Makhanlal Chaturvedi National University of Journalism and Communication, Bhopal
Department of Computer Science and Applications
Bachelor of Computer Applications [BCA]

NEP-based Full-Time Degree Program- with multi-entry and multi exit options. Certificate on completion of 1 year, Diploma in 2 years, Graduate Degree after 3 years, and after 4th year Honors Graduate Degree with Research.

Duration: 3 +1 years *Seats- 40 to 60 Regular* *Eligibility: 12th (Passed 10+2 exams in any discipline from a recognized board)*

- *1 year Certificate in Computer Operations*
- *2 years Diploma in Computer Programming and Applications*
- *3 years Bachelor of Computer Applications*
- *4 years Bachelor of Computer Applications (Honors or Research)*
- *One year PG Diploma in Network security (Lateral Entry for BCA Candidates)*
- *One year PG Diploma in Date sciences (Lateral Entry for BCA Candidates)*

Bachelor of Computer Application [BCA]

Semester	Discipline Specific Core (DSC)5 Credits	Discipline Specific or Stream Elective (DSEor SE) 5 Credits	Generic Elective (GE) 5 Credits	Ability Enhancement Courses (AEC) 2 Credits	Skill Enhancement Course (SEC) 2 Credits	Projects/ Dissertation 5 or 10 Credits	Total Credits
First	Fundamental of Computers& Information Technology		Under this head in 3rd to 8thsemesters, student has to choose from several subjects offered by different departments. See the subjects in table at the end of this scheme	Social and Emotional Learning	Office Automation Using PC Packages		**18**
				Ethics & Culture			
	Fundamentals of Multimedia			Hindi Bhasha Evam Sahitya			
Second	Web Designing (HTML,CSS, Java Script)			Environmental Science and Sustainable Development	Computer Hardware and Troubleshooting		**18**
				English Language and Literature			
	E-Commerce and Cyber Security			Co-curricular I (Choose one from following) A. Parliament: Practice and ProceduresI B. Bharatiya Sangeet I C. Lalit Kala I			
Award of Certificate in Computer Operations (If exiting After 1 Year)							**36**

Third	Database Management		Choose GE1	Innovation and Entrepreneurship			**22**

	System Computer Networks Programming with C and C++		Course From list				
Fourth	Web Development with PHP Linux & Shell Programming Dot Net Programming withVB.Net & ASP.Net		Choose GE2 Course From list	Co-curricular II (Choose one from following for Examination, though you may attend all of them) A. Parliament: Practice and ProceduresII B. Bharatiya Sangeet II C. Lalit Kala II			**22**
Award of Diploma in Computer Programming and Applications (If exiting After 2 Years)							**80**
Fifth	Mathematics Programming with Java	Cloud Computing OR Linux & Shell Programming	Choose GE3 Course From list				**20**
Sixth	Software Engineering Thesis/ Internship/Project	Programming with Python OR Mobile Application Development	Choose GE4 Course From list				**20**
Award of Bachelor of Computer Applications (3 Years Degree) (If exiting After 3 Year)							**120**

<table>
<tr><td>Forth year</td><td colspan="6">For proceeding to fourth year Course there are two options. The first one is ‘4 Years BCA Honors’ only those candidates who have secured more than 60% in the 10+2 qualifying examination at the time of admission shall be eligible.
For the second option ‘4 Years BCA Research’ only those candidate who have secured minimum CGPA 7.5 in the three years of BCA shall be eligible to continue</td><td></td></tr>
<tr><td rowspan="2">Option I</td><td colspan="6">Fourth year of BCA Option I is called ‘4 Years BCA Honors’: only those candidate who have secured minimum 60% in the 10+2 in qualifying examination (with allowed 5% relaxation to candidates from SC, ST, PH as per State Gov rules) at the time of admission shall be eligible. In this option the students have to choose his stream from the two streams offered :Network Security stream or Data Sciences stream. They shall be offered four discipline specific electives and two projects in the same stream for the complete year.
The fourth year course is also available for BCA graduates for lateral entry in two Post Graduate Diploma programs of two semesters each. All BCA passed students shall be eligible for the same on admission merit criteria. The two courses areOne year PG Diploma in Network security (Lateral Entry for BCA Candidates) or One year PG Diploma in Data sciences (Lateral Entry for BCA Candidates).</td><td></td></tr>
<tr><td>Stream I - Network Security:
Stream Electives
(5 credits)</td><td></td><td>Stream II -Data Sciences:
Stream Electives (5 credits)</td><td>Ability Enhancement Compulsory Courses (AECC)
2 Credits</td><td>Skill Enhancement Course (SEC)
2 Credits</td><td>Projects/
Dissertation
5 or 10 Credits</td><td>Total Credits</td></tr>
<tr><td rowspan="2">Seventh
(Option I)</td><td>Foundation of Cyber Security</td><td rowspan="4">OR</td><td>Principles of Data Science</td><td rowspan="2">Choose GE5 Course From list</td><td rowspan="2"></td><td rowspan="2">Projects/
Dissertation (5)</td><td rowspan="2">20</td></tr>
<tr><td>Information and Network Security</td><td>Python for Data science</td></tr>
<tr><td rowspan="2">Eighth
(Option I)</td><td>Ethical Hacking</td><td>Machine Learning</td><td rowspan="2">Choose GE6 Course From list</td><td rowspan="2"></td><td rowspan="2">Projects/
Dissertation (5)</td><td rowspan="2">20</td></tr>
<tr><td>Server Administration and Security</td><td>Data Analytics and Visualizations</td></tr>
<tr><td colspan="7">Award of Bachelor of Computer Application (4 Years BCA Honors)</td><td>160</td></tr>
</table>

Option II	Fourth year of BCA Option II is called '4 Years BCA Research': only those candidates who have secured minimum CGPA 7.5 in the three years of BCA shall be eligible. Only those students who wish to pursue for PhD Research degree may continue this option II for 4th year. Other for Professions or PG Degree may Exit after Third year or go to option I.						
Semester	**Discipline Specific Core (DSC)5 Credits**	**Discipline Specific Elective (DSE) or Stream Elective (SE) 5 Credits**	**Generic Elective (GE) 5 Credits**	**Ability Enhancement Courses (AEC) 2 Credits**	**Skill Enhancement Course (SEC) 2 Credits**	**Projects/ Dissertation 5 or 10 Credits**	**Total Credits**
Seventh (Option II)	Research Methodology	Information & Network Security OR Data Mining and Business Intelligence	Choose GE5 Course From list			Projects/ Dissertation (5)	**20**
Eighth (Option II)		Ethical Hacking OR Artificial Intelligence and Machine Learning	Choose GE6 Course From list			Projects/ Dissertation (10)	**20**
	Award of Bachelor of Computer Application (4 Years BCA Research)						**160**

Abbreviations List

Abbreviation	Full Name
L	Lecture
T	Tutorial
P	Practical
C	Discipline Specific Core (DSC)
E	Discipline Specific Elective(DSE)
R	Stream Elective(SE)
G	Generic Elective (GE)
S	Skill Enhancement Courses (SEC)
A	Ability Enhancement Courses (AEC)
AD	All Departments Common Courses
Codes for Department offering the course	
ADA	All Departments
CS	Department of Commuter science and applications (CS)
NM	Department of New Media Technology (NM)
EM	Department of Electronic Media (EM)
PR	Department of Advertising & Public Relation (PR)
MC	Department of Mass Communication (MC)
JR	Department of Journalism (JR)
BM	Department of Media Business Management (BM)
NC	National Cadet Corps (NCC)
NS	National Service Scheme (NSS)

Note:

(1) During the first and second semesters NCC & NSS are conducted and also examined but their evaluation is included from third semester onwards as Generic Electives.Please note that NCC and NSS chosen in first semester shall remain same during full course.

(2) As per the national education policy the generic elective courses are offered from 3rd semester onwards, with wider choice of subjects indicated in each semester tables. In addition to these courses the university shall indicate permitted online courses like SWAYAM or MOOC as additional options for inclusion of credit in the respective semester. Some of them may need with additional fee like examination fee that would have to be borne by the concerned students.

(3) The present course is based on NEP guidelines from UGC which is still in the process of upgradation as it is being done for the first time. The proposed syllabus and course structure may undergo major changes and the University shall be fully authorized for the same.As on date the university is not registered in the UGC portal for academic bank off credits hence the results shall be declared on the university website only

Semester –I

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC01	Fundamental of Computers& Information Technology	4/4	1	0	5/5	80	20	0	100
CSC02	Fundamentals of Multimedia	5/5	0	0	5/5	80	20	0	100
ADA01	Hindi Bhasha Evam Sahitya	2/2	0	0	2/2	30	10	0	40
CSS01	Office Automation Using PC Packages	0	1/1	1/2	2/3	0	10	30	40
ADA02	Social and Emotional Learning	0	2/2	0	2/2	30	10	0	40
ADA03	Ethics & Culture	0	2/2	0	2/2	30	10	0	40
	Semester Totals	12/12	5/5	1/2	18/19	**250**	**90**	**20**	**360**

Semester –II

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC03	Web Designing (HTML,CSS, Java Script)	3/3	0	2/4	5/7	60	20	20	100
CSC04	E-Commerce and Cyber Security	5/5	0	0	5/5	80	20	0	100
ADA04	Environmental Science and Sustainable Development	2/2	0	0	2/2	30	10	0	40
CSS02	Computer Hardware and Troubleshooting	0	1/1	1/2	2/3	00	10	30	40
ADA05	English Language and Literature	2/2	0	0	2/2	30	10	0	40
ADA06(A) OR ADA06(B) OR ADA06(C)	***Co-curricular I*** Parliament: Practice and Procedures-I OR Bharatiya Sangeet-I OR Lalit Kala-I	0	1/1	1/2	2/3	0	10	30	40
	Semester Totals	12/12	3/3	3/6	18/21	**230**	**90**	**40**	**360**

Semester –III

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC05	Database Management System	3/3	0	2/4	5/7	60	20	20	100
CSC06	Computer Networks	5/5	0	0	5/5	80	20	0	100
CSC07	Programming with C and C++	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
ADA07	Innovation and Entrepreneurship	0	2/2	0	2/2	30	10	0	40
	Semester Totals	14/14	2/2	6/12	22/28	**290**	**90**	**60**	**440**

GE - 1

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG01	DTP with PageMaker & Photoshop	3/3	0	2/4	5/7	60	20	20	100
NMG01	Script Writing &Storyboarding	3/3	0	2/4	5/7	80	20	0	100
EMG01	Media Organizations	3	1	1	5	60	20	20	100
PRG01	Social Media Marketing	2	1	2	5	50	20	30	100
MCG01	Photo Journalism	4/4	0	1/2	5/6	60	20	20	100
JRG01	Entertainment Art & Cultural Journalism	3/3	1/1	1/2	5/6	60	20	20	100
NCG01	NCC-3								100
NSG01	NSS-3								100

Semester –IV

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC08	Web Development with PHP	3/3	0	2/4	5/7	60	20	20	100
CSC09	Operating System	5/5	0	0	5/5	80	20	0	100
CSC10	Dot Net Programming withVB.Net & ASP.Net	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
ADA08(A) OR ADA08(B) OR ADA08(C)	Co-curricular II Parliament: Practice and Procedures-II OR Bharatiya Sangeet-II OR Lalit Kala-II	0	1/1	1/2	2/3	0	10	30	40
	Semester Totals	14/14	2/2	6/12	22/28	**290**	**90**	**60**	**440**

GE - 2

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG02	Multimedia With Corel Draw, Premier & Sound Forge/ Audacity	3/3	0	2/4	5/7	60	20	20	100
NMG02	Animation for Gaming using Blender	3/3	0	2/4	5/7	60	20	20	100
EMG02	Media Language & content	2	1	2	5	50	30	20	100
PRG02	Search Engine Optimization & Search Engine Marketing	1	1	3	5	50	20	30	100
MCG02	Communication skills	4/4	0	1/2	5/6	60	20	20	100
JRG02	Writing for Sports	3/3	1/1	1/2	5/6	60	20	20	100
NCG02	NCC-4								100
NSG02	NSS-4								100

Semester –V

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC11	Mathematics	4/4	1/1	0	5/5	80	20	0	100
CSC12	Programming with Java	3/3	0	2/4	5/7	60	20	20	100
CSE1(A)	Cloud Computing OR	4/4	1/1	0	5/5	80	20	0	100
CSE1(B)	Linux & Shell Programming	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
Semester Totals		14/14	0	6/12	20/26	**260**	**80**	**60**	**400**

GE – 3

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG03	Accounting with Tally	3/3	0	2/4	5/7	60	20	20	100
NMG03	AI and Robotics	5/5	0	0	5/5	80	20	0	100
EMG03	Development Communication	2	1	2	5	50	30	20	100
PRG03	Creative Communication	2	1	2	5	50	20	30	100
MCG03	Creative Writing	4/4	0	1/2	5/6	60	20	20	100
JRG03	Writing on Social Issues	3/3	1/1	1/2	5/6	60	20	20	100
NCG03	NCC-5								100
NSG03	NSS-5								100

Semester –VI

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC13	Software Engineering	5/5	0	0	5/5	80	20	0	100
CSC14	Thesis/ Internship/Project	0	1/1	4/8	5/9	0	20	80	100
CSE2(A) CSE2(B)	Programming with Python OR Mobile Application Development	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
	Semester Totals	11/11	5/5	9/18	22/31	**230**	**90**	**120**	**400**

GE - 4

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG04	Social Media Marketing	3/3	0	2/4	5/7	60	20	20	100
NMG04	Augmented and Virtual Reality (AR/VR)	3/3	0	2/4	5/7	60	20	20	100
EMG04	Community Radio	2	1	2	5	50	30	20	100
PRG04	Event& Experiential Marketing	2	2	1	5	50	20	30	100
MCG04	Art of Anchoring	4/4	0	1/2	5	60	20	20	100
JRG04	Feature Writing	3/3	1/1	1/2	5/6	60	20	20	100
NCG04	NCC-6								100
NSG04	NSS-6								100

Option I :Fourth year of BCA Option I is called '4 Years BCA with Honors': only those candidate who have secured minimum 60% in the 10+2 in qualifying examination (with allowed 5% relaxation to candidates from SC, ST, PH as per State Gov rules) at the time of admission shall be eligible. In this option the students have to choose his stream from the two streams offered :Network Security stream or Data Sciences stream. They shall be offered four discipline specific electives and two projects in the same stream for the complete year.

Semester –VII for 4 Years BCA with Honours

Stream I: Network Security			**Stream II: Data science**									
Subject Code	**Subject Name**		**Subject Code**	**Subject Name**	**L**	**T**	**P**	**Load**	**Theory Marks**	**Internal Marks**	**Practical Marks**	**Total Marks**
					Credits/Hours							
CSR01(A)	Foundation of Cyber Security	**OR**	CSR01(B)	Principles of Data Science	3/3	0	2/4	5/7	60	20	20	100
CSR02(A)	Information and Network Security		CSR02(B)	Python for Data science	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)											100
CSC18	Thesis/ Internship/Project				0	0	5/10	5/10	0	20	80	100
	Semester Totals							20 Credit				**400**

GE – 5

Subject Code	**Subject Name**	**L**	**T**	**P**	**Load**	**Theory Marks**	**Internal Marks**	**Practical Marks**	**Total Marks**
		Credits/Hours							
CSG07	Big Data	4/4	0	1/2	5/6	60	20	20	100
NMG07	Social Media Data Analytics	3/3	0	2/4	5/7	60	20	20	100
EMG07	Formative Research	2	1	2	5	50	30	20	100
PRG07	Digital PR	1	2	2	4	50	20	30	100
MCG07	Media and Gender Studies	4/4	0	1/2	5	60	20	20	100
JRG07	Crime and Court Reporting	3/3	1/1	1/2	5/6	60	20	20	100

Option I : Semester –VIII for4 Years BCA with Honours

Stream I: Network Security			Stream II: Data science									
Subject Code	**Subject Name**	**OR**	**Subject Code**	**Subject Name**	**L**	**T**	**P**	**Load**	**Theory Marks**	**Internal Marks**	**Practical Marks**	**Total Marks**
CSR03(A)	Ethical Hacking		CSR03(B)	Machine Learning	3/3	0	2/4	5/7	60	20	20	100
CSR04(A)	Server Administration and Security		CSR04(B)	Data Analytics and Visualizations	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)											100
CSC19	Thesis/ Internship/ Project				0	0	5/10	5/10	0	20	80	100
		Semester Totals						20 Credit				**400**

GE - 6

Subject Code	**Subject Name**	**L**	**T**	**P**	**Load**	**Theory Marks**	**Internal Marks**	**Practical Marks**	**Total Marks**
		Credits/Hours							
CSG08	Analysis of Algorithm	4/4	0	1/2	5/6	60	20	20	100
NMG08	Mobile Journalism	3/3	0	2/4	5/7	60	20	20	100
EMG08	Academic Writing	2	1	2	5	50	30	20	100
PRG08	Web Advertising	1	2	2	5	50	20	30	100
MCG08	Media Business Management	4/4	1/1	0	5	80	20	0	100
JRG08	Parliamentary Reporting	3/3	1/1	1/2	5/6	60	20	20	100

Option II : Fourth year of BCA Option II is called '4 Years BCA with Research': only those candidate who have secured minimum CGPA 7.5 in the three years of BCA shall be eligible.

Semester –VII for'4 Years BCA with Research'

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSC15	Research Methodology	5/5	0	0	5/5	80	20	0	100
CSE03(A) or CSE03(B)	Information & Network Security OR Data Mining and Business Intelligence	5/5	0	0	5/5	80	20	0	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
CSC16	Thesis/ Internship/Project	0	0	5/10	5/10	0	20	80	100
Semester Totals					20 Credit				**400**

GE - 5

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG05	Big Data	4/4	0	1/2	5/6	60	20	20	100
NMG05	Social Media Data Analytics	3/3	0	2/4	5/7	60	20	20	100
EMG05	Formative Research	2	1	2	5	50	30	20	100
PRG05	Digital PR	1	2	2	4	50	20	30	100
MCG05	Media and Gender Studies	4/4	0	1/2	5	60	20	20	100
JRG05	Crime and Court Reporting	3/3	1/1	1/2	5/6	60	20	20	100

Option II :Semester –VIII for 4 Years BCA with Research

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSE04(A) OR CSE04(B)	Ethical Hacking OR Artificial Intelligence and Machine Learning	3/3	0	2/4	5/7	60	20	20	100
	Generic Elective: Refer Table Below and Choose any One Subject (5 Credits)								100
CSC17	Thesis/ Internship/Project	0	0	10/20	10/20	0	40	160	200
Semester Totals					20 Credit				**400**

GE - 6

Subject Code	Subject Name	L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
		Credits/Hours							
CSG06	Analysis of Algorithm	4/4	0	1/2	5/6	60	20	20	100
NMG06	Mobile Journalism	3/3	0	2/4	5/7	60	20	20	100
EMG06	Academic Writing	2	1	2	5	50	30	20	100
PRG06	Web Advertising	1	2	2	5	50	20	30	100
MCG06	Media Business Management	4/4	1/1	0	5	80	20	0	100
JRG06	Parliamentary Reporting	3/3	1/1	1/2	5/6	60	20	20	100

Semester –I

1BCA-CSC01-Fundamentals of Computer & Information Technology

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
4/4	1	0	5/5	80	20	0	100

Course Objectives:

- To know computer evolution with features of each generation.
- Identify various devices used in Computer system with specific use of each.
- To know the place of computer in our day to day life, its characteristics, its usage, Limitations and benefits etc.
- To know types of software and languages with specific use of each.
- To understand Computer Network and Management Information System basics.

Course Outcomes:

- Describe Computer System evolution, Characteristics and Types.
- Select Need base System Hardware and Software .
- Classify Languages used in Computer System.
- Describe the Use, Process, Types and Topologies of Computer Communication.
- Understand the increasing role of management information system in managerial decision making with the help of computers and how information is processed, stored and utilized with example system.

Unit-wise Syllabus

UNIT – I

Brief history of development of computers, Computer system concepts, Computer system characteristics, Capabilities and limitations, Types of computers Generations of computers, Personal Computer (PCs) – evolution of PCs, configurations of PCs- Pentium and Newer, PCs specifications and main characteristics. Basic components of a computer system - Control unit, ALU, Input/Output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory.

UNIT – II

Input/Output& Storage Units-:Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers& types - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers, Storage fundamentals - Primary Vs Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, SIMM, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk, Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW.

UNIT – III

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Programming languages, Assemblers, Compilers and Interpreter, Introduction to operating system for PCs-DOS Windows, Linux.

Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits, Application Software and its types - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software, characteristics, Uses and examples and area of applications of each of them, Virus working principles, Types of viruses, virus detection and prevention.

UNIT – IV

Use of communication and IT, Communication Process, Communication types- Simplex, Half Duplex, Full Duplex, Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band, Types of Network - LAN, WAN, MAN, Internet, VPN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways.

UNIT-V

Introduction to MS-DOS – Booting, Components of MS-DOS, MS-DOS General, Command, Internal(CLS, PROMPT, DIR, VER, VOL, DATE, TIME, COPY CON, TYPE, COPY, REN, DEL, MD, CD, RD) & External Commands(EDIT, XCOPY, LABEL,DISKCOPY, CHKDSK, TREE, DELTREE, DOSKEY, FORMAT, BACKUP,RESTORE), Directory Commands, File Management in DOS & Commands, Disk Management Commands Utility Commands, Batch Files & Configuring DOS , Use of wild card character.

References:

- Pradeep K Sinha, Priti Sinha, Computer Fundmentals, Sixth Edn. BPB Publications
- S.K.Basandra, "Computers Today ", Galgotia Publications.
- Alexis Leon & Mathews Leon, " Fundamentals of Information technology ", Vikas Publishing House, New Delhi.
- V.Rajaraman, NeeharikaAdabala, Computer Fundamentals, PHI

Semester – I

1BCA-CSC02-- Fundamentals of Multimedia

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives:

- To provide students with a basic understanding of multimedia systems and its components.
- This course focuses on topics in multimedia information representation and multimedia standards in the components of multimedia – text, audio, image, video and animation.
- To provide information about the standards tools and techniques used in development of multimedia components for productions
- To create simple multimedia applications and products for using standalone, networked or web based computers.

