the features of services and able to publish android Application
C0 6. Developing interesting Android applications using MIT App Inventor

UNIT-1 **10 Hrs**

1.1 Introduction to Android ,open headset alliance, Android Ecosystem
1.2 Need of Android
1.3 Features of Android
1.4 Tools and software required for developing an Application
1.5 Android architecture

UNIT-2 **12 Hrs**

2.1 operating system, java JDK, Android SDK
2.2 Android development tools
2.3 Android virtual devices
2.4 steps to install and configure Android studio and sdk

UNIT-3 **14 Hrs**

3.1 control flow, directory structure
3.2 components of a screen
3.3 fundamental UI design
3.4 linear layout, absolute layout , table layout, relative layout
3.5 text view
3.6 edit text
3.7 button, image button, radio button, toggle button
3.8 radio group, check box, and progress bar
3.9 list view , grid view, image view , scroll view
3.10 time and date picker

UNIT-4 **12 Hrs**

4.1 android platform services
4.2 Android system Architecture
4.3 Android Security model
4.4 Applications development: creating small application

UNIT-5 **12 Hrs**

5.1 Introduction of MIT App Inventor
5.2 Application Coding
5.3Programming Basics & Dialog
5.4 More Programming Basics
5.5 Alarm Clock Application
5.6 Audio & Video
5.7 Drawing Application
5.8 File
5.9 Game
5.10 Device Location
5.11 Web Browsing

Text Books:

1. Erik Hellman, "Android Programming – Pushing the Limits", 1st Edition, Wiley India Pvt Ltd, 2014.
2. App Inventor : create your own Android apps by Wolber, David (David Wayne)

Reference Books:

1. Dawn Griffiths and David Griffiths, "Head First Android Development", 1st Edition, O'Reilly SPD Publishers, 2015.
2. J F DiMarzio, "Beginning Android Programming with Android Studio", 4th Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126565580
3. Anubhav Pradhan, Anil V Deshpande, " Composing Mobile Apps" using Android, Wiley 2014, ISBN: 978-81-265-4660-2
4. Android Online Developers Guide
5. http://developer.android.com/reference/ Udacity: Developing Android
6. Apps- Fundamentals
7. https://www.udacity.com/course/developing-android-appsfundamentals--ud853-nd
8. http://www.appinventor.mit.edu/

Recommended Co-Curricular Activities:
(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

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4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

Recommended Continuous Assessment Methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports.
5. Observation of practical skills,
6. Efficient delivery using seminar presentations,
7. Viva voce interviews.
8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course: 6C	Mobile Application Development Lab	Hrs/Wk:2

Course objectives:

1. know the components and structure of mobile application development framework for android
2. learn the basic and important design concepts
3. learn the development of mobile application

Outcomes:

1. Understand the android platform
2. Design and implementation of various mobile applications

Experiments:

1. Demonstrate mobile technologies and devices
2. Demonstrate Android platform and applications overview
3. Implement User interface design layouts
4. Working with texts , shapes, buttons and lists
5. Develop a calculator application
6. Implement an application that creates a alarm clock

Note: The list of experiments need not be restricted to the above list. *Detailed list of programming/software tool based exercises can be prepared by the concerned faculty members.*

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BCA	Semester – V (Skill Enhancement Course- Elective)	Credits:4
Course: 7C	Pc Hardware And Networking	Hrs/Wk:4

Course objectives: Upon successful completion of the course, a student will be able to:
Learning Outcomes:

CO 1. Identify the computer peripherals, software and hardware devices.
CO 2. Describe the basics of networks and networking tools
CO 3. Describe the Network Addressing and sub-netting
CO 4. Explains the Networks protocols and management
CO 5. Identifies Basic Network administrator roles