Course Outcomes:

- Develop understanding of technical aspect of multimedia systems.
- Understand and explain the storage mechanism and applicability of various file formats for audio, video and text media.
- Develop various multimedia systems applicable in real time.
- Create a multimedia component using various tools and techniques.
- Apply the guidelines and standards of multimedia systems and to analyze the performance of multimedia system.

Unit-wise Syllabus

UNIT-I

Introduction to multimedia, needs and areas of use, development platforms for multimedia identifying multimedia elements text, images, sound, animation and video, making simple multimedia with PowerPoint.

Concepts of plain & formatted text, RTF& HTML texts, using common text preparation tools, conversion to and from of various text formats, using standard software, object linking and embedding concept.

UNIT-II

Sound - sound and its attributes, sound and its effects in multimedia, frequency, sound depth, channels and its effects on quality and storage, size estimation of space of a sound file, sound card standard – FM synthesis cards, waves table cards, MIDI and MP3 Files and Devices, 3D Sounds, recording and editing sound using sound editors like audacity, sound forge etc.

Importance of images graphics in multimedia, vector and raster graphics, regular graphics vs. Interlaced graphics, image capturing methods - scanner, digital camera etc. Color models-RGB, CYMK, HUE, Saturation, and Brightness, Various Attributes of Images Size, Color, Depth etc, Various Image File Format BMP, DIB, CIF, PIC, and TIF format their features and limitations, image format conversion, various effects on images. create images using Photoshop, CorelDraw and apply various effects, using layers, channels and masks in images.

UNIT-III

Video- Basic of Video, Analog and Digital Video Type of Video, Digitization of Analog Video, Video Standard – NTSC, PAL, HDTV, Video Capturing Media /Instruments Videodisk Camcorder

Compression Techniques, File Formats AVI, JPG, MPEG, Video Editing and Movie Making Tools, Converting Formats of Videos, Recording and Editing Videos Using Video Editing Software Like Adobe Premiere or Sony Vegas.

UNIT-IV

Animation and its basic – principals of animation and its use in multimedia, computer system configuration and peripherals requirements, software for animation, effects of resolution, pixel depth, image size, on quality and storage, types of animation and applications.

Authoring tools for multimedia – introduction to various types of multimedia authoring tools, CD/DVD based and web based tools, features and limitations, creating multimedia package using all components.

UNIT-V

Introduction to virtual reality and its applications, virtual reality terminology head mounts display (HMD), boom, cave, input devices and sensual technology, characteristic immersive vs. shared, augmented and mixed reality.

References:

- Ramesh Bangia-Introduction to Multimedia- Laxmi Publications Pvt. Ltd.
- Tay Vaughan-Multimedia: Making It Work,TataMc-Graw Hill.
- Bhatnager G. Elsevie-,Introduction to Multimedia Systems,
- Satish Jain O Level Introduction to Multimedia (M4.2-R4), BPB Publications.

Semester – I

1BCA-CSS01- Office Automation Using PC Packages

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	0	10	30	40

Course Objectives:

- To familiarize student with Office Automation and Component of Office Automation.
- To make them comfortable to evaluate, select and use Office Software appropriate to specific task.
- To make them work on Open Software for Office Automation.
- To develop expertise in Word Processing, Spreadsheet, and Presentation Skills.

Course Outcomes:

- Outline Office Suit components with specific application.
- List Open Office Software.
- Apply Word Processing Tools including Document Formatting, Using Graphics, Working with Macro and Mail Merge.
- Apply Spread Sheet Tools including Worksheet formatting, Using Functions, Graphics and Charts.
- Create effective Presentation Using Animation and Transition.

Unit-wise Syllabus

UNIT – I

Introduction to Office Automation Suit, Elements of Office Suit & Area of Use. Word-Processing, Spreadsheet, Presentation Graphics, Database. Introduction of various Office Suites Open Office, Libre Office, WPS Office, Microsoft Office. Word Basics Using Libre Office (open source) : Starting Word Processor, The parts of a Word Processor Window, Menus & Commands, Toolbars & Buttons, Shortcut Menus, Creating a New Document, Different Page Views and Layouts, Applying various Text Enhancements, Formatting Text and Documents: Auto Format, Text Attributes, Paragraph and Page Formatting, Line Spacing, Margins, Borders and Shading, Tabs and Indents, Text Editing using various features, Bullets, Numbering, Working with Styles, Printing & various print options, Spell Check ,Working with Headers and Footers, Tables: Creating a Simple Table, Creating a Table using the Table Menu, Entering and Editing Text in a Table, Selecting in Table, Adding Rows, Changing Row Heights, Deleting Rows, Inserting Columns, Deleting Columns, Changing Column Width.

UNIT – II

Graphics: Clipart, Insert Picture, Using Drawing Features, Drawing Objects, Text in Drawing. Templates: Template Types, Using Templates, Exploring Templates, Modifying Templates. Macros: Macro, Recording Macros, Editing Macros, Running a Macro. Mail Merge: Mail Merge Concept, Main Document, Data Sources, Merging Data Source and Main Document.

UNIT – III

Spreadsheet Basics: Overview of Spreadsheet, Features, Creating a New Worksheet, Selecting Cells, Entering and Editing Text, Entering and Editing Numbers, Entering and Editing Formulas, Referencing Cells, Moving Cells, Copying Cells, Sorting Cell Data, Inserting Rows, Columns, Inserting Cells, Deleting Parts of a Worksheet, Clearing Parts of a Worksheet. Formatting: Page Setup, Changing Column Widths and Row Heights, Auto Format, Changing Font Sizes and Attributes, Using Border Buttons and Commands, Changing Colors and Shading, Hiding Rows and Columns.

UNIT – IV

Function in Spreadsheet, Functions by category: Date and Time functions, Engineering functions, Math and Trigonometry functions, Statistical functions, Text functions. Spreadsheet Charts: Chart parts and

Terminology, Instant Charts with the Chart Wizard, Creation of different types of Charts, Printing Charts, Deleting Charts, L:inking in Spreadsheet. Spreadsheet Graphics: Creating and Placing Graphic Objects, Resizing Graphics, Drawing Lines and Shapes.

UNIT – V

Creating Presentations: Using Blank Presentation Option, Using Design Template , Adding Slides, Deleting a Slide, Importing Images from Outside, Transition and Build Effects, Deleting a Slide, Numbering a Slide, Saving Presentation, Closing Presentation, Printing Presentation .

References:

1- Microsoft Office Ste by Step Beth Melton,Mark Dodge , Published with the authorization of Microsoft Corporation by:
O'Reilly Media.
2- Office 2013 Bible: The Comprehensive Tutorial Resource Paperback – by Lisa A. Bucki (Author), John Walkenbach (Author), Michael Alexander.
3- Learning Microsoft Office 2013 by Ramesh Bangia, Khanna Publishers
4- www.openoffice.org/documentation/manuals/.../0100GS3-GettingStartedOOo3.pdf
5- Open Office for Dummies (https://whc.es/OpenOffice%20org%20For%20Dummies.pdf)
6- https://www.libreoffice.org/get-help/documentation/
7- Libre Office 5.1 Writer, Calc, Math Formula Book- Vol 1 by Lalit mali

Semester – I

1BCA-ADA01-SOCIAL AND EMOTIONAL LEARNING

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	2/2	0	2/2	30	10	0	40

Course Objectives

- To understand the concept of emotional and social intelligence and learn ways of developing them.
- To understand and establish the role of emotional learning in life and existence of self and its dependency with Nature.
- To introducethe basic concepts of the learning such as self and social awareness
- To inculcate the skills among the students to learn from emotions and practice self-management
- To inculcate the relationship skills among students for taking responsive decisions.
- To aware about unsupervised learning, misinformation and social learning.
- To develop the socio-emotional approach of learning among students.

Learning Outcome:

- Contemplate and apply the knowledge and skills for social emotional development.
- Create and practice the supportive environments.
- Demonstrate, establish and evolve the social-emotional harmony in their personal and professional life and growth.
- Explore and exploit different routes, channel of learning.
- To develop the abilities in students to understand their emotions and its interrelationship with the Socio –Economic contexts

UNIT-I:	**LEARNING CONCEPTS**	**L**	**T**	**P**
1.1	Meaning, Definition and Basic concepts of Learning, Significance, Importance and Relevance of Learning in present scenario, Learning by Digital platforms.	**2**	**-**	**-**
1.2	Learning in Indian context: Indian views on learning, Teachings of Epics (*Ramayna*, *Bhagvatgita etc.)*	**1**	**-**	**-**
1.3	Philosophers (*Aurobindo*, J. *Krishnamurthy*, *Mahirshi Raman* and *NisargdattaMaharaj*)	**2**	**1**	
UNIT II:	**EMOTIONAL AND SOCIAL AWARENESS**	**L**	**T**	**P**
2.1	Importance and Models of Emotional Intelligence;	**1**	**-**	**-**
2.2	EQ competencies: self-awareness, Levels of emotional awareness;Recognizing Emotions in oneself; self-regulation,	**2**	**-**	**-**
2.3	Perceiving emotions accurately in others, Social awareness and empathy, and interpersonal skills	**2**	**-**	**-**
2.4	strategies to develop emotional and social awareness, Social Co-Regulation.	**1**	**-**	**-**
UNIT III:	**MANAGING EMOTIONS**	**L**	**T**	**P**

3.1	Harmony of the Self with Society, Understanding Myself as Co-existence of the Self and the Society, Understanding Needs of the Self and the Needs of the Society	**2**	**1**	**-**
3.2	Cultural Considerations in SEL, The relationship between emotions, thought and behavior;	**2**	**-**	**-**
3.3	Techniques to manage emotions and social conflict	**1**	**-**	**-**
UNIT IV:	**RELATIONSHIP MANAGEMENT**	**L**	**T**	**P**
4.1	Define social skills and explore its various competencies.	**1**	**-**	**-**
4.2	Implement strategies to help build relationships and connections at work, recognize the difference between facts from emotions.	**2**	**1**	**-**
4.3	Apply listening strategies to become a better listener and ultimately a better communicator.	**1**	**1**	**-**
UNIT V:	**SOCIAL IMOTIONAL LEARNING AND Its APPLICATIONS**	**L**	**T**	**P**
5.1	Emotional Intelligence in Indian Context. Applications in the context of Mass Media /Mass Communication.	**2**	**-**	**-**
5.2	Social Intelligence in Indian Context. Applications in the context of Mass Media/Mass Communication.	**2**	**-**	**-**
5.3	Cultural Consideration in Social Emotional Learning	**1**	**-**	**-**
5.4	Responsible Decision Making and Team Work.	**1**	**-**	**-**

Suggestive Readings:

- A.N.Tripaty (2003). Human Values, New Age International Publishers.
- Adams, S. R., & Richie, C. (2017). Social emotional learning and English language learning: A review of the literature.
- Bar-On, R., & Parker, J.D.A.(Eds.) (2000). The handbook of emotional intelligence. San Francisco, California: Jossey Bros.
- Goleman, D. (1995). Emotional Intelligence. New York: Bantam Book.
- Goleman, D. (1998). Working with Emotional Intelligence. New York: Bantam Books.
- Singh, D. (2003). Emotional intelligence at work (2nd ed.) New Delhi: Response Books.
- Bajpai.B.L. (2004). Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted.
- Baron and Byrne. Social Psychology.
- Bertrand Russell. Human Society in Ethics and Politics
- C.T. Morgan, R.A. King, J. R. Weisz, JSchopler (2011). Introduction to Psychology.
- Corliss Lamont: Philosophy of Humanism.
- *Daniel Goleman (1995). Emotional Intelligence. Bantam Books.*
- *Daniel Goleman (2017). Emotional Intelligence and Social Intelligence: The New Science of Human Relationships.*
- Plutchik, R. (2001). The nature of Emotions.
- VanAusdal, K. (2019). Collaborative classrooms support social-emotional learning.

Assignments:

1. Prepare chart / poster on human learning.
2. Make a poster presentation on different social and emotional experiences.

3. Self-critical awareness about ones abilities and assets in different contexts of life and limitations in terms of knowledge, attitudes, skills and values which may be revised or developed.
4. Activities that develop cognitive skills-independent thinking to promote critical thinking and creative thinking; decision making and problem solving with all their components.
5. Visits to the slums and natural calamities and stories of different children to tap empathy which is inherent.
6. Group discussion on the current issues to develop psycho-social skills like interpersonal relationship skills and effective communication skills.
7. Introducing yoga exercises to be done with ease and meditation which starts with self-knowledge with let come and let go spirit to experience spells of silence for healthy body and mind and to awaken the hidden faculties.
8. Exercises to have inner observation for self-knowing while in stress or in emotions and to develop skills of self-management.
9. Use of brain storming, value clarification and group discussion techniques to arrive at the realities free of habitual modes of thoughts, attitudes and action tendencies.

8- Encouraging Nature observation, inner observation, nature walks, and reading biographies of great people who contributed their might out of self-abnegation but not with self-centeredness and sharing personal experiences.

Semester – I

1BCA-ADA02-ETHICS & CULTURE

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	2/2	0	2/2	30	10	0	40

Course Objectives

1. To introduce students to basic Human Ethics.
2. To highlight the role of Ethics in Life.
3. To improve emotional and Spiritual Quotient of students.
4. To make students aware of Culture.
5. To improve Cultural Quotient of students.

Learning Outcome:

1. Students will able to contemplate and apply Morality in their life.
2. They will get thorough understanding of Values and Ethics.
3. Students will have ethical knowledge about personal and professional growth.
4. They will understand different forms of Culture.
5. Understand the triangulation of Society, Media and Culture.

UNIT-I	Harmony in the Human Being	L	T	P
1.1	Human being: Concept and Meaning	1	-	-
1.2	Human Being is more than just the Body	1	-	-
1.3	Harmony of the Self (i) with the Body	1	1	-
1.4	Understanding Myself as Co-existence of the Self and the Body	1	-	-
1.5	Understanding Needs of the Self and the Needs of the Body	1	-	-
UNIT-II	**Social Ethics**	**L**	**T**	**P**
2.1	The Basics for Ethical Human conduct	1	-	-
2.2	Defects in Ethical Human Conduct	1	-	-
2.3	Holistic Alternative and Universal order	1	-	-
2.4	Universal Human Order and Ethical Conduct	1	1	-
2.5	Social Ethics: A way to success	1	-	-
UNIT-III	**Professional Ethics**	**L**	**T**	**P**
3.1	Value Based Life and Profession	1	-	-
3.2	Professional Ethics and Right Understanding	1	-	-
3.3	Technology and Ethics	1	-	-
3.4	The nexus of Environment and Ethics	1	-	-
3.5	Issues in Professional Ethics – The Current scenario	1	-	-
UNIT-IV	**Study of Culture**	**L**	**T**	**P**
4.1	The Idea of Culture, Perspectives of Indian Culture and Value System:	2	-	-

	Dharma, Karma, VasudhaivKutumbkam, Sarvebhavantusukhinh, Shashwat dharma			
4.2	Indic philosophy in values and culture, *Deh; mann; buddhi; atman,* Happiness and Success	1	-	-
4.3	Hindu-Buddhist ethics, Integral Humanism (*Pt. DeenDayalUpadhyay*), *Hind Swaraj*,	2	-	-
4.4	Culture and Civilization: Differences and Differences, Meaning and form of Culture and Civilization	1	-	-
4.5	Similarities and differences between Indic and Western culture, Culture and Society in Contemporary India	2	-	-
UNIT-V	**Culture and Media**	**L**	**T**	**P**
5.1	Indian culture from the lens of Newspapers and Magazines	1	-	-
5.2	Radio, Television, Advertising and Cinema as representatives of Indic culture	1	-	-
5.3	Social Media and Cultural implications	1	-	-
5.4	Digital Media in present scenario, Theory of Culture	1	-	-
5.5	Globalization in context of Indian Culture	1	-	-

ASSIGNMENTS:

- Make a poster presentation on different Indian cultural anecdotes.
- Prepare case study on Mahabharata and contemporary relevance,Bhopal Gas tragedy, Chernobyl tragedy, Satyam Case, Celebrities and drug abuse etc.
- Conduct small practical to assess morality, ethics, Indic values among masses.
- Prepare project on Indology, *Ramayana* and ethical relevance, Mahabharata and socio-cultural relevance.
- Prepare a street play on human socio-professional ethics or Indian culture.

SUGGESTIVE READINGS:

- A.N.Tripaty, Human Values, New Age International Publishers, 2003
- Bajpai. B.L., Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted, 2004
- Berger, A. (2012). Media and Society: A Critical Perspective.
- Bertrand Russell, Human Society in Ethics and Politics
- Corliss Lamont, Philosophy of Humanism
- Gerber S. Scherer and H.Hefner D. (2016).Social Capital in Media Socities.: The Impact of Media use and media structure capital. International Communication Gazette, Vol. 78 (6), pp 493-513
- Ramanujan, A.K. (1999) Folk Tales of India, edited by BrendaBeck and Peter J. Klaus, Chicago: Univ. of Chicago Press.
- Schiffman, Harold. (1996) Linguistic Culture and LanguagePolicy, London and New York: Routledge.
- Van, G. (2017). Part-1: What is Culture and how does it Affect our Daily Lives? HUFFPOST.

e-resources

- https://hvpenotes.blogspot.com/2017/01/chapter-v-understanding-human
- https://aktu.ac.in/hvpe/PDF Presentations/PDF English Presentation/HVPE
- https://www.digitalg1.com/courses/kve301-kve401-uhvpe/kve301-kve401
- http://www.huffingpost.com/gabriella-van-rij/part-1-what-is-culture-and-how-does-it-affect-our-daily-lives_b_9607312

Semester – I

1BCA-ADA03-HINDI BHASHA EVAM SAHITYA

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
2/2	0	0	2/2	30	10	0	40

पाठ्यक्रम के उद्देश्यः

- हिन्दी भाषां का सामान्य परिचय और उसके संचार के पक्षों का ज्ञान कराना।
- हिन्दी भाषां और साहित्य के प्रचलित स्वरूपों का संचार की दृष्टि से संचार कराना।
- हिन्दी भाषां का अन्य भाषाओं के साथ संबंधों का ज्ञान कराना।
- हिन्दी के प्रयोजन मूलक स्वरूप का प्रशिक्षण प्रदान करना।
- व्यावहारिक हिन्दी के वाचन और लेखन का कौशल विकसित करना।

अधिगम के परिणाम :

- हिन्दी भाषा की वाक्य संरचना के निर्माण व उसके प्रयोग में निपुणता।
- हिन्दी भाषां और साहित्य के प्रचलित स्वरूपों की संचार की दृष्टि से समझ और प्रायोगिक कुशलता।
- हिन्दी भाषां के अन्य भाषाओं के साथ संबंधों के ज्ञान से भाषा दक्षता में विकास।
- विद्यार्थी शब्द, अर्थ एवं व्याकरण के साथ भाषा के सामाजिक संदर्भ पर अपना दृष्टिकोण विकसित कर पाऐंगे।
- विद्यार्थी संपादकीय, टिप्पणी, प्रारूपण और पत्राचार का प्रयोग करपाऐंगे।

इकाई–1	हिन्दीभाषा के तत्व और उनका बोध	L	T	P
1.1	भाषां और संप्रेषण, हिन्दी की लिपि, वर्तनी	1	1	.
1.2	हिन्दी की ध्वनियां, हिन्दी रूपरचना,	2	.	.
1.3	छेवनागरी लिपि और उसकी विशेषताएं,	1	.	.
1.4	हिन्दी की उपभाषाएं	1	.	.
इकाई–2	हिन्दी भाषां और साहित्य की संरचना	L	T	P
2.1	हिन्दी की शब्दावली, हिन्दी का मानकः व्याकरण (सामान्य परिचय)	2	.	.
2.2	हिन्दी भाषां और साहित्य का संक्षिप्त इतिहास सामान्य परिचय	1	.	.
2.3	हिन्द में विभिन्न विषयों का बोधन	1	.	.
2.4	हिन्दीपद्य के विकास का सामान्य परिचय			
इकाई–3	व्यावहारिक हिन्दी और लेखन	L	T	P
3.1	मुहावरे, लोकोक्तियॉ और कहावतें	2	.	.
3.2	हिन्दी का सामाजिक संदर्भ, संवाद शैली	1	.	.
3.3	स्रकारी पत्राचार तथा टिप्पण और प्रारूपण	1	1	.
3.4	अनुवाद करने का व्यावहारिक ज्ञान	1	.	.

इकाई–4	हिन्दी का प्रयोजनमूलकस्वरूप	L	T	P
4.1	प्रयोजनमूलकभाषांऔरहिन्दी के विविध रूप	1	.	.
4.2	प्रयोजनमूलक हिन्दी, सामान्य हिन्दी और पारिभाषिक शब्दावली	2	.	.
4.3	हिन्दीभाषां का अन्य भाषाओं के संबंध, हिन्दीभाषां मे प्रयुक्त अन्य भाषाओं के शब्दों का ज्ञान	2	.	.
4.4	सम्पर्कभाषां हिन्दी, हिन्दी का अन्तर्राष्ट्रीय संदर्भ	1	.	.
इकाई–5	हिन्दी गद्य	स्	ऊ	च
5.1	हिन्दी गद्य का विकास,हिन्दी गद्य की विविध विधाएं	2	.	.
5.2	हिन्दी कहानी और उपन्यास :स्वरूपऔरविकास	1	.	.

5.3	स्मकालीन हिन्दीलेखन	1	.	.
5.4	हिन्दी एकांकी और नाटक : एक सामान्य परिचय	2	.	.

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सत्रीय कार्य

1. कम से कम 20 ऐसेहिन्दी शब्दोंकोलिखेजिसमेंकुछ ध्वनियों के बदलजाने के कारणअर्थ–भेदहोताहै ।
2. निम्नलिखित शब्दोंको शब्दकोशीय क्रममेंरखिए–भक्ति, अंग, महानता, त्योहार, संस्कृति, पूर्वी, पढ़ना, बड़ा, मानव, प्रकृति, ऋतु, मुख्य,फसल, पंक्तियां, महापुरूष, पूजा, भावना, ब्याज, जिक्र, तरक्की।
3. हिन्दी की समस्तउपभाषाओं की सूचीबनाएं एवं उस परसंक्षिप्त टिप्पणी लिखें।
4. हिन्दीमें खेल, अर्थव्यवस्थाऔरविज्ञानविषयोंपरपांच–पांचसमाचारलेखनकरें।
5. कमसे कम पांचअलग–अलगविषयों (अनुशासनों) परबीस–बीसपारिभाषिक शब्दावली की सूचीबनाए।

संदर्भग्रन्थ

- डॉ. भोलानाथतिवारी (स): हिन्दी की ध्वनिसंरचना, साहित्य, सहकार, कृष्णानगर, दिल्ली।
- रामचंद्रवर्मा, अच्छीहिन्दी, इलाहाबाद।
- वासुदेवनंदनप्रसाद, आधुनिकहिन्दीव्याकरणऔररचना:, भारतीभवन, पटना।
- द्विवेदीहजारीप्रसाद, साहित्य सहचर, लोकभारती, प्रकाशन, इलाहाबाद।
- कृष्णकुमारगोस्वामी, प्रयोजनमूलकहिन्दीऔरकार्यालयीनहिन्दी, कलिंगाप्रकाशन, 1982,, नईदिल्ली।
- राकेश शर्मा एवंनीलमणि शर्मा, (2019) राज भाषांहिन्दी : कलआजऔरकल, द क्रिएटिवआर्ट, दक्षिणपूर्वी दिल्ली–110044
- गोपालराय (2020) हिन्दीभाषां का विकास, राजकमलप्रकाशन, अक्षर, नईदिल्ली।
- डॉ. हरदेवबाहरी, हिन्दीउद्भव, विकासऔर रूप, किताबमहल,प्रकाशन, नईदिल्ली।
- संतसमीर, (2018) अच्छीहिन्दीकैसेलिखें, प्रभातप्रकाशन।
- आचार्यरामचंद्र शुक्ल(2020) हिन्दीसाहित्य काइतिहास, प्रभातप्रकाशन, नईदिल्ली।

Semester –II

2BCA-CSC03-Web Designing (HTML, CSS, Java Script)

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Learn how to design and develop a web page using HTML and CSS.
- Design and develop a web site using text, images, links, lists, and tables for navigation and layout.
- Style your page using CSS.
- Know CMS and use Word press as a CMS.

Course Outcomes:

- Describe the concepts of WWW including browser and http protocol.
- List the various HTML tags and use them to develop the user friendly web pages.
- Define the CSS with its types and use them to provide the styles to the web pages at various levels.
- Develop the modern web pages using the html and CSS features with different layouts as per need of applications.
- Able to use WordPress for creating Website.

Unit-wise Syllabus

UNIT-I

Introduction to HTTP, HTML, Basic HTML Tags, Body Tags, Coding Style, Modifying & formatting Text, Lists – Unordered, Ordered, Definition, Insert Links -Linking to another Document, Internal Links, Email Links, Relative and Absolute Links, Insert Images - Referencing Images, Clickable Images, Image Placement and Alignment, Image Size, Image Margins, Image Formats, Image Maps- Defining an Image Map, Advanced Coloring Body Content, Working with tables - Basic Tables, Table Attributes, Table Cell Attributes, Table Row Attributes, Tables Inside of Tables, Invisible Spacers, Working with Frame-Based Pages- Creating Windows, Single Window Frames, Creating Column Frames, Creating Row Frames, Creating Complex Frames.

UNIT-II

Cascading Style Sheet (CSS) – Introduction, creating style, using inline and external CSS, Creating Divs with ID style, Creating Tag& Class style, creating borders, Navigation links, creating effects with CSS.
JavaScript – Introduction, use of JavaScript in web pages. Understand JavaScript event model, use some basic event and control webpage behavior.Variable declaration, Operators, , Control Statements, Error Handling, Understanding arrays, Function Declaration,Built In Functions, Standard Date and Time Functions,Working with Objects, Call method in JavaScript.

UNIT-III

HTML Editor - Introduction to WYSIWYG HTML editor, advantages of using HTML editors, creating a new site, creating a new page, adding images with alternate text, inserting & formatting text, aligning images, creating an email link, linking to other websites, testing & targeting links, organizing files & folders
Creating & Inserting Images - Optimizing Images for the Web

UNIT-IV

Designing accessible tables - understanding tables & accessibility, using tables for tabular data, styling a table, editing table layouts, adding style to a table using CSS

Creating websites with frames - introducing frames, creating a frameset, opening pages into frames, controlling scrollbars & borders, targeting links in frames

UNIT-V

Web hosting - Define domain,Process of Domain Registration, Introduction to DNS.

Introduction of Content Management system , Example CMS,WordPress Installation, Dashboard,WordPressSetting,Categories,Posts,Media,Links.

References:

- HTML and CSS, Jon Duckett, John Wiely, 2012
- Achyut S Godbole and AtulKahate, "Web Technologies", Tata McGraw Hill
- Gopalan N P, Akilandeswari "Web Technology: a Developer S Perspective", PHI
- H.M. Deitel, P.J. Deitel, a.B. Goldberg-Internet & World Wide Web How to Program, Pearson Education, 3rd Edition,
- C. Xavier, "Web Technology &Design ", Tata McGraw Hill.
- Ivan Bay Ross, "HTML,DHTML,JavaScript,Perl CGI", BPB.
- Web Technologies, Black Book, Dreamtech Press
- HTML 5, Black Book, Dreamtech Press
- Joel Sklar -Web Design,, Cengage Learning
- Harwani-Developing Web Applications in PHP and Ajax, Mcgrawhill
- Learn HTML IN A Weekend By Steven E. Callihan, PHI

Semester –II

2BCA-CSC04-E-Commerce and Cyber Security

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives:

- Gain Knowledge to develop skills in understanding strategic issues related to e- commerce and e-governance
- Obtain the broad knowledge of state of art of e-governance and e-commerce activities and scenario in India
- Understand the electronic payment systems and security
- Gain knowledge of government initiative, policy and law and its implementation in the country in area of e-commerce and e- governance.
- Understand the concept of cybersecurity and cybercrime and digital signature

Course Outcome:

1. Explain and demonstrate E-Governance Initiatives at the National Level in India
2. Make Classification of E-Commerce and E- Governance
3. Explain various security concepts and apply them in daily cyber use.
4. Perform the malware and spam email identification, analysis, virus scanning and cleaning and other services using security tools

Unit-wise Syllabus

UNIT-I

Introduction to E-commerce: Definition, History of E-commerce, E-business Models B2B, B2C, C2C, C2B, legal; Environment of E-commerce, Dimensions of E-commerce, ethical issues, electronic data interchange, value chain and supply chain, E-commerce Marketing, E-commerce Strategy, E-commerce Infrastructure, Advantages and Disadvantages of e-commerce.

UNIT - II

Electronic payment systems: payment gateways, payment cards, credit cards, debit cards, smart cards, e-credit accounts, e-money, marketing on the web, categories of e-commerce, EDI, marketing strategies, advertising on the web, customer service and support, internet banking, introduction to m-commerce, case study: e-commerce in passenger air transport, element of e-commerce, issues of e-commerce.

UNIT - III

E-government, theoretical background of e-governance, issues in e-governance applications, evolution of e-governance, its scope and content, benefits and reasons for the introduction of e-governance, e-governance models- broadcasting, critical flow, comparative analysis, mobilization and lobbying, interactive services / G2C2G.

UNIT - IV

Introduction to cyber space and cyber security Cybercrime-concept of cybercrime, Type of cybercrime, phishing, cyber crime prevention, What Is Ethical Hacking, Security threats to e- commerce- electronic payment system, Digital Signature– digital signature process.Cyberspace- cloud computing &security, social network sites security, attack prevention- passwords, protection against attacks in social media, securing wireless networks, security threats.

UNIT - V

Types of cyber attacks,Types of Malware, Worms, Viruses ,Spyware, Trojans , Ransomware, smsmalware, Scareware, Cyber Security Breaches, Phishing, Identity Theft, Harassment, Cyberstalking, Types of Cyber Attacks, Password Attacks, Denial of Service Attacks, Passive Attack, Penetration Testing, Prevention Software, Firewalls, types of firewal Virtual Private Networks, Anti-Virus & Anti-Spyware ,Critical Cyber Threats , Critical Cyber Threats, Cyber terrorism, Cyberwarfare, Cyberespionage, Defense Against Hackers , Cryptography , Digital Forensics, Intrusion Detection

References:

- Gary P. Schneider, "E-Commerce", Cengage Learning India.
- C.S.R. Prabhu, "E-Governence: Concept and Case Study", PHI Learning Private Limited.
- P. Tjoseph, S.J.,"E-Commerce an Indian Perspective", Prentice-Hall of India.
- V. Rajaraamn, "Essentials of E-Commerce Technology", PHI Learning Private Limited.
- Amir Manzoor " E-Commerce: an Introduction", Lambert.
- AnandShinde "Introduction to Cyber Security - Guide to the World of Cyber Security" Publisher: Notion Press

Semester –II

2BCA-ADA04-Environmental Science and Sustainable Development

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
2/2	0	0	2/2	30	10	0	40

COURSE OBJECTIVE

1. To demonstrate a congenial learning of Environment Factors to students
2. To generate in students the awareness about Environmental Problems
3. To define the types of Environmental Ecosystems & its formation to students
4. To associate the knowledge of various Environmental Ethics to students
5. To illustrate to the students problems relating to Human Population on Environment

COURSE OUTCOMES (CO)

1. Recognize various environmental factors
2. Analyze environmental problems
3. Characterize ethical issue for environmental related issue
4. Identity methods to protect environmental
5. Recognize effect to population on environmental

UNIT-1	**The Multidisciplinary Nature of Environmental Studies and Natural Resources**
1.1	Natural resources and associated problems. Forest resources: Use and Over-exploitation, deforestation, (Class room lectures)
1.2	Water resources: Use and over-utilization of surface and ground water. (PPTs)
1.3	Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. (PPTs & Class room lectures)
1.4	Energy resources: Growing energy needs, renewable and non-renewable energy sources. (PPTs)
1.5	Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. (Class room lectures)
UNIT-2	**Ecosystems, Biodiversity and its Conservation**
2.1	Concept, structure and function of an ecosystem, producers, consumers and decomposers, energy flow in the ecosystem, ecological succession, food chains, food webs and ecological pyramids (Class room lectures & PPTs)
2.2	Introduction, types, characteristic features, structure and function of the following ecosystem: - Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (PPTs)

2.3	Biodiversity introduction-Definition: genetic, species and ecosystem diversity. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values, biodiversity at global, national and local levels, India as a mega-diversity nation, Hot-spots of biodiversity (PPTs & Class room lectures)
2.4	Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, endangered and endemic species of India (PPTs & Case study related to Kanha Wild life reserve)
2.5	Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity (PPTs & Class room lectures)
UNIT-3	**Environmental Pollution**
3.1	Definitions. Causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards (PPTs)
3.2	Solid waste Management: Causes, effects and control measures of urban and industrial wastes (PPTs & Class room Lectures)
3.3	Role of an individual in prevention of pollution (PPTs & Class room lectures,)
3.4	Pollution case studies (Case Study)
3.5	Disaster management: floods, earthquake, cyclone and landslides (PPTs & Class room lectures)
UNIT-4	**Social Issues and the Environment**
4.1	From Unsustainable to Sustainable development. Water conservation, rain water harvesting, watershed management. (PPTs &Case Studies related to watershed management)
4.2	Environmental ethics: Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies (PPT)
4.3	Wasteland reclamation, Consumerism and waste products (PPT & class room lectures)
4.4	Environment Protection Act- Air (Prevention and Control of Pollution) Act, Water (Prevention and Control of Pollution) Act, Wildlife Protection Act (PPT & class room lectures)
4.5	Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness (PPT)

UNIT-5	Human Population and the Environment
5.1	Population growth, variation among nations (PPT & class room lectures)
5.2	Population explosion-Family welfare Program (PPTs)
5.3	Environment and human health (PPTs , class room lectures& GDs)
5.4	Human Rights, Value Education, HIV/AIDS, Women and Child Welfare (PPTs & Class room lectures)
5.5	Role of information Technology in Environment and human health. (Class room lectures)

Practical / Projects / Assignments:

1. Project report on ill effects of environmental pollution.
2. Group Study on biotic & a biotic components of environment.
3. Perform a case study on 10 households in your vicinity and mention the type of natural and renewable resources they use or consume on a day-to-day basis.
4. Mention along with photographs and small description of major types of biotic (fauna and Flora (5 each) and a biotic components (minimum 5) that are present in your surrounding areas.
5. Prepare a short story with picture illustrations of the ill effect of environmental pollution in your surrounding areas.
6. Mention the legal Acts to Prevent and Control Pollution.
7. Mention the role of media towards prevention, control and awareness towards future environmental pollution impacts and consequences.

Suggested Readings:

1. Srivastava, Smriti.(2009). Environmental Studies.NewDelhi:S.K. Kataria& Sons
2. Dhankar, Rajesh.(2006).Environmental Studies.New Delhi: Daya Books Pvt. Ltd.
3. Kanagasabai, S.(2010). Environmental Studies.NewDelhi:PHI Learning Pvt. Ltd
4. Bagad,Anjali.(2009). Environmental Studies. New Delhi: Technical Publications.

E- Resources:

1. https://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf
2. https://www.kopykitab.com/Environmental-Studies-by-J-P-Sharma
3. https://www.tutorialspoint.com/environmental_studies/environmental_studies_tutorial.pdf
4. https://www.ametuniv.ac.in/exam_attachment/Question%20Bank/UG/Marine-Bio-Technology/EVS.pdf

Semester – II

2BCA-CSS02-Computer Hardware and Troubleshooting

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	00	10	30	40

Course Objectives:

- To develop skills in installation and configuration of Operating systems,
- Identify faults, troubleshoot, repair and do preventive maintenance of computer system and its peripherals.
- To understand the various hardware device and configuration.
- Develop ability to repair and maintain computer system

Course Outcomes:

- Understand hardware components in computer system.
- Install, configure Operating Systems and device drivers.
- Install, configure and maintain various components in computer system and peripheral devices.
- Diagnose faults, repair and maintain computer system and its peripherals.

Unit-wise Syllabus

UNIT – I

Inside the PC: Core Components, Identify different type and generation of computer, Identify devices required for using laptops, Identify components which makes the system and specify its importance. Identify various types of ports and its connecting devices.

Motherboard: definition, Components/connections in motherboard, functional block diagram

Central Processing Unit (CPU): CPU Speeds, Word Size, Data Path, Internal Cache memory, Slots and sockets, CISC vs RISC processor, CPU chips preprocessors motherboard Types/Form Factors (AT, Baby AT, ATX, LPX, NLX, BTX)

Expansion Buses (Definition, Bus Architecture (PC/PC-XT, PC-AT/ISA, EISA, MCA, VESA Local (VL) Bus, PCI, Combination of Bus Systems, AGP – Accelerated Graphics Port, Universal Serial Bus (USB), IEEE 1394 Fire Wire- A Bus Standard

System Controller: Definition, Basic Input Output System:Services, Bios Interaction, CMOS-RAM

Chipsets : Definition, Advantage, North and South Bridge

System Memory : definition, memory sizes, speeds and shapes (DIP, ZIP, SIPP, SIMM, DIMM, RIMM), Memory modules (Dynamic RAM, SDRAM, DDR SDRAM, SLDRAM, DRDRAM, Fast Page Mode (FPM) DRAM, Extended Data Out(EDO) DRAM)

UNIT– II

Hard Disk Drive and Controller, DVD Drives, Disk Basics, Hard Disk Interfaces: EIDE, Serial ATA, SCSI, USB and IEEE 1394 (Firewire), RAID, Solid State Drive (laptop), Disk Geometry : Heads, Tracks, Sectors, Cylinders, Cluster, Landing zone, MBR, Zone bit recording, Disk performance Characteristics: Seeks and Latency, Data Transfer Rate,Hard Disk Controller: Functional Blocks, HDC Functions, DVD Drives : Types, Recording, Construction, Interfacing, DVD Drive Performance Criteria : Data Transfer Rate, Access time, Cache/buffer, Blu-ray disk specification.

UNIT– III

Input Devices and Printers,Keyboard : Keyboard operation, Keyboard Types, Types of Key switches (Membrane, mechanical, rubber dome, capacitive) Keyboard interfaces,Mouse : Types, Operation, Interfaces,Scanner : Scanner Types, Image quality measurement, Types of Printers, Printer Interfaces, Ink-jet Printer : Parts, working principle,LaserJet Printer : Parts, working principle.

UNIT– IV

Monitor and Display Adapters Video Basics (CRT parameters), VGA monitors, Digital Display Technology- Thin Displays, Liquid Crystal Displays, Plasma Displays, Light Emitting Displays,Graphics Cards : Components of a card, Accelerated Video cards, CGA, EGA, VGA.

UNIT– V

Trouble Shooting and Preventive Maintenance,POST: Functions, IPL Hardware, Test Sequence, Error messages, Troubleshooting: possible problems and diagnosis in
Motherboard,
Keyboard
Hard Disk Drive
Printer
Preventive maintenance tools

References:

- Computer Installation and Servicing, D Balasubramanian, Tata McGraw Hill Education Private Limited
- The complete PC Upgrade & Maintenance Guide, Mark Minasi, BPB Publications
- IBM PC and clones, GovindRajalu, Tata McGraw Hill Education Private Limited

LIST OF EXERCISES AND PRACTICALS

- Identify basic components of a personal computer.
- Prepare a list of various computer peripherals. (e.g. CPU, Monitor, Keyboard, Mouse, Speaker, Web cam, Printer, Scanner, microphone, speakers, modem, projector etc).
- Identify common ports, associated cables, and their connectors.
- Observe various connectors, ports back and front side of the computer. Write their purpose and specifications. (e.g. Power, PS/2 keyboard and mouse, Serial and parallel, USB, VGA, LAN, Audio & microphone, Firewire, HDMI, games, SATA etc.)
- Identify major components including motherboards, memory, drives, peripheral cards and devices, BIOS, and Windows operating system.
- Observe the various components on the motherboard, identify it. Also observe their interconnection and arrangement inside the case. Detach and attach the cables and component in the PC case and motherboard. Carryout detailed study on all the components and devices on the given motherboard.
- Processor socket,Chipsets,
- Memory module slots, BIOS, CMOS
- FDD, HDD connectors
- Different types of expansion slots (ISA, EISA, PCI, PCI express, AGP, Express Card & PC Card (or PCMCIA) etc.)
- Add-on-cards (audio, graphics, I/O, TV tuner, network etc.)
- Cables in a computer system (IDE Ribbon cable, SATA cable etc)
- Connections for button, indicator lights etc.
- Observe various types of memory modules (SIMM, DIMM, SO-DIMM, RIMM, SO-RIMM). Also observe impact of removal of memory modules from the system, start it and re insert memory module and restart system.
- Disassemble the PC carefully. Assemble the same PC you have disassembled and boot the system. Observe the procedure of assembling a computer system.
- Observe the different types of motherboards, form factors and write the difference between the desktop motherboard and laptop motherboard (e.g Full size AT, baby AT, ATX, LPX, NLXetc).

- Add additional facilities like the network capabilities, and gaming capabilities by adding an Accelerator card. Install the given driver and test the computer for proper functioning. Remove the drivers for some devices like sound, display, network etc. and again install them and check the proper functioning of computer.
- Upgrade the given PC by adding RAM and additional Hard Disk.
- Observe, search and write the specifications of CD/DVD drive, HDD, motherboard, RAM chips, Power supply, Microprocessor chip, Add on cards. Prepare complete specifications of the latest system configuration available in the market.
- Observe the power supply (SMPS) and measure their voltage levels of a given SMPS. Measure various voltage levels, such as motherboard, storage devices and fan etc. using multi-meter. Do a detailed study on all the components and devices on the given power supply. Observe different types of switch mode Power Supply – AT, ATX, NLX . Record the different types of power connectors on the motherboard.
- Observe various secondary storage systems- Hard Disk, Flash drives, CD/ DVD drive. Open drives and draw the internal structure of them.
- Observe the various techniques for low level and high level formatting of Hard Disk. Format the given Hard Disk using any one technique and create three partitions, two for operation systems and one for data.
- Observe the procedure for installing Operating System like win7/win8 with partition formatted in previous practical in one partition, (fat, fat16, fat32, ntfs, gpt). Try booting PC.
- Learn the content of boot.ini after the installation process. Now install unix Operating System like Linux /Ubantu/ centos/ fedora/ red hat in another partition. Create dual booting system try booting PC. Learn the content of boot.ini after the installation process.
- Open at least 2 to 3 different types of keyboard and mouse and observe the internal circuits. Observe and write steps to troubleshoot, maintain and clean the diskette drives, keyboard, mouse, etc.
- Observe different types of printers (dot matrix, inkjet & laser, multifunction). Install driver and interface the printers with PC/Laptop on any operating system (connect the printer to one PC directly using USB/Serial/Parallel ports as per the availability; test the functioning of the printer.) Write detailed comparative analysis of different types of printer available in the market and suggest a printer with good features and best price as per need. Justify your printer selection.
- Observe the interfacing, installation and working of various devices such as scanner, projector, web cam etc. Connect all these devices with the given PC, install & test them.
- Identify how to disable unused devices to decrease Security risks.
- Change booting of computer with different secondary storage CD, HDD, USB etc.
- Identify the problem in the given PC, using the given troubleshooting sequence, fix the issue, record the given problem, and produce proper documentation of your work
- Recognize common symptoms associated with diagnosing and troubleshooting PCs and utilize Windows built-in diagnostic tools.
- Identify general troubleshooting techniques and strategies
- Utilize scandisk, control panel, boot-up menu, and startup disk as diagnostic tools.
- Access Microsoft Knowledge Base on the Internet to solve common problems.
- Identify the common problems associated with shutdown, configuration, and cabling.
- Identify problems associated with heating and cooling of the internal components.
- Identify problems with installing internal devices such as hard drive, tape drives, or CD-ROM drive.
- Recognize and interpret the meaning of common error codes and startup messages.
- Recognize windows-specific printing problems and corrections.
- Log boot ups and events.
- Perform hard drive file system maintenance.
- Identify anti-virus software and applications.
- Utilize Internet to download device drivers: Installation of drivers of various devices from the internet.
- Demonstrate to remove unwanted software applications.
- Operate and maintain registry file.