UNIT-1Introduction to computer hardware

1.1Introduction & Definition of Computer
1.1.1 Block Diagram of computer
1.1.2Classification of computer
1.1.3 Characteristics of Computers
1.1.4Types of Languages and language translators.
1.1.5 History and Generation of computers, Memory - Bits, Bytes, KB,MB,GB,TB,PB,EB,ZB,YB,Brontope byte, Geeope Byte. Etc
IEC Units: kibi, mebi,gibi,tebi,pebi,exbi,zebi,yobi
1.1.6Computer Software, Types of Software with Ex. (System/Application/Utility S/W
1.1.7 Computer Hardware- Intro. to Hardware components of computer
1.2. Components and its parts
1.2.1.Identifying the Important Hardware Components of PC.- CPU, Motherboard, RAM, HDD, ODD, SMPS, K/B, Mouse, Monitor (CRT,LCD,LED) etc
1.3. SMPS
1.3.1About SMPS
1.3.2 Types of SMPS
1.3.3 Power stored in UPS
1.3.4 Components and Circuits inside the SMPS Unit
1.4 UPS (Uninterrupted Power Supply)
1.4.1Types of UPS (Offline/Line Interactive & Online)
1.4.2 Working Principle of each type of UPS.
1.4.3 Connecting, Maintenance and Troubleshooting.

UNIT-2 Computer management and servicing

2.1 Assembling and dissembling PCs
2.2 Introduction to BIOS / CMOS Setup, POST (Power On SelfTest)
2.1.1Introduction to BIOS/CMOS Setup, POST (Power On Self-Test
2.1.2 Demonstration of BIOS/CMOS Configuration (Date, Time, Enable/Disable Devices).
2.1.3 Dual BIOS Feature
2.1.4 BIOS/CMOS Setup, Booting Sequence/Boot Order
2.3 Introduction to Operating System
2.3.1Definition and types of Operating Systems - MSDos, Windows 9x/XP/Vista/7/8, Linux, MAC OS, Android etc.
2.3.2 Process of Booting the Operating System.
2.3.3 Win XP/Win 7. Activation and Automatic Updating procedures.

2.4 Computer Management

2.4.1 Computer Management, Disk Management, Defragmentation,
2.4.2 Services and Applications,
2.4.3 local Users and Groups
2.4.4 Advanced System Settings
2.4.5 Device Manager, Task Manager, Windows Registry

2.5 Partitioning

2.5.1 Partitioning of Hard Drive - Primary, Extended, Logical partitions using Partition Tools.

UNIT-3 Overview of Networking

3.1 Overview of Networking
3.2 Classification of Networks–LAN, MAN, WAN
3.3 Hardware and Software Components, Wi-Fi, Bluetooth
3.5 Network Communication Standards.
3.6 NETWORKING MODEL -OSI Reference Model, TCP/IP Reference Model
3.7 LAN Cables, Connectors, wireless network adapter
3.8 Wireless network adapter
3.9 Functions of LAN Tools

3.9.1 Anti-Magnetic mat
3.9.2 Anti-Magnetic Gloves
3.9.3 Crimping Tool
3.9.4 Cable Tester
3.9.5 Cutter
3.9.6 Loop back plug
3.9.7 Toner probe
3.9.8 Punch down tool
3.9.9 Protocol analyzer
3.9.10 Multi meter

3.10 Network Topologies

2.7.1 Bus
2.7.2 Ring
2.7.3 Star
2.7.4 Mesh
2.7.5 Hybrid Topologies

UNIT- 4 Network Addressing and sub-netting

4.1 Network Addressing.
4.2 TCP/IP Addressing Scheme
4.3 Components of IP Address and classes
4.4 Sub-netting
4.5 Internet Protocol Addressings - IPv4 ,IPv6
4.6 Classful addressing and classless addressing

UNIT-5 Networks protocols and management

5.1 protocols in computer networks
5.2. Hyper Text Transfer Protocol(HTTP)
5.2.1 File Transfer Protocol(FTP)
5.2.2 Simple Mail Transfer Protocol(SMTP)
5.2.3address Resolution Protocol(ARP)