Semester – II

2BCA-ADA05-English Language and Literature-II

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
2/2	0	0	2/2	30	10	0	40

COURSE OBJECTIVES

1. To help learners use English Language for contemporary academic and social needs.
2. To enable students to learn to use language creatively and critically.
3. Develop Oral and Written Communication.
4. To enable students comprehend complex English Texts.
5. To develop language skills with the literary texts.

COURSE OUTCOMES (CO)

1. Comprehend language and Communication Skills in academic and social contexts.
2. Cope with complex language use.
3. Communicate precisely orally as well in Written Communication.
4. Read and understand literary and non literary texts.
5. Understand and appreciate literary texts.

Unit 1	**English Grammar**	L	T	P
1.1	Parts of Speech (Lecture, Discussion)	**1**	**1**	**-**
1.2	Direct Narratives (Lecture, Discussion)	**1**	**-**	**-**
1.3	Indirect Narratives (Lecture, Discussion)	**1**	**-**	**-**
1.4	Types of Sentences (Lecture, Discussion)	**1**	**-**	**-**
1.5	Tense (Lecture, Discussion)	**1**	**-**	**-**
Unit 2	**Basic Language Skills**	**L**	**T**	**P**
2. 1	Vocabulary (Lecture, Discussion)	**1**	**-**	**-**
2.2	Synonyms (Lecture, Discussion)	**1**	**1**	**-**
2.3	Antonyms (Lecture, Discussion)	**1**	**-**	**-**

2.4	Prefixes (Lecture, Discussion)	**1**	**-**	**-**
2.5	Suffixes (Lecture, Discussion)	**1**	**-**	**-**
Unit 3	**Oral and Written Communication Skills**	**L**	**T**	**P**
3.1	Listening (Lecture, Discussion)	**1**	**-**	**-**
3.2	Speaking (Lecture, Discussion)	**1**	**-**	**-**
3.3	Reading (Lecture, Discussion)	**1**	**1**	**-**
3.4	Body Language (Lecture, Discussion)	**1**	**-**	**-**
3.5	Writing Formal and Informal Letters (Lecture, Discussion)	**1**	**-**	**-**
Unit 4	**Creativity Through Language**	**L**	**T**	**P**
4.1	Comprehension (Lecture, Discussion)	**1**	**-**	**-**
4.2	Paragraph Writing (Lecture, Discussion)	**1**	**-**	**-**
4.3	Precise Writing (Lecture, Discussion)	**1**	**-**	**-**
4.4	Unseen Passage (Lecture, Discussion)	**1**	**1**	**-**
4.5	Essay Writing (Lecture, Discussion)	**1**	**-**	**-**
Unit 5	**Appreciating Literature**	**L**	**T**	**P**
5.1	The Solitary Reaper - William Wordsworth (Lecture, Discussion)	**1**	**-**	**-**
5.2	The Portrait of a Lady- Khushwant Singh (Lecture, Discussion)	**1**	**-**	**-**
5.3	Where the mind is without fear- Rabindranath Tagore (Lecture, Discussion)	**1**	**-**	**-**
5.4	Indian Weavers- Sarojini Naidu (Lecture, Discussion)	**1**	**-**	**-**

5.5	A Hero- R. K. Narayan (Lecture, Discussion)	**1**	**1**	**-**

Practical/Projects/Assignments:

1. Creating a Digital Profile – LinkedIn (Resume/Video Profile)
2. Word Games
3. Writing Slogans
4. Role Play
5. Extempore and Debates
6. Writing Picture Stories

Suggested Readings:

1. ParulPopat. Communication Skills . Pearson Education: 2015
2. Professional Speaking skills, ArunaKoneru, Oup, 2015
3. Scanlon, Jaimie, et al. *Q: Skills for success. Listening and Speaking*.2 Oxford University Press, 2015
4. Meena Agarwal, English Communication, 2016, Edition 1, ISBN-13: 978-9351676737
5. How to Speak and Write Correctly, Joseph Devlin, 2017, Edition 1, CreateSpace Independent Publishing Platform, ISBN-13: 978-1974637218
6. Oxford English Dictionary and Thesaurus
7. Collected Poems of William Wordsworth
8. The Portrait of a Lady- Khushwant Singh
9. Where the mind is without fear- Rabindranath Tagore
10. Indian Weavers- Sarojini Naidu
11. A Hero- R. K. Narayan

E-Resources:

1. Basic English Grammar rules with example sentences accessed at https://basicenglishspeaking.com/basic-english-grammar-rules/
2. Basic English Grammar rules accessed at https://grammar.yourdictionary.com/grammar-rules-and-tips/basic-english-grammar-rules.html
3. English Grammar accessed at https://www.englishgrammar101.com/
4. Basics of English Grammar accessed at https://www.talkenglish.com/grammar/grammar.aspx
5. Complete Handbook of English Grammar accessed at https://www.learngrammar.net/english-grammar
6. Listening for Pronunciation Practice accessed at http://orelt.col.org/module/unit/1-listening-pronunciation-practice
7. Phonetics: The Sounds of Language https://scholar.harvard.edu/files/adam/files/phonetics.ppt.pdf

Semester – II

2BCA-ADA06 (A) - Co-curricular-I

Parliament: Practice and Procedure-I

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	½	2/3	0	10	30	40

CourseObjectives

- To acquaint students with knowledge of the Indian Constitution.
- To make students familiar with concept of Parliament.
- To understand the concept of various practices and procedures of Indian Parliament
- To develop understanding about powers and privileges of Parliamentary and Legislative members

Learning Outcomes

- Students will be able to understand the concept of Indian Constitution and Parliament.
- Students will be able to understand working of Indian Parliament
- Students will be able to understand and analyze working of State Assembly and Legislative Councils
- Ability to apply the theory into practice.

Unit-1	**Introduction to Indian Constitution** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
1.1	Introduction to Indian Constitution	-	1	1
1.2	History of Indian Constitution	-	-	2
1.3	Characteristics of Indian Constitution	-	-	2
Unit-2	**Introduction to Indian Parliament** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
2.1	Introduction to Indian Parliament	-	1	1
2.2	History of Indian Parliament	-	-	2
2.3	Powers of Indian Parliament	-	-	2
Unit-3	**Lok Sabha and Rajya Sabha** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
3.1	Introduction to Lok Sabha	-	1	1
3.2	Functions of Lok Sabha	-	-	2
3.3	Introduction and Functions of Rajya Sabha	-	-	2
Unit- 4	**State Assemblies and Legislative Councils** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
4.1	Introduction to State Assemblies	-	1	1
4.2	Election of Members	-	-	2
4.3	Functions of State Assemblies	-	-	2
Unit 5	**Different Parliamentary Systems in World** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
5.1	British Parliamentary System	-	1	1
5.2	US Parliamentary System	-	-	2
5.3	Australian Parliamentary System	-	-	2

Practical/Projects/Assignments:

1. Role play/Skit/Mock Parliament.

2. PPT Presentation on various contemporary issues
3. Visit to Vidhan Sabha
4. Virtual tour of the Indian Parliament.
5. Any other assignment given by the concerned faculty.

Suggested Readings:

1. Kaul M.N and Shakdher S.L, Practice and Procedure of Parliament, Lok Sabha Secretariat, New Delhi, Seventh Edition
2. Khosla Madhav, The Constitution of Most Surprising Democracy, Oxford
3. Basu Dr. Durga Das, Introduction of Indian Constitution, Lexis Nexis, 2019
4. Rules of Procedure and Conduct of Business in the Council of States, Rajya Sabha Secretariat, New Delhi,2013.
5. Chaudhary Sujit, Khosla Madhav and Mehta Pratap Bhanu, The Oxford Hand book of the Indian Constitution, Oxford University Press U.K,2016
6. Role of Rajya Sabha in Indian Parliamentary Democracy, Rajya Sabha Secretariat, New Delhi,2019
7. Narain Dr. Yogendra, Role and Relevance of Rajya Sabha in Indian Polity, Rajya Sabha Secretariat, New Delhi.
8. Kashyap Subhash C., Our Parliament, National Book Trust, India
9. Handbook for Members of Rajya Sabha, Rajya Sabha Secretariat, New Delhi, 2010
10. Bakshi PM, Constitution of India, Universal Law Publishing, 2017
11. De Rohit, A Peoples Constitution, Princeton University Press,2018.

c-resources:

- *https://eparlib.nic.in*
- *https://epgp.inflibnet.ac.in*
- *http://Indias-Founding-Moment-Constitution-Surprising-ebook/*

Semester – II
2BCA-ADA06 (B) - Co-curricular-I
Bharatiya Sangeet-I

भारतीय संगीत-I

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	½	2/3	0	10	30	40

उद्देश्य

1. विद्यार्थियों में वैदिक युग सी चली आ रही संगीत परंपरा का परिचय कराना।
2. जीवन में संगीत के महत्व को समझना।
3. हिन्दुस्तानी संगीत की परिभाषाओं थाट और अलंकार को जानना एवं अभ्यास।
4. लय, ताल, थाट, राग का परिचय एवं अभ्यास।
5. शब्दउच्चारण, राष्ट्रगान, गीत, गजल भजन का अभ्यास कराना।

शिक्षण के परिणाम

1. भारतीय संगीत की परंपरा और महत्व की समझ।
2. थाट, अलंकार, लय, ताल की सक्षिप्त जानकारी एवं अभ्यास।
3. राग यमन, विलावल, खमाज में घोटा।
4. ख्याल की प्रारंभिक जानकारी।
5. शब्दउच्चारण के महत्व के साथ भजन गीत, गजल, राष्ट्रगान की प्रारंभिक जानकारी।

ईकाई– 1	परिभाषायें	L	T	P
1.1	संगीत, स्वर, अलंकार		1	-
1.2	थाट, राग, सप्तक		1	-
1.3	आरोह, अवरोह		1	2
1.4	पकड़वादी, संवादी		-	2
1.5	अनुवादी, विवादी		-	2
ईकाई–2	**हिन्दुस्तानी संगीत**	**L**	**T**	**P**
2.1	हिन्दुस्तानी संगीत पद्धति के दस थाट एवं उनके सांकेतिक चिन्ह।		1	2
2.2	हिन्दुस्तानी संगीत पद्धति के दस थाट एवं उनके सांकेतिक चिन्ह।		1	1
2.3	हिन्दुस्तानी संगीत पद्धति के दस थाट एवं उनके सांकेतिक चिन्ह।			1
2.4	हिन्दुस्तानी संगीत पद्धति के दस थाट एवं उनके सांकेतिक चिन्ह।			1
2.5	1 से 10 तक प्रारंभिक अलंकार लेखन		1	1
ईकाई–3	**स्वरलिपि पद्धति**	**L**	**T**	**P**
3.1	पंडित विष्णु नारायण भातखण्डेस्वर लिपि		2	
3.2	ताल लिपि पद्धति		1	
3.3	नाद की परिभाषएं		1	

3.4	नाद की विशंषताएं		1	
3.5	हिन्दुस्तानी संगीत पद्धति के 40 सिद्धांत		1	
ईकाई–4	**ताल परिचय**	L	T	P
4.1	ताल, लय		1	
4.2	मात्रा, विभाग			2
4.3	सम, ताली, खाली			2
4.4	आवर्तन, ताल का महत्व		1	2
4.5	सरगम, लक्षणगीत, छोटा ख्याल			2
ईकाई–5	**राग परिचय**	L	T	P
5.1	राग-यमन		1	2
5.2	बिलावल			2
5.3	खमाज का सम्पूर्ण परिचय			1
5.4	ताल-दादरा			1
5.5	कहरवा, त्रिताल का सम्पूर्ण परिचय (मात्रा, बोल, विभाग एवं चिन्ह)		1	2

प्रथम वर्ष प्रायोगिक

1. तक अलंकारों 10 से 1का गायन
2. राग यमन, बिलावल, खमाज में आरोह, अवरोह, पकड एवं सरगम का गायन एवं लक्षणगीत गायन
3. राग यमन, बिलावल, खमाज में छोटा ख्याल गायन (श्रायी अंतरे सहित)
4. सैद्धान्तिकप्रश्न पत्र में दिये गये तालों को हाथ से ताली, खाली, देकर प्रस्तुति । दादरा), कहरवा, त्रितालगीत (, गजल
5. सैद्धान्तिकप्रश्न पत्र में दिये गये तालों को हाथ से ताली, खाली, देकर प्रस्तुति । दादरा), कहरवा, त्रितालगीत (, गजल, भजन, राष्ट्रगान, राष्ट्रगीत, मध्यप्रदेश गायन, का गायन (रण एवं धुन के साथच्चाशब्दोष्टस्प)

संदर्भ–

1. राग परिचय 1,2,3, हरिशचन्द्रश्रीवास्तव
2. संगीत विशारद, बसंत
3. क्रमिक पुस्तकमालिका भाग 1, विष्णु नारायण भातखंडे

BCA-ADA06(C) - Co-curricular-I

Lalit Kala-I

ललित कला-I

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	0	10	30	40

उददेश्य

1. भारतीय कला के मूलसिद्धांतोसे छात्रों को परिचित कराना।
2. छात्रों को दृश्यकला के मूल सिद्धांतो से परिचित कराना।
3. प्रकृति और जीवन की सुंदरता की सराहना करने के लिए उनकी दृष्टि को समृद्ध कराना।
4. रेखा, रूप, रंग और बनावट के सरल प्रयोग का परिचय और अभ्यास ।
5. प्राकृतिक और मानव निर्मित वस्तुओं के विभिन्न रूपों का अभ्यास।
6. भारतीयलोकचित्रकला - गोंडचित्रकला, वरलीचित्रकलाऔरमधुबनीचित्रकलाकापरिचयऔरअभ्यास।

शिक्षणकेपरिणाम

1. भारतीयचित्रकलाकेछहअंगोंऔरदृश्यकलाकेमूलसिद्धांतोंकीसमझ।
2. रेखा, रूप, रंगऔरबनावटकेसरलऔरभिन्नउपयोगकीसमझ।
3. भारतीयलोककलाओंकीसमझ-उनके उद्देश्माध्यम,लोकजीवनऔरलोककथाओंकीजानकारी ।
4. भारतीयलोककलाकेरूपांकनोंकीसमझ।
5. विभिन्नभारतीयलोककलाओंकीविशेषताओंमेंअंतरकरनाऔरउनकीपहचान।
6. प्राकृतिकऔरमानवनिर्मितवस्तुओंकेविभिन्नरूपोंकाअध्ययनकरकेकलाकेनएरूपकोबनानेकीप्रेरणा ।
7.

ईकाई - 1		L	T	P
	भारतीय चित्रकला के छह अंग			
1.1	रूपभेद		**1**	
1.2	प्रमाण		**1**	**1**
1.3	भाव		**1**	**1**
1.4	लावण्य योजना और सादृश्य		**1**	**1**
1.5	वार्णिकभंगा			**1**
ईकाई- 2		**L**	**T**	**P**
	दृश्य कला के मूल तत्व			

2.1	रेखा		**1**	
2.2	रूप/आकार		**1**	**2**
2.3	रंग		**1**	
2.4	बनावट		**1**	
2.5	अंतराल		**1**	
ईकाई- 3		**L**	**T**	**P**
	संयोजनकेसिद्धांत			
3.1	एकता		**1**	
3.2	सामजस्य			2
3.3	संतुलन		**1**	
3.4	प्रभाविता			**2**
3.5	प्रवाह (ताल)		**1**	2
ईकाई-4		**L**	**T**	**P**
	भारतीय लोक चित्रकला का परिचय-			
4.1	गोंडचित्रकला- इतिहासऔरउत्पत्ति		**1**	**2**
4.2	प्रयुक्तसामग्री		**1**	**2**
4.3	विषय(थीम)औरडिजाइन		**1**	**2**
ईकाई- 5		**L**	**T**	**P**
	वरली चित्रकला और मधुबनी चित्रकला			
5.1	वरलीऔरमधुबनीचित्रकला- इतिहासऔरउत्पत्ति		**1**	**2**
5.2	प्रयुक्तसामग्री		**1**	**2**
5.3	विषय(थीम)औरडिजाइन		**1**	**2**

ललितकलाप्रायोगिक

1. विभिन्न माध्यमों में रेखा, रूप, रंग और बनावट का सरल प्रयोग
2. प्रकृति और वस्तु अध्ययन
3. गोंडपेंटिंगमधुबनी /वारलीपेंटिंग /

संदर्भ–

1. Fundamentals Of Plastic Artरूपप्रदकलाकेमूलाधार - Dr. R.A. Aggrawal, International Publishing House
2. Fundamental Of Visual Art - Mukesh Kumar, Doaba Publications
3. Introduction to Indian Art Part II - NCERT
4. Unique Art of Warli Paintings - Sudha Satyawadi, D.K. Print World Ltd
5. Madhubani Art: Indian Art Series - Bharti Dayal, Niyogi Books
6. Indian Folk Arts and Crafts - National Book Trust.

Semester –III

3BCA-CSC05--DATA BASE MANAGEMENT SYSTEM

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- To Understand importance of Database and Database Management System . and conceptual and physical design of a database.
- To understand RDBMS and to design Relational database.-
- To know basic database backup and recovery mechanism.
- Practice basic operations of database management system using query language.
- Practice create report
-

Course Outcomes:

- Understand Data, Database system and its architecture.
- Apply ER modeling and Relational Database design using Normalization.
- Understand Concurrency, Recovery and Security mechanism in DBMS.
- Apply concepts of database storage and querying using SQL and
- Able to create basic reports using SQL PLUS.

Unit-wise Syllabus

UNIT - I

Introduction To Database System : Data - Database Applications, Need for data management, Introduction and applications of DBMS, File systems versus Database systems, Data Models(Relational Data Model, Hierarchical Model, Network Data Model, Object/Relational Model, Object-Oriented Model) DBMS Architecture, Data Independence, Data Modelling using Entity-Relationship Model, Enhanced ER Modelling.

UNIT - II

Relational Database Concept and Design: Introduction to relational database, Structure of Relational Database, Relational model terminology domains, Attributes, Tuples, Relations, Definition of CODD's rules, Important components-database manager, DDL, DML, DCL, query processor, data dictionary Normalization, Basic concept associated with Normal forms.

UNIT – III

ACID properties, Concurrency, Recovery and Security - Concurrency. Concurrency Control Techniques: Overview of Locking, 2PL, Timestamp ordering, multi-versioning, validation Recovery concepts, Shadow paging, Log Based Recovery, Elementary concepts of Database security: system failure, Backup and Recovery Techniques, authorization and authentication

UNIT - IV

Introduction to SQL, SQL operators, data types DDL commands(create table, alter table, drop table, create view, rename, create index) DML commands of SQL, (select distinct, select from where, select from where order by, select group by clause, select group by having clause, insert into, update, delete) DCL commands of SQL (Rollback, revoke, grant).

SQL aggregate functions (sum, avg, max, min, count) SQL Character functions (Lower, upper, length, substr, RPAD, LPAD) SQL arithmetic functions (Round, trunc, sqrt, mod, abs, sine) conversion functions and other miscellaneous functions.

UNIT - V

Joining Multiple Tables (equi joins), Joining a table to itself (self join), subqueries union, intersects and minus clause.

Report using SQL plus (specifying column heading, formatting columns char formats, break, inserting spaces after every row, break on multiple column with different spacing, page size, line size, pause).

Lab Practice

EMPLOYEE Schema

Field	Type	NULL	KEY	DEFAULT
Eno	Char(3)	NO	PRI	NIL
Ename	Varchar(50)	NO		NIL
Job_type	Varchar(50)	NO		NIL
Manager	Char(3)	Yes	FK	NIL
Hire_date	Date	NO		NIL
Dno	Integer	YES	FK	NIL
Commission	Decimal(10,2)	YES		NIL
Salary	Decimal(7,2)	NO		NIL

DEPARTMENT Schema

Field	Type	NULL	KEY	DEFAULT
Dno	Integer	No	PRI	NIL
Dname	Varchar(50)	Yes		NULL
Location	Varchar(50)	Yes		Bhopal

Query List

1. Query to display Employee Name, Job, Hire Date, Employee Number; for each employee with the Employee Number appearing first.
2. Query to display unique Jobs from the Employee Table.
3. Query to display the Employee Name concatenated by a Job separated by a comma.
4. Query to display all the data from the Employee Table. Separate each Column by a comma and name the said column as THE_OUTPUT.
5. Query to display the Employee Name and Salary of all the employees earning more than 25,000.
6. Query to display Employee Name and Department Number for the Employee No= 7900.
7. Query to display Employee Name and Salary for all employees whose salary is not in the range of 20000 and 50000.
8. Query to display Employee Name and Department No. of all the employees in Dept 10 and Dept 30 in the alphabetical order by name.
9. Query to display Name and Hire Date of every Employee who was hired in 1981.
10. Query to display Name and Job of all employees who don't have a current Manager.
11. Query to display the Name, Salary and Commission for all the employees who earn commission.
12. Sort the data in descending order of Salary and Commission.
13. Query to display Name of all the employees where the third letter of their name is 'A'.

14. Query to display Name of all employees either have two 'R's or have two 'A's in their name and are either in Dept No = 30 or their Manger's Employee No = 7788.
15. Query to display Name, Salary and Commission for all employees whose Commission Amount is 14 greater than their Salary increased by 5%.
16. Query to display the Current Date.
17. Query to display Name, Hire Date and Salary Review Date which is the 1st Monday after six months of employment.
18. Query to display Name and calculate the number of months between today and the date each employee was hired.
19. Query to display the following for each employee <E-Name> earns < Salary> monthly but wants < 3 * Current Salary >. Label the Column as Dream Salary.
20. Query to display Name with the 1st letter capitalized and all other letter lower case and length of their name of all the employees whose name starts with 'J', 'A' and 'M'.
21. Query to display Name, Hire Date and Day of the week on which the employee started.
22. Query to display Name, Department Name and Department No for all the employees.
23. Query to display Unique Listing of all Jobs that are in Department # 30.
24. Query to display Name, Dept Name of all employees who have an 'A' in their name.
25. Query to display Name, Job, Department No. And Department Name for all the employees working at the Dallas location.
26. Query to display Name and Employee no. Along with their Manger's Name and the Manager's employee no; along with the Employees' Name who do not have a Manager.
27. Query to display Name, Dept No. And Salary of any employee whose department No. and salary matches both the department no. And the salary of any employee who earns a commission.
28. Query to display Name and Salaries represented by asterisks, where each asterisk (*) signifies 500 .
29. Query to display the Highest, Lowest, Sum and Average Salaries of all the employees
30. Query to display the number of employees performing the same Job type functions.
31. Query to display the no. of managers without listing their names.
32. Query to display the Department Name, Location Name, No. of Employees and the average salary for all employees in that department.
33. Query to display Name and Hire Date for all employees in the same dept. as Blake.
34. Query to display the Employee No. And Name for all employees who earn more than the average salary.
35. Query to display Employee Number and Name for all employees who work in a department with any employee whose name contains a 'T'.

References:

- Abraham Silberschatz, Henry Korth, S. Sudarshan, "Database Systems Concepts", 7th Edition, McGraw Hill .
- Rajesh Narang "Database management System" PHI.
- Ramakrishnan and Gherke, "Database Management Systems", TMH.
- R. Elmarsi and SB Navathe, "Fundamentals of Database Systems", Pearson,5th Ed.
- Singh S.K., "Database System Concepts, design and application", Pearson Education
- Bipin Desai, "An Introduction to database Systems", Galgotia Publications.

Semester – III

3BCA-CSC06--Computer Networks

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives:

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking.
- Preparing the student for entry in advanced courses of computer networking.
- To gain knowledge of various protocols for network design and maintenance.

Course Outcomes:

- Understand and explain Data Communications System and its components.
- Understand Computer Network basics and OSI and TCP/IP model.
- Understand Networks switching, error detection and error correction techniques.
- Identify the different types of network devices and their functions.
- Familiarity with the various protocols of computer networks

Unit-wise Syllabus

UNIT-I

Basic concepts: network definition, components of data communication, distributed processing, topology, transmission mode, categories of networks. OSI and TCP/IP models: layers and their functions, comparison of models. Digital transmission: modems, modems, cable modems. Analog and digital signal; data-rate and limits; digital to digital line encoding schemes; parallel and serial transmission; modulation scheme, multiplexing techniques FDM, TDM, transmission media.

UNIT-II

Networks switching techniques and access mechanisms, circuit switching; packet switching, message switching, connection-oriented virtual circuit switching; dial-up modems; digital subscriber, data link layer functions and protocol, error detection and error correction techniques, data -link control framing and flow control, error recovery protocols - stop and wait ARQ, go-back-n ARQ; point to point protocol.

UNIT-III

Multiple access protocol and networks, ALOHA, SLOTTED ALOHA, CSMA/CD, protocols; Ethernet LANS, Token Ring, Token Bus, back-bone networks, network adapters cards, repeaters, hubs, switches, bridges, types of bridges, router and gateways.

UNIT-IV

Networks layer functions and protocols, routing: routing algorithms distance vector routing; shortest path routing, network layer protocol, IP protocol, internet control protocols, Unicasting, multicasting, broadcasting, ISDN: services, historical outline, PRI, BRI.

UNIT-V

Transport layer functions and protocols, overview of TCP and UDP, transport services error and flow control, connection establishment and release, three way handshake, overview of session layer and presentation layer, overview of application layer protocol overview of DNS protocol, overview of internet, WWW,HTTP, FTP, SNMP protocol. Internet services, email services, www services, search service etc.

References:

- B. A. Forouzan: Data Communications and Networking, Fourth edition, THM,

- A.S. Tanenbaum: Computer Networks, Fourth edition PHI.
- Ames Chews Charles Perkins, Matthew Strebe "Networking Essentials: Study Guide "MCSE BPB Publications.
- K.Basandra& S. Jaiswal "Local Area Network" Galgotia Publications
- William Stalling "Data and Computer Communication" Pearson Prentice Hall
- Prakash C Gupta " Data Communication and Computer Network " PHI

Semester – III

3BCA-CSC07 -Programming with C and C++

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Have Understanding of Programming Language Standards, Problem Solving Techniques, IDE and Compilers for C and C++.
- To have in depth knowledge of Writing, Compiling and Running Programs.
- To understand and Practice Programming Construct: Variable, Operators, Control Structures, Loop, Functions with C and C++.
- To understand and Practice basics of arrays, pointers, preprocessor, Structure and Union
- To learn difference in procedural and Object oriented programming language with understanding of OOPs features and Practice beginner level of Pointers, Preprocessor, Programming

Course Outcomes:

- List and Demonstrate Basic Terminology Used in Computer Programming Write, Compile and Debug Programs in C and C++ Language.
- Understand and Apply Variable, Conditional Statements, Loops, Functions in C and C++.
- Practice Pointers, Structure, Union and Class in Programming.
- Explain and Differentiate the Process of Problem Solving Using Procedural and Object Oriented Programming Language.
- Understand and Practice Object Oriented Programming Concepts in C++.

Unit-wise Syllabus

UNIT-I

Introduction to C Language, Language Standards, Features of Procedural Language specific to C, Structure of C and C++ Program, Introduction to Compilers, Creating, Compiling and Executing C and C++ Programs, IDE Features of Turbo Compiler. Keywords , Identifiers, Variables, Constants, Scope and Life of Variables, Local and Global Variable, Data Types, Expressions. Operators - Arithmetic, Logical, Relational, Conditional and Bit Wise Operators, Precedence and Associativity of Operators,

Type Conversion. Library Function, Character Input/Output- getch( ), getchar( ). getche( ), putchar( ). Formatted Input/Output-printf( ) and scanf( ), Mathematical & Character Functions in C and C++.

UNIT- II

Control Structures: Declaration Statement, Conditional Statement - if Statement, if-else Statement, Nesting of if Statement, else if Ladder, The?: Operator, switch Statement. Iteration Statements - For Loop, While Loop, Do-While Loop. Jump Statements: break, continue, goto, exit( ). Arrays - Concept of Single and Multi-Dimensional Arrays, Array Declaration and Initialization. Strings: Declaration, Initialization, String Functions Using C and C++.

UNIT- III

The Need of Functions, User Defined and Library Function, Prototype of Functions, Prototype of main( ) Function, Calling of Functions, Function Arguments, Argument Passing: Call By Value and Call By Reference, Return Values. Nesting of Function, Recursion, Array as Function Argument, Command Line Arguments, Basics of Pointers, Pointers Operators, Pointer Arithmetic, Pointers and Function, Pointer and Strings. Preprocessor and its Advantages.

UNIT- IV

Storage Class Specifier- Auto, Extern, Static, Register. Defining Structure, Declaration of Structure Variable, Type def, Accessing Structure Members, Member Access Operator, Nested Structures, Array of Structure, Structure Assignment, Structure as Function Argument, Function that Return Structure, Union. Pointer to Structure, Pointers within Structure, Introduction to Static and Dynamic Memory Allocation, The Process of Dynamic Memory Allocation, DMA Functions : malloc( ), calloc( ), free( ), realloc( ), sizeof( ) Operator. C++ Classes and Object.

UNIT- V

Constructor and its Types, Array of Objects, Object as Argument, Reference Variable, Default Argument, Destructor Function, Object Oriented Programming Concepts. Polymorphism (Operator Overloading, Function Overloading) . Inheritance and its Types. Access Specifier, Virtual Functions, Abstract Base Classes and Pure Virtual Function. Virtual Base Classes.

References:

- Kerninghan& Ritchie “The C Programming Language”, PHI
- Schildt “C:the Complete Reference”, 4th Ed TMH.
- Kanetkar Y. “Let Us C”, BPB.
- Kanetkar Y.: “Pointers in C”,BPB
- Gottfried : “Problem Solving in C”, Schaum Series
- Balagurusami “Programming in ANSI C”,7th ed McGraw Hill Education.
- Herbertz Shield, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7
- R. Subburaj, 'Object Oriented Programming WithC++ Vikas Publishing House, New Delhi.Isbn 81-259-1450-1
- E. BalgurUswamy, "C++ " TMH Publication ISBN O-07-462038-X
- M. Kumar 'Programming InC++" TMH Publications
- R. Lafore, 'Object Oriented Programming C++"
- Ashok. N. Kamthane, "Object Oriented Programming WithANSi& Turbo C++ ", Pearson Education Publication,ISBN-8j-7808-772-3

Semester – III

3BCA-ADA07—Innovations and entrepreneurship

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	2/2	0	2/2	30	10	0	40

COURSE OBJECTIVE

- To describe students regarding Entrepreneurship & its Management.
- To explain the students difference between Entrepreneurs & Managers.
- To outline the students about importance of E.D.Programmes.
- To illustrate students Practical problems related to Transportation.
- To determine various Project Appraisal methods to the students.

LEARNING OUTCOMES

- Students would be able to develop the concept of Entrepreneurship Management.
- By analyzing the importance of E.D programmes, students would be able to integrate the various factors leading to success of Entrepreneurship.
- Student would be able to summarize various concepts leading to Small Businesses & would learn to integrate them into a concrete Business Approach.
- Applying Transportation concepts would enable the students to find out the Optimum
- way to solve the problems.

Unit-1	**Entrepreneurship**
1.1	Entrepreneurship: Nature & Scope (Class room lectures & PPT)
1.2	Role & Importance in Indian economy (PPT & class room lectures)
1.3	Traits of Entrepreneurs (PPT)
1.4	Entrepreneurs vs Professional Managers (Role Play, PPT)
1.5	Problems faced by Entrepreneurs (Class room Lectures)
Unit-2	**Environmental analysis**
2.1	Factors affecting External Environment (PPT)
2.2	Significance & Role of Environmental Infrastructure Network (PPT & Class room Lectures)
2.3	Environmental Analysis (class room lectures)
2.4	E.D programmes (E.D.P) (PPT , Class room lectures)
2.5	Problems of E.D.P (Class room Lectures)
Unit-3	**Transportation problems**
3.1	North West Corner method (practical)
3.2	Matrix Minima & VAM Method (practical)
3.3	Degenerating (practical)

3.4	MODI method (practical)
3.5	Assignment Problems (practical)
Unit-4	**Project Appraisal**
4.1	Project & Project Reports (PPTs)
4.2	Search for Business Idea (PPTs & Class room Lectures)
4.3	Projects& Classifications : Idea into Reality (PPTs)
4.4	Identification of Projects, Project Design & Network Analysis (PPTs &group discussions)
4.5	Project Appraisal & Plant Layout (Class Room Lectures)
Unit-5	**Types of organizations**
5.1	Small Industry Setup (Class room Lectures)
5.2	Types of Organization: Sole Proprietorship, Partnership , Joint Stock Company, Co-operative Organization, Merits , Limitations , Suitability (PPTs & class room lectures)
5.3	Organizational Locations (Role Play , Class room lectures)
5.4	Steps in Starting a Small industry (PPTs)
5.5	Incentives & subsidies available , Export Possibilities (PPTs)

Practical / Projects / Assignments:

- Case Studies: Related to real life entrepreneurs (Kabadwala.com)
- Practical solving of transportation problems.

Suggested Readings:

- Burns, Paul.(2016). Entrepreneurship & Small Business Development. New Delhi: Palgrave Macmillan Publishers
- Chakraborty, K.(2006). Entrepreneurship & Small Business Development. New Delhi: Mittal Publishers
- Charantimath, Poornima.(2005). Entrepreneurship & Small Business Development. New Delhi: Pearson education
- Khanka, S.K. (2006). Entrepreneurial Development. New Delhi: S.Chand publishing
- Nirjhar, A. (2011). Entrepreneurial Development. New Delhi: Sanbun Publishers

E-resources:

- https://www.slideshare.net/esmatullahamini1/entrepreneurial-developmentbook-pdf
- http://ncert.nic.in/ncerts/l/lebs213.pdf
- http://164.100.133.129:81/econtent/Uploads/Entrepreneurship_Development.pdf.

Semester – III

3BCA (GE-1)CSG01: DTP with PageMaker & Photoshop

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Acquire knowledge and develop skills of Page Maker and Photoshop, Printing Techniques, DTP Tools and photo editing.
- Learn Design layouts and Use existing design template to Create Readable and Attractive Newsletters.
- Lear various features, Shortcut Keyboard Commands and their usage PageMaker
- Apply a Report Template to a Multi-Page Document.
- To develop skills for layers and color and specify various file formats in Photoshop.

Course Outcomes:

1. Create Documents and Templates, Add text into Documents using various Methods.
2. Apply different Formatting Styles to Characters and Paragraphs using PageMaker.
3. Create a book and export it into PDF.
4. Gain proficiency using the selection tools and colors in Photoshop
5. Use and control the adjustments and filters to improve images
6. Use automated actions and batch edits.

Unit-wise Syllabus

UNIT - I

Introduction to Desk Top Publishing (DTP), Need and Area of Application. Use of DTP in Offset Printing, Web Designing and Publications, Page Layout & Designing in a single page production. Laser printers - Use, Types, Advantage of laser printer in publication, Difference between a word processor and Publication Software, Use and importance of DTP in Newspaper Printing, Various DTP Softwares and its application area.

UNIT - II

Introduction to Offset Printing Technology, Printers, Formatting of a text: Typography, Fonts, Spacing, Breaks, Measurements etc. DTP & Page Layout Designing. Types of Printing, Terms used in Offset Printing: Bleed, CMYK, Transparent Printouts. Halftone, Impression, Saddle Stitch, Perfect Bind, Negative & Positives for Plate were making.

Introduction to Adobe Page Maker 7.0, Previous and current versions of Page Maker, Page Maker as a DTP Software, Difference between a Page Maker & Word Processing Software. Attribute settings: Tools, Styles, Menus, Templates, Guides etc. Keyboard shortcuts, Templates & its use.

UNIT - III

Adobe Page Maker-Page Layouts, Text Editing, Magazine & News Paper Page Layouts. Filters, Import and Export options, Placing of Text and Images, Auto flow and Story Editor, Different Layout views, Control Palatte, Layers & its use. Tab setting, Columns & Gutters, Use of Styles, Palettes & Colors. Page and document setup, Column Balancing, Breaks Arrange, Fill & Stroke Options. Text Wrapping, Widows & Orphan lines, Revert Command and its use, Using Drop Caps and various style formats, Editing of Graphics and Frames.

UNIT - IV

Photoshop : Creating a New Document, Saving Files, Reverting Files. **Document Window:** Selecting Workspace, File Handling and cursor Preferences, Understanding Image Resolution and Pixel Logic, Editing Images. **Working with Selections** Tools, Commands- Expand and Contract, Grow and Similar, Refine Edges, Inverse Selection. **Transforming a Selection, Pen tool**. Tools: Paint Bucket Tool, Brush Tool, Pencil Tool, Color Replacement Tool, Retouching Tools, Spot Healing Brush Tool, Healing Brush Tool, Patch Tool, etc.

UNIT - V

Color mode, Color Levels, Pallets- Curves palette, Brightness/Contrast, Hue/Saturation, Histogram. Variations Command, File Formats in Photoshop: Bitmap (BMP), PSD,EPS, TIFF, GIF, JPEG. **Layers in Photoshop,** About Smart Objects and filters.

Creating an Action, Performing Photo merge in Photoshop, Text Editing in Photoshop, Finding and Replacing Text, Creating 3D Artwork , Creating and editing a 3D Shape, Animation in Photoshop. Exporting Formats: PSD, Eps, Jpeg, Gif, Tiff, PDF, BMP, TGA, PNG and etc.

References:

- Shelly, Gary B., Cashman, T, Microsoft Publisher 2003 Complete Concepts and Techniques .ISBN: 9780619200312
- Wempen, Faithe, Emergent Le, Learning Microsoft Office Publisher 2010, Student Edition ISBN: 9780135108994
- Weixel, Suzanne, Fulton, Desktop Publishing Basics ISBN: 9780619055363
- Proot, Kevin G., Adobe Pagemaker 7.0ISBN: 9780619109561
- Adobe Photoshop CS4 for Photographers: A professional Image Editors Guide By Martin Evening(2006)
- Photoshop CS4 in Simple Steps by Kogent Learning Solutions Inc. Published by dremtechpress(2008)
- Understanding Adobe Photoshop: Digital Imaging Concepts and techniques By Richard M.Harrington; ISBN 0-321-36898-3; Published 2007 American Chemical Society
- Photoshop In depth -Benjanim&David (2001)

- Adobe Photoshop CS6 Classroom in a Book © 2012 by Adobe Press. ISBN-13: 978-0-321-82733-3, ISBN-10: 0-321-82733-3.
- http://ptgmedia.pearsoncmg.com/images/9780321827333/samplepages/0321827333.pdf
- Adobe Photoshop CS5 Classroom in a Book by Adobe Press: ISBN-13: 978-0-321-70176

Semester –IV

4BCA-CSC08–WEB DEVELOPMENT WITH PHP

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Learn PHP programming environment to create, debug and run simple PHP programs.
- Understand PHP programming fundamentals such as character set, variables, data types, conditional and iterative execution, functions etc.
- Using PHP to develop applications for Web.
- Learn to use Arrays, Web forms, files, and databases with PHP to develop Web pages.

Course Outcomes:

- Develop programs using HTML and PHP.
- Develop PHP Program using Character set, variables, data types, conditional and iterative statements, functions etc.
- Develop WebPages using built-in functions related to string manipulation, mathematical, date and time etc.
- Develop Web pages using Arrays, Web forms, files, and databases with PHP

Unit-wise Syllabus

UNIT-I

Introduction to PHP, History of PHP, Versions of PHP, Features of PHP, Advantages of PHP over Other Scripting Languages, software requirements, Installation and Configuration of PHP, Installing and Configuring Apache to use PHP on Windows, Basic HTML, Embedding PHP in HTML, PHP Basic syntax, data types, comments, variables and constants, scope of variables, PHP arrays: creating array and accessing array elements, PHP String, PHP operators, precedence of operators, expressions, creating a PHP Script, running a PHP script.

UNIT- II

PHP conditional statements, switch case, PHP looping statements, while, for and do while loop, break, continue, exit, PHP functions: built-in and user defined function, declaration and calling of a function, function argument with call by value, call by reference, string manipulation, mathematical, date and time functions.

UNIT- III

Introduction to a web form, processing a web form, capturing form data, passing information between pages, PHP $_GET, PHP $_POST, with multi value fields, validating a web form, input validation, exception and error handling, introduction to cookies and session handling.

UNIT- IV

Working with database: PHP supported databases, using PHP & MySQL: Installation and configuration of MySQL on windows, checking configuration, connecting to database, selecting a database, adding

table and altering table in a database, inserting, deleting and modifying data in a table, retrieving data, performing queries, processing result sets.

UNIT- V

Code re-use, require(), include(), and the include_path, PHP file permissions, working with files: opening, closing, reading, writing a file, file system functions and file input and output, working with directory: creating, deleting, changing a directory, file uploads, introduction to object oriented programming with PHP.

References:

- Steven Holzner, The Complete Reference PHP, TMH
- Steve Suehring, Tim Converse and Joyce Park, Wiley-India Pvt Ltd
- Matt Doyle, Beginning PHP, Wiley-India Pvt Ltd
- Joel Murach and Ray Harris, Murach's PHP & MySQL, SPD Pvt Ltd
- Browsers Like IE, Mozila, Firefox Etc
- Server Software Xampp/Wamp/Lamp
- Www.Apachefriends.Org
- Www.W3.Org
- Www.w3schools.Com
- Www.Php.Net
- Www.Mysql.Com
- Www.Phpmyadmin.Net

Semester – IV

4BCA-CSC09 - Operating Systems

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives:

- To understand the services provided by operating system
- To understand the working and organization of process and its scheduling and synchronization.
- To understand different approaches of memory management techniques.
- To understand the structure and organization of the file system.

Course Outcomes:

- Understand, identify and describe the services provided by operating systems.
- Understand and solve problems involving process control, mutual exclusion, synchronization and deadlock.
- Implement processor scheduling, synchronization and disk allocation algorithms for a given scenario.
- Understand different types of operating system.

Unit-wise Syllabus

UNIT-I

Operating Systems - Definitions, functions, Types of operating system - Multiprogramming, Batch, Time Sharing, Single user and Multiuser, components, Operating system Services, System Calls, programs, System structure.

UNIT –II

Process management - process concepts, process state & process control block, process scheduling, scheduling criteria, scheduling algorithms, multiple processor scheduling, real-time scheduling, threads,

UNIT –III

Critical section problem, semaphores, classical problem of synchronization,, deadlock characterizations, method for handling deadlocks, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock .

UNIT –IV

Memory management - logical versus physical address space, contiguous allocation, fixed partition, variable partition, swapping, paging, segmentation, virtual memory, demand paging, page replacement, page replacement algorithms

UNIT –V

Disk scheduling, disk management, swap space management, disk reliability, stable storage implementation. File concepts, directory structure, protection.

References:

- Operating system concepts by Silberschatz, Galvin, Gagne, Wiley Student Edition
- Operating system concepts & design by Milan Milenkovic, TMH publication

Semester – IV

4BCA–CSC10-DOT NET PROGRAMMING WITH VB.NET & ASP.NET

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Understand .NETFramework, its architecture and user programs
- Develop simple GUI and event-driven programs using VB.NET
- Identify challenges involved in .NET framework programming
- Using Databases in Web application with ADO.NET
- Develop Web applications using ASP.NET.

Course Outcomes:

- Understanding of various features of .NET Framework
- Design and develop event-driven GUI applications using VB.NET
- Design and develop software in team.
- Develop dynamic Web applications using databases in .NET technology.

Unit-wise Syllabus

UNIT- I.