5.2.4 Reverse Address Resolution Protocol(RARP)
5.3. Telnet, ICMP
5.4. Simple Network Management Protocol(SNMP)
5.5. DHCP, DNS
5.6 Network Management.
5.7 Network Monitoring and Troubleshooting.
5.8 Remote Monitoring (RMON)

Text Book:

1. "Introduction to Data Communications and Networking", B. Forouzan,TataMcGrawHill
2. "Computer Networks", Tanenbaum, PHI,
3. PC AND CLONES Hardware, Troubleshooting and Maintenance B. Govinda rajalu, Tata Mc-graw-Hill Publication

Reference Books:

1. PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi
2. "Data and Computer Communications", Stallings, PHI,
3. "DataCommunication", William Schewber, McGrawHill,1987
4. IT essential V7 companion guide – Cisco Networking Academy 2020
5. Upgrading and repairing PCs(22nd edition) – Scott Mueller – 2015 Que

B.C.A	Semester – V (Skill Enhancement Course-Elective)	Credits:1
Course:7C	Pc Hardware And Networking Lab	Hrs/Wk:2

Course objectives:

To train the officials to acquire basic knowledge in computer hardware and peripherals for installation, PC assembly, trouble shooting and maintenance including system management and its backup and to undertake disaster prevention, a basic knowledge of TCP/IP networks work group, internet and intranet.

Outcomes:

The student will able to know the Basic of Computer assembling and trouble shooting. This course will provide the brief knowledge of Computer networking and trouble shooting

Experiments:

1. Introduction to PC Hardware and its pheripherals
2. Hardware installation and configuration
3. PC Debugging, troubleshooting andbasic preventive maintenance
4. Assembling and Dissembling of a Computer System
5. Preparation of Boot disk or USB drive (demo)
6. Software installation and Configuration with CD/DVD or USB drive
7. Installation of commonly used software (Office Suites, Virus Scanners & Utilities)
8. Printer Installation & Print Test Page (Demo)
9. Installation of Web cam and tools like zoom/Edx/Microsoft teams (optional) for online class
10. Identifying network componentsand devices (hub, Switch and router)
11. Cables – Coaxial and UTP and it connectors/Jacks and preparation of a patch cord
12. Networking Basic and Configuration
13. Run All Types of Network Troubleshooting Commands
    (ipconfig, ping, traceroute etc)
14. installation and configuring the proxy server for internet access
15. Exercise on Setting of particular IP address (static) to an existing terminal system
16. Exercise on Installation of network operating system
17. Exercise on Configuration of DHCP and DNS.
18. Exercise on File/Folder accessing rights for sharing and printer sharing
19. Exercise on remote desktop
20. Exercise on setting up of VPN on network
21. Design a network with Cisco Packet tracer 8.0 (freely downloadalbe)
    a. Simple network with one server with five desktops (configure static IP addresses)
    b. Adding and removing network cards in a PC or server
    c. Design a Network with one DHCP server with 5 desktops
    (Try exercises 13,16 and 17 using Cisco packet tracer)

Tools required for PC assembling and software installation

1. Multimeter - 1Rs 500/ basic version

or

Digital voltage tester – 1 Rs 150 (taparia)

2. Earth checking plug – 1 Rs 350 (Mx)
3. Mother board diagnosis card -1 Rs 400/-
4. SMPS power supply tester - 1 Rs 400/-
5. Screw driver kit – 4 Nos Rs 40 each
6. External CD/DVD writer – 1 Rs 2000/-
6. Media for operating system (CD/DVD) or USB drive
(Try with trial versions for windows) or Ubuntu desktop(Linux)

Note : Un used old desktops can be used for installation

Tools Required for Network

1. RJ45 crimp tool – 1 Rs 250/- basic model
2. Cable tester - 1 Rs 350/-
3. Rj45 jacks - 100 nos Rs 250(ordinary) - consumables
4. UTP cable - 10 mts for each class Rs 20 per metre - consumables

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