.NET Framework : Features & Architecture, Common Language Runtime, Common Type System, MSIL, Class Libraries. Event Drive Programming, Methods and Events. Programming into Visual Studio, IDE of VB.NET- Menu Bar, Toolbar, Project Explorer, Toolbox, Properties Window, Form Designer, Form Layout, Immediate Window, ASP & HTML Forms, Introduction to VB.NET and C# Applications, MsgBox Function, InputBox Function, Startup Form,

UNIT- II

Visual Basic .NET Language: Operators, Conditionals, Loops, Statements, Variables, Data Types , Arrays and Dynamic Arrays, Operators. Procedures, Scope, and Exception Handling, Creating Functions, Exception Handling, Using Resume Next and Resume Line, Using On Error GoTo, Windows Forms : Loading, Showing and Hiding Forms, Working with Multiple Forms, Creating Windows Applications, Adding Controls to Forms, Handling Events, Multiple Document Interface (MDI) Applications, Dialog Boxes, Controls at Run Time, Mouse Events, Keyboard Events, Beeping, Deploying Applications

UNIT- III

.NET Tools: Control Class, Text Boxes, Rich Text Boxes, Labels, Link Labels, Buttons, Checkboxes, Radio Buttons, Panels, and Group Boxes, List Boxes, Checked List Boxes, Combo Boxes, and Picture Boxes, Scroll Bars, Splitters, Track Bars, Pickers, Notify Icons, Tool Tips, and Timers, Menus, Built-in Dialog Boxes, and Printing, Image Lists, Tree and List Views, Toolbars, Status and Progress Bars, and Tab Controls

UNIT- IV

Web Forms with ASP.NET : Web Form Controls, HTML, Web Applications , Multiform Web Project, Client Events, Title Bar Text, Error Page, Search Engine Keywords, Embedding Visual Basic Code in Web Pages, Validation Controls, Calendars. Introduction to Windows Services & Web Services .

UNIT- V

Data Access with ADO.NET : Server Explorer Data Adaptors and Datasets, ADO.NET Objects, Data Connection, Dragging Tables , Dataset, Data Grid, Data Adapter Controls, Dataset Schema, MS Jet Database, Relational Databases. Binding Controls to Databases -- Simple Binding, Complex Binding, Navigating in Datasets, Data Forms. Handling Databases in Code. Database Access in Web Applications.

References:

- Steven Holzner VB.Net Programming-Black Book-Dreamtech Publications
- EvangelosPetroutsos Mastering VB.Net - BPB Publications
- Mathew Macdonald -The Complete Reference Asp.Net- TMH
- Professional ASP.Net- Wrox Publication
- Stephen Walther Active Server Pages 2.0 (Unleashed) - Techmedia
- Eric a. Smith Asp 3 Programming Bible: IDG Books.
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Semester – IV

4BCA-GE-2–CSG02-Multimedia with Corel Draw, Premier & Sound Forge/ Audacity

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- To provide students with a basic understanding of multimedia systems and its components.
- To impart skills of audio editing.
- To learn using Corel Draw, Premier, Sound Forge and Audacity software for sound recording & editing
- To develop skills for recording and editing of audio files.
- Learn to export edited audio files to various formats.

Course Outcomes:

- Define multimedia and its components
- Gain proficiency using the Corel Draw, Premier, Sound Forge andAudacity software.
- Use of various audio file formats.
- Understanding editing of audio files using Noise Floor, Removing Breaths in audio files.
- Exporting audio files.

UNITWISE SYLLABUS

UNIT I

Introduction to Multimedia, Identifying Multimedia Elements Text, Images, Sound, Video and Animation, Multimedia Applications in Education, Entertainment. Text - Concepts of Plain & Formatted Text, RTF & HTML Texts, Using Common Text Preparation Tools, Conversion to and from of Various Text Formats, Using Standard Software, Object Linking and Embedding Concept, Fonts – Various types and uses.

UNIT II

Corel Draw: Introduction to User Interface, tool panel and workspaces, various size and formats of Panels and layouts, Text tool and text properties, Creating Vector graphics by using editing tools, creating shapes and editing Shapes, creating Special object effects, Using color effects. Using grid and rulers, Tracing images and graphics, working with borders and page Arrangements, Using Masking effects with Text, Using Masking effects with objects.

UNIT III

Adobe Premier: Introduction, Area of Use, Setting up new project, workspace: Project, Video Display, Selected Clip Display, project panel, Project Timeline Toolbar, Toolbar description: Selection Tool, Track select Forward and Backward Tool, Tool Ripple Edit Tool, Rolling Edit Tool, Razor tool, Slip tool, Slide Tool, Pen Tool, Hand Tool, Zoom Tool. Importing files into Premier, Sequence, Titles, Video Motion, Video Opacity, and Transition Panel, Effect panel, color Correction, Adjusting Videos Speed, Saving project, Exporting Video.

UNIT IV

Sound Forge: Introduction, interface, Editing Toolbar, Transport toolbar, Opening New file, playing a file, playing file form specific point, playing a selection Basic Sound Editing: copying, pasting, Cutting Deleting, Cropping, Mixing, Recoding Audio Normalizing, Using Markers, Noise Reduction.

UNIT V

Audacity: Installation of Audacity, Control Panel Review-Start Recording, Play Recording, Stop Recording. Audacity Tools Tool Bar Use, Cursor, Audio File Formats, Compressed and Uncompressed Audio, Lossy and Lossless Compression. Editing audio files, Saving/Exporting Tracks, Splitting Tracks into Sections/Using Time Shift. Tool- Adding Music Bed, Fade In/Out, Shrink/Stretch Time of Audio etc. Mixing, Changing Tracks from Stereo to Mono.

Reference Books:-

- Tay Vaughan-Multimedia: Making It Work, Tata Mc-Graw Hill.
- Ramesh Bangia-Introduction to Multimedia- Laxmi Publications Pvt. Ltd.
- Satish Jain, Shashi Singh, Introduction To Multimedia - Based On Nielit O Level Syllabus For Mat-O2.R0 1st Edition, , BPB Publications, ISBN: 9788183335355, 8183335357
- Satish Jain, Corel Draw Training Guide Paperback – Publisher : BPB; First edition , 1 January 2018, ISBN-10 : 938728400X, ISBN-13 : 978-9387284005
- Mark Myers, Adobe Premiere Pro CC for Graphics Designing and Motion Graphics, september 23, 2019,isbn-10 : 169508117x, isbn-13 : 978-1695081178.
- Scott R. Garrigus, Sound Forge Power, Publisher : Laxmi Publications; First edition (1 January 2010), ISBN-10 : 8170083540, ISBN-13 : 978-8170083542
- THE BOOK OF AUDACITY RECORD, EDIT, MIX, AND MASTER WITH THE FREE AUDIO EDITOR BY CARLASCHRODERPUBLISHER: STARCH PRESS
- 'Audacity' by 'Melanie Crowder', Publisher: Penguin Young Readers Group, ISBN: 9780147512499
- 'Digital Audio Editing Fundamentals' By 'Wallace Jackson Lompoc', California, USA ISBN-13 (pbk): 978-1-4842-1647-7, ISBN-13 (electronic): 978-1-4842-1648-4, DOI 10.1007/978-1-4842-1648-4

Semester – IV

4BCA-ADA08-Co-curricular II

Parliament: Practice and Procedure-II

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	0	10	30	40

CourseObjectives

- To acquaint students with knowledge of the Indian Constitution.
- To make students familiar with concept of Parliament.
- To understand the concept of various practices and procedures of Indian Parliament
- To develop understanding about powers and privileges of Parliamentary and Legislative members

Learning Outcomes

- Students will be able to understand the concept of Indian Constitution and Parliament.
- Students will be able to understand working of Indian Parliament
- Students will be able to understand and analyze working of State Assembly and Legislative Councils
- Ability to apply the theory into practice.

Unit-1	**Introduction to Indian Constitution** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
1.1	Preamble	-	1	1
1.2	Fundamental Rights	-	-	2
1.3	Directive Principles of State Policy	-	-	2
Unit-2	**Introduction to Indian Parliament** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
2.1	Working of Indian Parliament	-	1	1
2.2	Committee of Indian Parliament	-	-	2
2.3	Budget	-	-	2
Unit-3	**Lok Sabha and Rajya Sabha** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
3.1	Working of Lok Sabha & Rajya Sabha	-	1	1
3.2	Passing of Bill in Lok Sabha & Rajya Sabha	-	-	2
3.3	Election of Members in of Rajya Sabha & Lok Sabha	-	-	2
Unit- 4	**State Assemblies and Legislative Councils** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
4.1	Introduction to Legislative Councils	-	1	1
4.2	Elections of members in Legislative Council	-	-	2
4.3	Functions of Legislative Council	-	-	2
Unit 5	**Different Parliamentary Systems in World** (Total hours- L+T+P=6hrs)	**L**	**T**	**P**
5.1	Japan Parliamentary System	-	1	1
5.2	Canada Parliamentary System	-	-	2
5.3	Germany Parliamentary System	-	-	2

Practical/Projects/Assignments:

- Role play/Skit/Mock Parliament.
- PPT Presentation on various contemporary issues

- Visit to Vidhan Sabha
- Virtual tour of the Indian Parliament.
- Any other assignment given by the concerned faculty.

Suggested Readings:

- Kaul M.N and Shakdher S.L, Practice and Procedure of Parliament, Lok Sabha Secretariat, New Delhi, Seventh Edition
- Khosla Madhav, The Constitution of Most Surprising Democracy, Oxford
- Basu Dr. Durga Das, Introduction of Indian Constitution, Lexis Nexis, 2019
- Rules of Procedure and Conduct of Business in the Council of States, Rajya Sabha Secretariat, New Delhi,2013.
- Chaudhary Sujit, Khosla Madhav and Mehta Pratap Bhanu, The Oxford Hand book of the Indian Constitution, Oxford University Press U.K,2016
- Role of Rajya Sabha in Indian Parliamentary Democracy, Rajya Sabha Secretariat, New Delhi,2019
- Narain Dr. Yogendra, Role and Relevance of Rajya Sabha in Indian Polity, Rajya Sabha Secretariat, New Delhi.
- Kashyap Subhash C., Our Parliament, National Book Trust, India
- Handbook for Members of Rajya Sabha, Rajya Sabha Secretariat, New Delhi, 2010
- Bakshi PM, Constitution of India, Universal Law Publishing, 2017
- De Rohit, A Peoples Constitution, Princeton University Press,2018.

c-resources:

- *https://eparlib.nic.in*
- *https://epgp.inflibnet.ac.in*
- *http:///Indias-Founding-Moment-Constitution-Surprising-ebook/*

Semester – IV

4BCA-ADA08-Co-curricular II

Bharatiya Sangeet-II

भारतीय संगीत-II

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	0	10	30	40

उद्देश्य

1. संगीत के मूल तत्वों को समझना।
2. सुगम संगीत की विभिन्न विधाओं जैसे गीत, भजन, गजल शैलियों इत्यादि से संगीत में आये हुए विभिन्नसैद्धान्तिक एवं वैचारिक महत्व पर चिंतन।
3. संगीत का सैद्धान्तिक और व्यावसायिक क्षेत्रों में प्रदर्शन, नियोजन को जानना।
4. हिन्दी चित्रपट संगीत की समझविकसित करना।
5. अन्य विषयों के साथ भारतीय संगीत को जोड़कर शोध के लिए भारतीय संगीत का प्रारंभिक ज्ञान देना।

शिक्षण के परिणाम

1. अलंकारों, राग काफी, भैरव, भैरवी की जानकारी।
2. सुगम संगीत की भिन्न शैलियों से परिचित होना।
3. भारतीय चित्रपट को जानना एवं प्रमुख संगीतकारों की शैलियों की समझना।
4. भारतीय चित्रपट संगीत में प्रसिद्ध पार्श्वगायकों के योगदान को जानना।
5. ताल एवं वाद्य यंत्रों की प्रारंभिक समझ।

ईकाई– 1		L	T	P
1.1	प्रारंभिक 10 से 20 अलंकारों का लेखन		2	2
1.2	राग काफी, भैरव, भेरवी का सम्पूर्ण परिचय			6
ईकाई–2		L	T	P
2.1	सुगम संगीत परिभाषा एवं विशेषताएँ		2	2
2.2	सुगम संगीत शैलियॉ गीत, गजल, भजन (प्रसिद्ध कवियों, शायर की 5-5			6
ईकाई–3		L	T	P
3.1	चित्रपट का अर्थ, परिचयन एवं इतिहास		2	
3.2	हिन्दी चित्रपट संगीत में शास्त्रीय संगीत का प्रयोग करने वाले प्रमुख		2	4
ईकाई–4		L	T	P
4.1	पार्श्वगायन का अर्थ, हिन्दी चित्रपट संगीत में पार्श्वगायन का प्रारंभ		2	
4.2	हिन्दी चित्रपट संगीत के प्रमुख गायक/गायिकाएँ परिचय एवं योगदान		2	4
ईकाई–5	मोहम्मदरफी मन्ना किशोर कुमार भारत रत्न	L	T	P

5.1	सुगम संगीत में प्रयुक्त होने वाले तालों का परिचय एवं प्रयोग ताल-तीव्रा,		1	6
5.2	सुगम संगीत में वाथवृंद का प्रयोग, महत्व एवं प्रमुख वाद्य		1	2

द्वितीय वर्ष –प्रायोगिक

प्रारंभिक 20से 10अलंकारों का गायन

1. रागकाफी-, भैरव, भैरवी में आरोहपकड-अवरोह-
2. सरगम, लक्षणगीत, छोटारख्याल 5-5 -आलाप तानों सहित प्रस्तुत करना।
3. सुगम संगीतत करना। से प्रस्तुच्छा संगीत की दो रचनायेंस्वेफिल्म/
4. हिन्दी चित्रपट संगीत के प्रसिद्ध पार्श्वगायक रीय रचनागायिकाओं में से किसी एक की स्त/ तिकी प्रस्तु (रचनाशब्द)
5. बाह्य परीक्षक की इच्छानुसार सुगम संगीत की किसी एक शैली को प्रस्तुत करना।
6. सैद्धान्तिकप्रश्नपत्र के तालों को हाथ से प्रदर्शित (खाली/ताली)करना।

संदर्भ -

1. हिन्दुस्तानी संगीत पद्धति - 2/1 भाग -लेखक विभातखण्डे .ना.
2. राग परिचय - 4/3/2/1भग -लेखक हरिशचन्द्रश्रीवास्तव
3. संगीत विशारद लेखक वसंत -
4. गुगलगायिकाओं के गीत हेतु।/गायकोंपितपार्श्वस्था-/यूटयूब/नेट/

ADA08-Co-curricular II
Lalit Kala-II

ललित कला-II

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	1/2	2/3	0	10	30	40

उददेश्य

1. दृश्य चित्रण की विधि से छात्रों को परिचित कराना।
2. प्रकृति और जीवन की सुंदरता की सराहना करने के लिए उनकी दृष्टिको समृद्ध कराना।
3. प्राकृतिक और मानव निर्मित वस्तुओं के विभिन्न रूपों का अभ्यास।
4. रंगो के प्रयोग और विभिन्न तकनीकों से छात्रों को परिचित कराना।
5. विभिन्न प्रकार की कला सामग्री औरउपकरणो का तकनीकों के साथ प्रयोग और कौशलसिखाना।
6. अन्य विषयों के साथ ललित कला को जोडकर शोध के लिए ललित कला का प्रारंभित ज्ञान देना ।

शिक्षण के परिणाम

1. परिप्रेक्ष्यचित्रणकीसमझ ।
2. प्रकृतिऔरजीवनकीसुंदरता की सराहनाऔरआनंदप्राप्ति ।
3. प्राकृतिकऔरमानवनिर्मितवस्तुओंकेविभिन्नरूपोंकाअध्ययनकरकेकलाकेनएरूपकोबनानेकीप्रेरणा।
4. विभिन्नप्रकारकीकलासामग्रीऔरउपकरणोकेप्रयोगसेकौशलकाविकास ।
5. कलात्मककौशलऔररचनात्मकताकाविकास ।

ईकाई - 1	दृश्यचित्र और प्रकृति अध्ययन	L	T	P
1.1	परिचय		1	
1.2	स्केचिंग और परिप्रेक्ष्य			2
1.3	रंग भरने की विभिन्न तकनीक			2
1.4	पौधों,पेड़ों और फूलों का अध्ययन		1	1
1.5	फलों और सब्जियों का अध्ययन		1	1
ईकाई- 2	अलंकरण(डिज़ाइन)			
2.1	सजावटी और ज्यामितीय अलंकरण(डिजाइन)		1	2
2.2	पोस्टर डिजाइन		1	2
2.3	लोगो डिजाइन		1	2
ईकाई- 3	ब्लॉक प्रिंटिंग और फैब्रिक पेंटिंग			
3.1	परिचय		2	2
3.2	सब्जी से प्रिंट (Vegetable Prints)			2
3.3	लकड़ी के ब्लॉक से प्रिंट			2
3.4	फैब्रिक पेंटिंग (कुशनकवर औ दुपट्टे)			2

ईकाई-4	**मिट्टी सेरचना(क्लेमॉडलिंग,तीन आयामी कला)**			
4.1	परिचय		**2**	2
4.2	सरल आकार (फल, सब्जी और फूल)			2
4.2	पक्षी और जानवर			2
4.4	पी ओ पी ब्लॉक **नक्काशी**			2
ईकाई- 5	**कागजशिल्प**			
5.1	बुक जैकेट डिजाइन		1	2
5.2	पेपर क्राफ्ट मोबाइल		1	2
5.3	कैलेंडर डिजाइन		1	2

ललितकलाप्रायोगिक

1. **दृश्य चित्र और प्रकृति अध्ययन।**
2. अलंकरण (डिज़ाइन)
3. **ब्लॉक प्रिंटिंग और फैब्रिकपेंटिंग।**
4. मिट्टी से रचना (**क्लेमॉडलिंग,तीन आयामीकला**)
5. कागज शिल्प

संदर्भ–

1.भारतीयकलाएवंसंस्कृति -**नितिनसिंघानिया**

2. Watercolour Landscapes Step by Stepby Milind Mulick

3. Colors of India: India Block Print Art (Block Prints Book 1) Kindle Editionby Shruti Jain

4. A for Ajrakh: The A to Z of Block by Nina Sabnani.

Semester –V

5BCA- CSC11 –MATHEMATICS

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
4/4	1/1	0	5/5	80	20	0	100

Course Objectives:

- To understand concepts and operations in Set Theory and Relations.
- To understand concepts and operations in Matrices and Determinant.
- To Understand fundamentals of Reasoning.
- To provide foundations of Probability theory& Logic.
- To provide foundations of Statistics related to data analysis.

Course Outcomes:

- Student will be able to perform Mathematical Operations like Set operations, Matrix operations
- Student will be able to perform Statistical operations like mean, mode, median on given datasets.
- Understand and practice Mathematical relations and functions&probability theory.
- Understand and practice Determinant, Matrices& Logic.

Unit-wise Syllabus

UNIT – I

Sets and elements: power set, universal set, union and intersection of sets, difference of sets, complement of a set, ordered pairs, Cartesian product of sets, number of elements in the Cartesian product of two finite sets. Equality of sets, transitivity of set inclusion, universal set, complement of a Set, Subsets Proper and Improper Subsets, Union of Sets, properties of Union. operation, intersection of sets, disjoint sets, properties of intersection operation, relative complement of a set, De Morgan'sLaws, Distributive Laws of Union and Intersection. Definition of Relation: Pictorial Diagrams, Co-domain and Range of a relation.

UNIT - II

Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, co-domain & range of a function. Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions with their graphs. Sum, difference, product and quotients of functions. Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

Fundamental principle of counting. Factorial n. (n!), permutations and combinations.

UNIT - III

Determinant: Determinant of 3rd order, Cramer's rule, consistency of equations

Matrices: types of matrices, algebra of matrices, linear homogeneous equations, linear non-homogeneous equations.

UNIT - IV

Mathematical reasoning: mathematically acceptable statements. connecting words/ phrases – consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and mathematics.

Definition of statistics, raw data, classification of data, average, scatter, range, relationship between mean, median, mode, dispersion, mean deviation, standard deviation, variance.

UNIT - V

Meaning of probability, random experiment an outcome, sample space, sample point, types of sample space, types of events, and probability of an event, total and conditional probability, probability distribution of a random variable, repeated independent (Bernoulli) trials and binomial distribution.

References:

1. Basics of Mathematics ByR. D Sharma.
2. Statistics and Solution By V. K. Kapoor.
3. www.e-booksdirectory.com/mathematics
4. www.origoeducation.com/go-maths

Semester –V

5BCA-CSC12 - Programming with Java

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Understand the usage of Java SDK environment and apply to create, debug and run simple java programs.
- Understand and apply the basic concept of java programming such as character set, variables, data types, conditional and iterative execution, methods, etc.
- Understand and implement the Object-Oriented Programming (OOPs) concepts in java, through defining classes, invoking methods, using class libraries, etc.
- Learn the creation and the usage of arrays and threads in java.
- Learn and demonstrate java applets.

Course Outcomes

1. Explain the object oriented concepts and apply them for solving real problems.
2. Demonstrate and apply the various features Java SDK to develop, run and debug java programs.
3. Apply java technology to develop the small applications, utilities, and web applications.
4. Apply events management and layout managers using awt, swing, jdbc and servlet for developing the software for various problems.

Unit-wise Syllabus

UNIT-I

C++ vs java, java and internet and WWW, java support systems, java environment, java program structure, tokens, statements, java virtual machine, constants & variables, data types, type casting, operators, expressions & its evaluation, decision making and branching, loops, jumps in loops, labeled loops.

UNIT-II

Defining a class, adding variables and methods, creating objects, accessing class members, constructors, method overloading, static members, nesting of methods, inheritance: extending a class, overriding methods, final variables and method~, final classes, finalizes methods, abstract methods and classes, visibility control.

UNIT-III

Arrays, one dimensional & two dimensional, strings, vectors, wrapper classes, defining interfaces, extending interfaces, implementing interfaces, accessing interface variables, system packages, using system packages, naming conventions, creating packages, accessing a package, using package, adding a class to a package, hiding classes.

UNIT-IV

Threads, creating threads, extending the threads class, stopping and blocking a thread, life cycle of a thread, using thread methods, thread exceptions, thread priority, synchronization, implementing the unable interface.

UNIT-V

Applets, local and remote applets, applets VS applications, writing applets, applets life cycle, creating an executable applet, designing a web page, applet tag, adding applet to HTML file, running the applet, passing parameters to applets, aligning the display, HTML tags & applets, getting input from the user interface.

References:

- E. Balagurusamy, "Programming with Java, a Primer",TMH, ISBN-13: 978-0-07-061713-1, ISBN-10: 0-07-061713-9.
- Patrick Naughton and Herbert Schildt, "Java: the Complete Reference", TMH Publication, ISBN 0-07-463769-X.
- Yashavantkanetkar, "Let us Java", BPB Publications.
- Cay Horstmann, "Big Java", Wiley Publication
- Peter Norton, "Java Programming", Techmedia Publications.
- Joseph Weber, "Using Java 1.2", PHI, ISBN -81-203-1558-8.

Semester –V

5BCA-CSE1 (A) –CLOUD COMPUTING

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
4/4	1/1	0	5/5	80	20	0	100

Course Objectives:

- Basics of cloud computing.
- Key concepts of virtualization.
- Different Cloud Computing services
- Cloud Implementation and its tools
- Key components of Amazon Web Services
- Cloud Backup and solutions
-

Course Outcomes:

- Define Cloud Computing and memorize the different Cloud service and deployment models
- Describe importance of virtualization along with their technologies.
- Use and Examine different cloud computing services
- Analyze the components of Google Cloud platform
- Describe the key components of Amazon web Service
- Design & develop backup strategies for cloud data based on features.

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Unit-wise Syllabus

Unit - I

Introduction to Computing Paradigms:High-Performance Computing, Parallel Computing, Distributed Computing, Cluster Computing, Grid Computing, Cloud Computing, Bio-computing, Mobile Computing, Quantum Computing, Optical Computing, Nano-computing, Network Computing. Cloud Computing Fundamentals:Motivation, Need, Definition of Cloud Computing. Principles of Cloud computing: Five Essential Characteristics, Four Cloud Deployment Models, Three Service Offering Models, Cloud Ecosystem, Requirements for Cloud Services. Cloud Computing Architecture: cloud Architecture,

User/Client Layer, Network Layer, Cloud Management Layer, Hardware Resource Layer, , Network Connectivity in Cloud Computing, Public Cloud Access Networking, Private Cloud Access Networking.

UNIT – II

Cloud Computing Management: Cloud Application, Benefits and Drawbacks Applications on the Cloud, Managing the Cloud, Managing the Cloud Infrastructure, Managing the Cloud Application, Migrating Application to Cloud, Cloud Deployment Models: Private Cloud, Outsourced Private Cloud, Community Cloud, On-Premise Community Cloud, Hybrid Cloud. Cloud Service Models: Infrastructure as a Service, : Platform as a Service, Software as a Service, Introduction to Open Source Tools for IaaS, Paas& SaaS : Apache.

UNIT - III

Technological Drivers for Cloud Computing: SOA and Cloud, SOA and SOC, Benefits of SOA, Multi-core Technology: Multi-core Processors and VM Scalability, Memory and Storage Technologies, Cloud Storage Requirements, Networking Technologies, Web 2.0 : Characteristics, Difference from Web 1.0, Applications, Social Media, Marketing, Education. Web 3.0:Components , Semantic Web, Web Services, Characteristics, Convergence of Cloud and Web 4.0, Connecting Information: Facebook. Agile Software Models: Agile SDLC for Cloud Computing, Features of Cloud SDLC, Agile Software Development Process, Advantages of Agile. Cloud Application Development Platforms: Windows Azure, Google App Engine, Forcecom. IBM Cloud Computing API

UNIT - IV

Virtualization : Full Virtualization, Para virtualization, Hardware-Assisted Virtualization, Hypervisor, OS Virtualization, Server Virtualization, Memory Virtualization, Storage Virtualization, Network Virtualization, Application Virtualization, Processor Virtualization, Memory Virtualization, Storage Virtualization, Network Virtualization, Data Virtualization, Application Virtualization, Hypervisors, Types of Hypervisors, Security Issues and Recommendations, From Virtualization to Cloud ComputingVMware. Microsoft Hyper-V.

UNIT - V

Cloud Service Providers ; EMC, EMC IT, Captiva Cloud Toolkit, Google, Cloud Platform, Cloud Storage, Google Cloud Connect, Google Cloud Print, Google App Engine, Amazon Web Services, Amazon Elastic Compute Cloud, Amazon Simple Storage Service, Amazon Simple Queue Service, Microsoft Azure, Microsoft Assessment and Planning Toolkit, SharePoint, IBM SmartCloud. Security in Cloud Computing, Cloud General Challenges,

Text Books:

- Essentials of Cloud Computing, K Chandrasekaran, CRC Press [ISBN: 3: 978--4822-0544-2]
- Raj Kumar Buyya, James Broberg and rezeiM.Goscinski, -Cloud Computing: Principles and Paradigms,-Wiley 2011.
- Srinivasan, J.Suresh,-Cloud Computing – a Practical Approach for Learning and Implementation, Pearson India, [ISBN 978131776513]
- Toby Velte, Anthony Velte, Robert Elsenpeter,-Cloud Computing, a Practical Approach - McGraw Hill, 2010 [ISBN: 0071626948]

References:

- Greg Schulz -Cloud and Virtual Data Storage Networking, Auerbach Publications [ISBN: 978-1439851739].
- Marty Poniatowski-Foundations of Green It- [ISBN: 978-0137043750].
- Learning Spring Application Development, Ravi Kant Soni, Packt Publishing.
- Michael Miller, Cloud Computing, 2008.

- Judith Hurwitz, Robin Bllor, Marcia Kaufman, Fern Halper, Cloud Computing for Dummies, 2009.
- BorkoFurht, Armando Escalante (Editors), Handbook of Cloud Computing, Springer, 2010.

Semester –V

5BCA- CSE1(B)- Linux & Shell Programming

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Understanding the basic set of commands and utilities in Linux/UNIX systems.
- To learn command structure of LINUX, various types of shells and types of commands and familiarize students with some general commands, directory and file related commands,
- To learn editors available in LINUX and the detailed working on the most Vi editor

Course Outcomes:

- Understand Shell variables and shell keyword.
- Write the shell program for simple problem.
- Understand type of process and pipes in Linux.
- Understand back ground and fore ground Process
- Understand Linux System Administration

Unit-wise Syllabus

UNIT – I

Linux introduction and file system - basic features, different flavors of linux. advantages, installing requirement, basic architecture of Unix/Linux system, kernel, shell, linux standard directories. Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less.

UNIT–II

Creating and viewing files using cat, file comparisons – cmp&comm, view files, disk related commands, checking disk free spaces. Essential Linux commands understanding shells, processes in linux - process fundamentals, connecting processes with pipes, redirecting input output, manual help, background processing.

UNIT–III

Managing multiple processes, changing process priority with nice, scheduling of processes at command, cron commands, kill, ps, who, sleep, Printing commands, touch, file related commands -wc, cut, dd, etc. Mathematical commands- bc, expr.

UNIT - IV

Creating and editing files with vi& vim editor. Shell programming- Basic of shell programming, Various types of shell available in Linux, comparisons between various shells, shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords,Creating Shell programs for automate system tasks.

UNIT - V

Simple filter commands – pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions – grep, awk, egrep, and sed.

References:

- Sumitabha Das "Unix - Concepts &Applications" (Third Ed.) Tata Mcgraw Hill Publications.

- Graham Glass & King Ables, "Unix for Programmers and Users" (Third Ed.) - Pearson Education India.(Low Prices Edition)
- Cristopher Negus "Red Hat Linux 9 Bible" IDG Books India Ltd.
- Jack T Ackett, David Gunter " Using Linux" PHI, EEE Edition
- Nicholas Wells "Linux Installation and Administration" Vikas Publishing, New Delhi
- YashwantKanetkar "Unix Shell Programming" BPB Publications,
- Red Hat Linux Unleashed Techmedia (Bpb Publications)
- Wells "Linux Networking and Security" Vikas Publishing, New Deihi

LIST OF PRACTICAL's:

1. Usage of following commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
2. Usage of following commands: cal, cat(append), cat(concatenate), mv, cp, man, date.
3. Usage of following commands: chmod, grep, tput (clear, highlight), bc.
4. Write a shell script to check if the number entered at the command line is prime or not.
5. Write a shell script to modify "cal" command to display calendars of the specified months.
6. Write a shell script to modify "cal" command to display calendars of the specified range of months.
7. Write a shell script to accept a login name. If not a valid login name display message – "Entered login name is invalid".
8. Write a shell script to display date in the mm/dd/yy format.
9. Write a shell script to display on the screen sorted output of "who" command along with the total number of users .
10. Write a shell script to display the multiplication table any number,
11. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.
12. Write a shell script to find the sum of digits of a given number.
13. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.
14. Write a shell script to find the LCD(least common divisor) of two numbers.
15. Write a shell script to perform the tasks of basic calculator.
16. Write a shell script to find the power of a given number.
17. Write a shell script to find the factorial of a given number.
18. Write a shell script to check whether the number is Armstrong or not.
19. Write a shell script to check whether the file have all the permissions or not.
20. Program to show the pyramid of special character "*"

Semester –V

5BCA –GE-CSG03- ACCOUNTING WITH TALLY

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- Basics of Tally Accounting software.
- Learn to create company, enter accounting voucher entries and create various type of books for the accounting purpose.
- Learn to do reconcile bank statement, do accrual adjustments,
- Learn to prepare and print financial statements, etc. in TallyAccounting software.

Course Outcomes

- Explain basics of Tally Accounting processes.
- Define key terms related to Tally Accounting software.
- Create Company and enter accounting voucher entries and create various type of books in the software.
- Do the reconcile bank statementand perform other accrual adjustments
- Prepare and print financial statements, etc. in TallyAccounting software

Unit-wise Syllabus

UNIT - I

Tally configuration & INI setup, data directory & folders configuration, single & multiple user, Tally screen components, mouse / keyboard conventions & key, combinations, switching between screen areas, quitting Tally. Maintaining company data, basic company details, create/alter/select/load/close a company, chart of accounts, company features, configuration.

UNIT – II

Create, Alter & Display Groups and Ledgers, All accounting voucher types and transactions, Create and Alter new Voucher type, Item and Account Invoice transactions, Excise Invoice, Export Invoice, Transactions using Bill-wise details Create, Alter & Display Cost Centre and Cost Categories, Cost centre& Cost Category allocation in voucher entry, Creating Cost centre Class, Invoice entry in a Class situation, Create, Alter & Delete Foreign Currencies, Voucher entry using foreign currency, Bank Reconciliation, Interest calculations using simple &advance parameters, Interest calculations on outstanding balances &on invoices, Use of voucher class, adjustment of interest, Creation of voucher class, Invoice entry in a class situation.

UNIT – III

Create, Alter & Delete Budgets for groups, ledgers & cost centres, Defining credit limit & credit period, Display Budgets & variances, Create, Alter & Delete a scenario. Enabling Job Costing in Tally, Master creation & configuration for Job costing, Creation of Voucher type & Voucher class for Stock Transactions, Creation of Transfer journal for transfer of stock between godowns, Consumption journal Transactions, payment voucher, Godown summary Report, Job Work Analysis, Material consumption summary. Reports like balance sheet, Profit & Loss account, Ratio analysis, Trial Balance. Accounts books like cash/bank book, All ledgers, Group summary &vouchers, Sales, purchase & journal registers, Cost centre& category summary, Cost centre breakup, ledger & group breakup,outstanding receivables &payables, interest receivable &payable, Statistics, Cash & Fund flow, Day book, List of Accounts, Reversing Journals, optional vouchers, post-dated vouchers.

UNIT – IV

Create, Alter & Display Stock Groups and Stock Items, Stock item behavior using costing and market valuation method, other behavior like treating all sales as new manufacture, treating all purchases as consumed, treating all rejections inward as scrap, ignoring negative balances, Treating difference due to physical counting, Create, Alter & Display Stock categories, Create, Alter, Display simple & compound units of measures, Stock items using alternate units, Defining standard cost & selling price, Defining Rate of duty, Defining MRP, Create, Alter & Display Godowns, Allocation of items to the Godowns, All inventory voucher types and transactions, Inventory details in accounting vouchers, Defining re-order level, Transactions using tracking numbers, Use of batch-wise details in voucher, Additional cost details in vouchers, Creating Bill of material, Cost estimation, Creating Price list &defining Price levels, invoice using Price list, Zero valued entries, Transactions in case of Different actual & billed quantities. Reports like Stock summary, Inventory books like Stock item, Group summary, Stock transfers, Physical stock register, Movement analysis, Stock group & item analysis, stock category analysis, Ageing analysis, Sales order & Purchase order book, Statement of inventory related to Godowns, categories, stock query, Reorder status, Purchase & Sales order summary, Purchase & Sales bill pending, Exception reports like negative stock & ledger, overdue receivables& payables, memorandum vouchers, optional vouchers, post-dated vouchers, reversing journals.

UNIT – V

ChequePrinting, Common printing options,Different printing formats, Multi-Account printing, Dynamic-Report specific options. Creating Group Company, Use of Tally vault, Using Security control &defining different security levels,Use of Tally Audit. Back-up & Restore, Splitting company data, Export & import of Data, ODBC compliance, use of E-mail, Internet publishing, Upload, web browser & online help, Re-write data.

References:

- Implementing Tally 6.3 by Nadhani; BPB Publications, ISBN:817656494X
- BPB Tally 6.3 by BPB Editorial Board (Hindi) BPB Publications, ISBN 81-7656-594-6

Semester –VI

6BCA-CSC13- Software Engineering

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives:

- Understand, learn and apply the theoretical and practical knowledge of software development such as software development paradigms, process, models, tools and techniques.
- Understand and learn the process of software requirements identification, analysis, review, and learn recording requirements in the standard format of the SRS document.
- Understand the various types and levels of software testing and basic approaches of test case designing.
- Gain the knowledge of the various models of software quality, estimation, quality assurance and control.

Course Outcomes:

1. Identify, analyze, review and validate the requirement of software components and system, and also prepare software requirement specification (SRS) document using relevant standards, tools and methodologies.
2. Manage a software project by applying project management concepts such as planning, scheduling and risk management for developing qualitative and economic software.
3. Develop and maintain the software system to solve real life problems in team with sustainability.
4. Work effectively in various profiles of software developing team such as software analyst, architecture, programmer, tester, quality assurance and project manager.

UNIT - I

Software : software characteristics and appli1cations, software engineering - a layered technology, software process models - linear sequential model, prototype & RAD model, incremental model and spiral model. Project metrics: software measurement–size oriented, function oriented metrics, extended function point metric

UNIT - II

Software project planning: objectives, decomposition techniques, and empirical estimation models. Analysis concept and principles: requirement analysis, analysis principles.

UNIT – III

Design concepts and principles: design process, design concepts, design principles, effective modular design, human computer interface design, interface design guidelines.

UNIT – IV

S/w quality assurance: quality concepts, reliability s/w testing models: s/w testing fundamentals, white and black box testing, basic path testing, testing strategies: strategic approach to s/w testing, unit testing, integration testing, validation testing, system testing.

UNIT - V

S/w reuse: reuse process, classification and retrieving components, economics of s/w reuseSoftware maintenance- need for software maintenance, maintenance models. Software configuration management (SCM) – version control – SCM process – software configuration items Computer aided software engineering (CASE): introduction to case, taxonomy of case tools

References:

- R S Pressman, Software Engineering
- Pankaj Jalote An Integrated Approach To Software Engineering
- K. K. Aggarwal, Yogesh Singh, Software Engineering,
- Ian Sommerville, Software Engineering, Addison-Wesley Publishing Company,
- James F. Peter, Software Engineering - an Engineering Approach, John Wiley,
- Fairley Richard Software Engineering Concepts, Tata McGraw Hill

Semester –VI

6BCA-CSC14-Thesis/ Internship/Project

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	1/1	4/8	5/9	0	20	80	100

Guidelines for BCA Project

The Bachelor of Computer Applications (BCA) programme is designed with the objective to prepare the students to take up positions in it industries as programmer, systems designers, software engineers, etc. The curricula are designed to provide students comprehensive knowledge covering the skills and core areas of computer science in theory and practical's. With the same objective six months major project is part of curricula in last semester of BCA. In the major project students are supposed to develop quality software solutions by applying theoretical and practical knowledge of various courses learnt.

Objectives

The objective of the project is to help the student develop the ability to apply theoretical and practical tools / techniques to solve real life problems related to industry, academic institutions and research laboratories. After completion of this project work, the student should be able to describe the Systems Development Life Cycle (SDLC) related to their project:

- Evaluate systems requirements.
- Evaluate a problem definition.
- Collect information to determine requirements.
- Perform and evaluate feasibility studies like cost-benefit analysis, technical feasibility, time feasibility and operational feasibility for the project.
- Work on data collection methods for fact finding.
- Construct and evaluate data flow diagrams.
- Construct and evaluate data dictionaries/ decision trees/ decision table.
- Create and evaluate graphical tools as systems flow charts, entity-relationship (er) diagrams and state transition diagrams.
- Preparation of Software Requirement Specifications (SRS)and hardware specifications.
- Plan the systems design phase of theSDLC.
- Identification of Functional & Non-functionaldesign requirements.
- Design and evaluate system outputs.
- Design and evaluate systems inputs.
- Design and evaluate validity checks for input data.
- Design and evaluate user interfaces.
- Perform coding for the project.
- Prepare documentation of project
- Perform various testing techniques/strategies.
- Be able to generate various reports in project.
- Able to deploy the project on machine/lab/real time environment
- Identification of the maintenance procedures.
- To decide the future scope and further enhancement of the system.
- Plan for appendices (if any) to be placed in support with the project report documentation.

Types of Project

The majority of the students are expected to work on real-life project preferably in some industry/ research and development laboratories / educational institution / software company. However, it is not

mandatory for a student to work on a real-life project. The student can formulate a project problem with the help of her/his supervisor and if approved, the student commences working on it.

Project Synopsis Format

The project proposal should be prepared in consultation with supervisor. Approval of the project proposal is mandatory to continue and submit the project work. The project proposal should clearly state the project objectives and the environment of the proposed project to be undertaken.

The project proposal should contain complete details in the following form:

- Title of the project
- Name of the supervisor (external supervisor(company)from / internal supervisor (teacher of the BCA))
- Introduction and objectives of the project
- Analysis (DFDs, ER diagrams, class diagrams, time line etc. As per the project requirements).
- A complete structure which includes:
- Name of modules and their description
- Database / data structures description
- Process logic of each module(flow chart)
- Reports generation. (repot format)
- Tools / platform, hardware and software requirement specifications
- Organization/ company details with profile of supervisor (if project is carried out outside the department)

Project Work Guidelines

The project work should normally include software development.

Not more than two students are permitted to work on a project.

The project may be done in the university campus/concern study institute or in an approved sponsoring organization in view of the proposed topic.

A candidate is required to present the progress of the project work during the semester as per the schedule.

Project Report Preparation

Good quality white A4 size paper should be used for printingand duplication. Care should be taken to avoid smudging pages while duplicating the copies.

Page Size – A4 (21 cm x 29.7 cm) – Orientation – Portrait

Page Margins -Left Margin-3.0cm, Right Margin- 2.0 cm, Top Margin 2.54 cm, Bottom Margin 2.54 cm, Line Spacing – single, Font Name -Times New Roman/ Bookman Old Style

Font Size – 12 for normal text, 14 for headings, 16 for chapter heading,

Page Numbers - all text pages as well as program source code listing should be numbered at the bottom of the pages.

Software Used - MS-Word or Open Office or any other Open Source software.

The project report should contain the following:

1. Front page – Black color with golden or white text.
2. Certificate from the supervisor with her/his signature and date.
3. Certificate from company/industry in their letter head (if project is carried out outside the department)
4. Certificate of originality/ self-certificate
5. The project report documentation should include the following topics (as per the project requirements).
6. Acknowledgements
7. Table of contents / index with page numbering
8. Introduction / objectives of the project

9. System analysis
10. Feasibility study
11. Software and hardware requirement specifications
12. System design
13. Coding
14. Validation checks
15. Testing (testing techniques and testing strategies used along with the test data and the errors listed for each test case).
16. Reports, tables figures should be properly numbered/labeled
17. Screen shots of projects
18. Implementation and maintenance
19. Conclusion
20. Future scope and further enhancement of the project
21. Bibliography/ references
22. Appendices (if required)

A properly labeled and signed CDwhich contains the soft-copy of all the program's source code and executables, databases, reports, screenshots and documentation in MS Word / Libre & PDF format should be in a kept in a thick envelope and must be pasted inside of the back cover of the project report.

Two copies of the original project report in bound form are to be submitted. Each group is required to prepare individual copy of project report in CD and submit along with his/her project report in MS Word / Libre as well as PDF. The same must contain the report, results, screenshots, errors, databases, source codes (wherever it is not feasible explicit approval from the supervisor must be obtained).

Project Evaluation

Internal evaluation is done on the basis of flowing

- Project analysis & planning
- Project design & development
- Project testing & validation
- Project documentation
- Project presentation & viva

To fulfill the above three presentation must be carried out phase wise in the whole semester for internal assessment of the project.

The standard formats of the title cover of the project reports and other standard certificates are given ahead. All students are advised to use these formats to present their reports.

CSC14 Thesis / Internship/Project

PROJECT REPORT ON

"……..TITLE OF THE PROJECT ……..."

Submitted in partial fulfillment of the requirement
for the award of the degree
Bachelor of Computer Applications (BCA)

SESSION :20XX-20YY

Project Guided By:	**Submitted By:**
External Guide (if any) : **Internal Guide:** (BCA Faculty)	Name of Student Enrollment No. Roll No. Study Institute code No. Name of Students Enrollment No. Roll No. Study Institute code No.

Submitted to
Makhanlal ChaturvediNational University of Journalism and Communication, Bhopal
<Name of Study Institute>

PROJECT CERTIFICATE

This is to certify that the project report entitled _____ submitted to MakhanlalChaturvedi National University of Journalism & Communication, in partial fulfillment of the requirement for the award of the degree of **Bachelor of Computer Applications**(BCA), is original work carried out by myself Mr/ Ms_____ with enrolment no. _____ under the Supervision of Prof./Dr./Mr./Ms._____.The matter embodied in this project is genuine work done by myself and has not been submitted whether to this University or to any other University / Institute for the fulfillment of the requirement of any course of study.

Date:

Name & Signature of the Student

Contact Details (Email, Phone & Address)

Verified by the Supervisor

Name & Signature of the Supervisor/s

Date: ……..

ACKNOWLEDGEMENT

This Major Project is the result of contribution of many mind. I would like to acknowledge and thank my project guide..... (Faculty Name)for his/hervaluablesupportandguidance. He/she guided me through the process from conception and till the completion of this project. I would also like to thanks my class teacher/institute director .....and my all my faculties..... I thank to lab staff members.....and other non-teaching members.

I am very thankful for the open-handed support extended by many people. While no list would be complete, it is my pleasure to acknowledge the assistance of my friends who provided encouragement, knowledge and constructive suggestions.

Signature of Student
(Name of student)
(Roll No ----------)
(Enrollment No --------)

SELF-CERTIFICATE

This is to certify that the Major Project report entitled "----------" is done by me, and it is authentic work carried out for the partial fulfillment of the requirements for the award of the degree of Bachelor of Computer Application(BCA) under the guidance of.....(Faculty name). The matter and software embodies in this project has not been submitted earlier for award of any degree or diploma to the best of my knowledge and believes.

Signature of Student

(Name of student)

(Roll No ----------)

(Enrollment No --------)

CERTIFICATE FROM PROJECT GUIDE

This is certify that this Major Project entitled "_____" submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Computer Application (BCA) in session (years 20__ to 20__) to the Makhanlal Chaturvedi National University of Journalism & Communication, Bhopal, done by _____(student name) is an authentic work carried out by his/ them at "… …… "(study centre name /department name) (----------Place) under my guidance. The matter and software embodied in this project work has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief.

Signature of BCA Teacher

(Project Guide)

Semester –VI

6BCA-CSE2(A)– Programming with Python

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- To Introduce Python Programming Language as Multipurpose Programming Language with Features and Applications.
- To Learn Installing Python and Introducing Cross Multiplatform Usage of Python.
- To Practice Basic Language Features of Python and Implement Oops Concepts Using Python.
- Learn core python structures and flow control, Create and run python functions
- Explore the python library functions for various purpose

Course Outcomes:

1. Install and use Python on Various Platform.
2. Understand and Explain various features of Python language
3. Design and Develop Python applications for data analysis using object-oriented concept
4. Build package and modules in Python with reusability and exception Aspect
5. Write and execute Simple programs for sorting and searching in Python.

Unit-wise Syllabus

UNIT - I

Planning the computer program: concept of problem solving, problem definition, program design, debugging, types of errors in programming, documentation.

Techniques of problem solving: flowcharting, decision table, algorithms, structured programming concepts, programming methodologies viz. Top-down and bottom-up programming.

Overview of programming: structure of a python program, elements of python.

UNIT - II

Introduction to python: python interpreter, using python as calculator, python shell, indentation. Atoms, identifiers and keywords, literals, strings, operators (arithmetic operator, relational operator, logical or Boolean operator, assignment, operator, ternary operator, bit wise operator, increment or decrement operator)

Creating python programs: input and output statements, control statements(branching, looping, conditional statement, exit function, difference between break, continue and pass.), defining functions, default arguments, errors and exceptions.

Iteration and recursion: conditional execution, alternative execution, nested conditionals, the return statement.

UNIT - III

Recursion, stack diagrams for recursive functions, multiple assignment, the while statement, tables, two-dimensional tables

Strings and lists: string as a compound data type, length, traversal and the for loop, string slices, string comparison, a find function.

UNIT - IV

Looping and counting, list values, accessing elements, list length, list membership, lists and for loops, list operations, list deletion. Cloning lists, nested lists

Object oriented programming: introduction to classes, objects and methods, standard libraries.

UNIT - V

Data structures: arrays, list, set, stacks and queues.

Searching and sorting: linear and binary search, bubble, selection and insertion sorting.

References:

- T. Budd, Exploring Python, TMH, 1st Ed, 2011
- How to think like a computer scientist: learning with Python / Allen Downey, Jeffrey Elkner, Chris Meyers. 1st Edition – Freely available online.
- http://docs.python.org/3/tutorial/index.html
- http://interactivepython.org/courselib/static/pythonds

LIST OF PRACTICAL'S:

- Using for loop, print a table of Celsius/Fahrenheit equivalences. Let c be the Celsius temperatures ranging from 0 to 100, for each value of c, print the corresponding Fahrenheit temperature.
- Using while loop, produce a table of sins, cosines and tangents. Make a variable x in range from 0 to 10 in steps of 0.2. For each value of x, print the value of sin(x), cos(x) and tan(x).
- Write a program that reads an integer value and prints "leap year" or "not a leap year".
- Write a program that takes a positive integer n and then produces n lines of output shown as follows. For example enter a size: 5

  *
  **
  ***
  ****
  *****
- Write a function that takes an integer 'n' as input and calculates the value of 1 + 1/1! + 1/2! + 1/3! + ... + 1/n
- Write a function that takes an integer input and calculates the factorial of that number.
- Write a function that takes a string input and checks if it's a palindrome or not.
- Write a list function to convert a string into a list, as in list ('abc') gives [a, b, c].
- Write a program to generate Fibonacci series.
- Write a program to check whether the input number is even or odd.
- Write a program to compare three numbers and print the largest one.
- Write a program to print factors of a given number.
- Write a method to calculate GCD of two numbers.
- Write a program to create Stack Class and implement all its methods. (Use Lists)
- Write a program to create Queue Class and implement all its methods. (Use Lists)
- Write a program to implement linear and binary search on lists.

Write a program to sort a list using insertion sort and bubble sort and selection sort.

Semester –VI

6BCA-CSE2(B) – MOBILE APPLICATION DEVELOPMENT

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives:

- To introduce Android platform and its architecture.
- To learn activity creation and Android UI designing.
- Tobefamiliarized with Intent, Broadcastreceivers and Internet services.
- ToworkwithSQLite Database and content providers.
- To integrate multimedia, camera andLocationbased services & REST full web ServicesinAndroid Application.
- Toexplorepublishing process of Android Application

Course Outcomes:

- Describe Android platform, Architecture and features.
- Design User Interface and develop activity for Android App.
- Use Intent, Broadcast receivers and Internet services in Android App.
- Design and implement Database Application and Content providers.
- Use multimedia, camera and Location based services in Android App.
- Discuss various stages in Android App publishing.

Unit-wise Syllabus

UNIT - I

Various mobile platforms, introduction to android, history and versions of android, android API, android architecture, android runtime, dalvik virtual machine, features of android, introduction and installation of eclipse and ADT plugin and/or introduction and installation of android studio, requirements and installation of android SDK, SDK manager, emulator, avd, android virtual device manager, Google play account, installing android app from google play, APK file.

UNIT - II

Setting up Development Environment, Installing Packages using SDK Manager, Android Project Structure, Creating Hello Android App, Deploy it on USB-connected Android device, Setting up an Emulator, Android Tool Repository, Manifest File, DDMS, File Explorer, Installing and Running Android - Hello App, Activity Life Cycle and its methods, Logcat, Components of an Android App – Activity, Service, Broadcast Receiver, Content Provider

UNIT - III

Layout – Linear Layout, Relative Layout, Scroll View Layout, Table Layout, Frame Layout, UI Resources – Layout Resources, UI Elements, Views – Text view, Edit Text, Button, Check Box, Radio Button, Image Button, Spinner, Navigating between Activities – Intent, Exchanging Data between Activities, Action Bar, Event Handling, Listeners, Notifying the User –Toast.

UNIT - IV

Using Threads, Image View, Exception Handling, Multimedia - Playing Audio using an Intent, Playing Video using an Intent, Playing Audio using Media Player, Playing Video using Video View, Fragment, Fragment Life Cycle.

UNIT - V

SQLite database, creation of database and tables, CRUD operations – create, retrieve, update and delete operations, Cursor, list view,

Introduction – REST full web Services, JSON, Google Play Services, location services, publishing apps.

References:

- Michael Burton, Donn Felker, "Android Application Development for Dummies", Dummies, ISBN : 9788126538775
- Pradeep Kothari, " Android Application Development (with Kitkat Support)", Kogent Learning Solutions Inc., Black Book, DreamTech Press, ISBN : 9789351194095
- W. Frank Ableson, Robi Sen, Et. Al., " Android in Action", Manning, ISBN : 9789350042915
- Charlie Collins, Michael Galpin, Et. Al., " Android in Practice", Manning, ISBN : 9789350042397
- Anubhav Pradhan, Anil V Deshpande, "Composing Mobile App, Learn | Explore | Apply using Android", Wiley, ISBN : 9788126546602
- James C. Sheusi, " Android Application Development For Java Programmers", Cengage Learning, 2013.
- Wallace Jackson, "Android Apps for Absolute Beginners", Apress, ISBN : 9788132211372
- http://www.developer.android.com

Semester –VI

6BCA-GE-CSG04 – SOCIAL MEDIA MARKRTING

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives

- To provide students with the knowledge about business advantages of the social media and its importance for marketing success.
- How to integrate different digital media and create marketing content.
- Understand planning and control activities to effectively produce and deliver goods and services.
- Learn principles of marketing, economics, accounting, operations management, and finance.
- Develop and implement social media strategies for business-to-business (B2B) and business-to-consumer (B2C) marketing for penetration, growth, and development.

Course Outcome:

- Students will be able to identify the importance of the social media marketing for marketing success
- Successfully created a blog and a social media marketing plan for a new product or service.
- Understand what social media is, the various channels through which it operates, and its role in marketing strategy
- Use principles of consumer and social psychology to develop social media content and campaigns that engage consumers
- Draw on knowledge about word-of-mouth marketing to develop effective approaches for propagating ideas, messages, products, and behaviors across social networks
- Measure the impact of a social media campaign in terms of a specific marketing objective.

UNIT-I

Social media overview- social media features, social media tools and platforms, social media monitoring, hashtag, viral content.Search engine optimization (SEO) - on page optimization, off page optimization.

UNIT-II

Social media marketing I - SMM vs. SMO, benefits of using SMM, social media strategy, Email marketing, LinkedIn Marketing,LinkedIn publishing, Twitter Marketing, Google Analytics- Google analytics works.Affiliate marketing- Introduction, history, Affiliate marketing scenario in India.

UNIT-III

Social media marketing II- Facebook marketing- profiles and pages, business categories, Facebook page custom URL, invite page likes, scheduling posts, Facebook events, Facebook insights reports, competitor's Facebook page, connect with twitter.Facebook Ad Campaigns- Ad Objective, Performance Matrix, Ad Components, Facebook Ad Structure, Facebook Insights, Facebook Page Promotion, Video Promotion.

UNIT-IV

Google Ads- introduction to Ad words, keyword planner, PPC, PPC terminology, strengths of Pay-Per-Click, PPC AD on Google, Facebook.Content Marketing- Introduction, Objective of content marketing, types of content.

UNIT-V

Mobile Marketing- Trends in Mobile, Mobile Statistics, QR Codes, SMS Marketing, SMS Campaign Process, Mobile Analytics, Emerging TrendsSecurity for SMM, Social Media Privacy, Cookies, VPN, Digital Certificate, E-wallet.

References:

- Dan Zarrella (2011) the Social Media Marketing Book, O'Reilly Media.
- Krista Neher (2013) Visual Social Media Marketing: Harnessing Images,Instagram, Infographics and Pinterest to Grow Your Business Online, Boot Camp Digital.
- Ryan Deiss, Russ Henneberry (2017) Digital Marketing for Dummies, John Wiley &Sons.ISBN 1119235596, 9781119235590.
- Ahuja Vandana (2015) Digital Marketing, Oxford University Press. ISBN 0199455449, 9780199455447

Option II -4 Years BCA with Research

Semester –VII

7BCA-CSC15-RESEARCH METHODOLOGY

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Prerequisite:

COURSE OBJECTIVES

The primary aim of the course is to :

- Equip the students to analyse research related information. · sensitize the students to ethical research practices
- Equip them to write technical reports and research paper.
- Equip them with the process of patent filing create awareness about the consequences of IPR Infringement

COURSE OUTCOME

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

- Understand and describe the basic concepts Research Methodology.
- Analyse research related Information.
- Indulge in ethical research practices
- Equipped to write technical reports and research paper. ·
- Equipped with the process of patent filing possess and awareness about consequences of IPR Infringement

UNIT-WISE SYLLABUS

UNIT I

Basics of Research: Computer Research, Reasoning, Socio-Techno Research, Research Problem, Meaning and Importance of Research Problem, Types of Research:- Selection and formulation of

Research Problem, Sources of Research Problem, Criteria and Characteristics of good Research Problem, Errors in selecting a research Problem, scope and objectives of research problem.

UNIT-2

Research Design, Hypothesis, Classification of Research, Pure and Applied Research , Exploring or Formulative Research, Descriptive Research , Diagnostic Research/Study ,Evaluation research/Studies , Action Research , Experimental Research , Analytical Study of Statistical Method , Historical Research, Surveys , Case Study , Field Studies General Survey of various Methods including Survey Method, Interdisciplinary Method, Cash Study Method, Sampling Method, Statistical Method, Observation Method, Interview Method, Schedule Method, Questinnarie Method, Documentary Method, Library

Method, Historical Method and Scientific Method. Characteristic Features of Scientific Method; Empirical Verifiable, Cumulative, Self- Correcting, Deterministic, Ethical & Ideological neutrality (Value Free), Statistical Generalizability.

UNIT-3

Collection, Objectives and Classification of Data, Aims, Methods and Objects of Tabulation of Data, Forms and Processes of Interpretation and Presentation of Data

Types of data:-Primary, Secondary and Tertiary Data. Construction and adaptation of instruments, administration of questions and tests, Tabulation of data. Data organization in SPSS & Excel, Graphical representation of data

Definition and Aims of Content Analysis, Problems of Content Analysis, Computer and Content Analysis Discussion and Interpretation of results, Testing of Hypothesis: Logical and Statistical Techniques.

Sampling, Methods of Data Collection, Tools & Techniques of Data Collection, Data Analysis, Jurimetrics, Use of Digital Library in Technology Research, Effective Literature studies, approaches and analysis.

UNIT-4

Locating Information on a Topic of Interest, Acquiring Copies of Articles of Interest, The Nature of Scientific Variables, Conceptual Versus Operational Definitions of Variables, Levels of Measurement, Various Paradigms including Formism, Mechanism, Organicism, Pragmatism

Format for Research Report, Identification of the Parts of a Research Report, Effective Technical Writing, How to write report and Research paper; developing a research proposal. Report Writing, Essentials of Report Writing, Aids for Writing Good Research Report, Research Ethics, Quantitative Research, Qualitative Research, Research Proposal, Review of Literature, Measurement, Scaling, Reliability & Validity, Primary & Secondary Data, Survey Method, Content Analysis, Case Study Method, Projective Techniques, Data Processing, Statistical Package for Research Result Analysis: SPSS/MS-Excel/R-Programming/Matlab/Weka, Drawing Conclusions, Presentation of Research, Citation Patterns, and Referencing Styles, Plagiarism

UNIT 5

Ethics: Need for Ethics in Professional Life; Kohlberg's Theory of Moral Development and Its Applicability to Engineers,

Professional Ethics: Values in Work Life; Professional Ethics and Ethos; Codes of Conduct. Research Ethics, Plagiarism, Case Studies on Ethics.

Introduction to IPR: Nature of Intellectual Property Rights: Patents; Designs; Trademarks; Copyright; Trade Secrets; Industrial Design; Geographical Indicators; Integrated Circuits. International Character of IPRs, Role of IPRs in Economic Development. Patents: Introduction to Patents, Inventions not Patentable, Procedure for grant of Patents, Rights and Obligations of a Patentee; IPR Infringement. Case studies on IPRs.

Text Books:

1. Geoffrey R. Marczyk. Essentials of Research Design and Methodology, Wiley; 2008.
2. Wayne Goddard, Stuart Melville. Research methodology: An Introduction, Juta, 2004.

3. Thomas, C. George. Research Methodology & Scientific Writing, Ane Books Pvt. Ltd, 2016.
4. Menell, Peter S, Lemley, Mark A, Merges, Robert P. Intellectual Property in the New Technological Age, Vol. I Aspen Law & Business, 2019.
5. Menell, Peter S, Lemley, Mark A, Merges, Robert P. Intellectual Property in the New Technological Age, Vol. II Aspen Law & Business, 2019.
6. Narayanan, P., Intellectual Property Law, Eastern Law House, 2008.
7. Bagchi, Kanak Kanti (2007) Research Methodology in Social Sciences: A Practical Guide, Delhi, Abijeet Publications.
8. Sharma, B.A.V., etal., (2000) Research Methods in Social Sciences, New Delhi, Sterling Publishers.
9. B.A.V. Busha, C. H and Harter, S. D (1980 Research Methods in Librarianship, New York, Academic Press.
10. Cooper, R. Donald and Pamela S. Schindler (2003) Business Research Methods, Delhi, Tata McGraw-Hill.
11. Flyvbjerg, Bent (2001) Making Social Science Matter: Why Social Inquiry Fails and How it can Succeed Again, United Kingdom, Cambridge University Press.
12. Ghosh, B.N. (1999) Scientific Method and Social Research, New Delhi.
13. Gilbert, Nigel (1993) Researching Social life, New Delhi, Sage Publication.
14. Goodde and Hatte (1952) Methods in Social Research, New York, McGraw – Hill.
15. Gopal, M.H (1970) An Introduction to Research Procedures in Social Sciences, Bombay, Asia Publishing House.
16. Hunt, Morton (1989) Profiles of Social Research: The Scientific Study of Human Interactlions, Bombay, Popular Prakashan.
17. Kothari, C.R (2004) Research Methodology: An Introduction, Delhi, New Age.
18. Krishnaswami, K. N., AppaAyyarShivakumar and M. Mathiarajan (2008) Management Research Methodology, Integration of Principles, Methods and Techniques, New Delhi, Dorling Kindersely (India Pvt. Ltd.) Pearson Education.
19. Krishnaswami, O.R (2000) Research Methodology in Social Sciences, Delhi, Himalaya Publications.
20. Kumar, Renjith (2009) Research Methodology: A Step by Step Guide for Research, Delhi, Pearson Education.
21. Kumar, Shekaran (2009) Research Methodology for Busines : A Skill Based Approach, New York, John Wiley Publishers.
22. H. S. Becker, Writing for Social Scientists; How to Start and finish Your Thesis, Book or Article,Chicago; University of Chicago Press; 1986.
23. J. Hartley (ed.), Technology and Writing, London; Jess-ca Kingsley; 1992.
24. Henn, Matt; Mark Weinstein and Nick Foard (2006) A Short Introduction to Social Research, New Delhi, Vistaar Publications.

Semester –VII

7BCA-CSE03(A) INFORMATION AND NETWORK SECURITY

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

Course Objectives

- Define the concepts of Information security and their use.
- Describe the principles of symmetric and asymmetric cryptography.
- Understand the concepts of digital signature and digital certificates.
- List and explain various digital signature algorithms.
- Understand the concepts of hashing with algorithms

Course Outcome:

- Understand and use the various key management and remote authentication mechanisms.
- Understand the concept transport layer security
- Understand and apply the various symmetric key algorithms.
- Understand and apply the various asymmetric key algorithms.
- Understand the concepts of hashing with algorithms and apply them.
- Understand and use the message authentication and its requirement.

UNIT-I

Introduction: security concepts:-confidentiality, integrity, and availability , threats, risks, sources of threats, attacks classification, cryptography, confusion vs. Diffusion, stream ciphers vs. Block ciphers, classical cryptography, objectives of cryptography, secret-key and public-key cryptography, cryptanalysis, RC5, blowfish, Symmetric Cipher Model, Cryptography, Cryptanalysis and
Attacks; Substitution and Transposition techniques, Stream ciphers and block ciphers, Block Cipher structure,

UNIT- II

Block ciphers block cipher principles, Feistel networks, S-boxes and P-boxes, block cipher, DES, Electronic Code Book, Cipher , Block Chaining Mode, Cipher Feedback mode, Output Feedback mode, Counter mode , Public Key Cryptosystems with Applications, Requirements and Cryptanalysis, RSA algorithm, its computational aspects and security, Diffie-Hillman Key Exchange algorithm, Man-in-Middle attack.

UNIT- III

Introduction to Hash Function: Cryptographic Hash Functions, their applications, Simple hash functions, its requirements and security, Hash functions based on Cipher Block Chaining, Secure Hash Algorithm (SHA), Message digest: MD5 , Message Authentication Codes, its requirements and security, MACs based on Hash Functions, MAC based on Block Ciphers

UNIT- IV

Digital Signature, its properties, requirements and security, various digital signature schemes (Elgamal and Schnorr), Digital Signature algorithm, Key management and distribution, symmetric key distribution ,using symmetric and asymmetric encryptions, distribution of public keys, X.509 certificates, Public key infrastructure

UNIT- V

Remote user authentication with symmetric and asymmetric encryption, Kerberos , Web Security threats and approaches, SSL architecture and protocol, Transport layer security, HTTPS and SSH.

Reference Books:

- William Stallings, Cryptography and Network Security, PHI.
- Calabrese, Info Security Intelligence-Cryptography Principles Appl- Cengage Learn.
- Krawetz- Intro to Network Security,Cengage Learning.
- Bruce Schneier, Applied Cryptography, John Wiley and Sons Mark Stamp,
- Mark Stamp, Information Security: Principles and Practice, John Wiley and Sons.

Semester –VII

7BCA-CSE03(B) - DATA MINING AND BUSINESS INTELLIGENCE

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
5/5	0	0	5/5	80	20	0	100

COURSE OBJECTIVES

- Introduce the Basic Concepts of Data Base, Data Warehouse and Data Mining
- Understand the Concept of Knowledge Discovery
- Understand the process of deriving Information from data with Different Perspectives
- Understand and apply Preprocessing Methods on Raw Data
- Discover Interesting and Useful Patterns and associations, Analyze Supervised and Unsupervised Models
- UnderstandBusiness Intelligence Life Cycle andTechniques Used in It

COURSE OUTCOMES

- Demonstrate an Understanding and knowledge of theData Warehousing, Data Mining and Business Intelligence
- Explain the Data Analysis and Knowledge Delivery Stages.
- Organize and Prepare the Data Needed for Data Mining Using Pre Preprocessing Techniques
- Implement the Appropriate Data Mining Methods Like Association, Classification, Clustering
- Apply Data Mining Methods to Solve Practical Problems.(Analyze the Problem Domain, Data Collection, Preprocessing, Apply Suitable Data Mining Method, Interpret and Visualize the Results and Provide Decision Support.)

UNIT-WISE SYLLABUS

UNIT-I

Data Ware Housing Definition, Usage and Trends, DBMS Vs. Data Warehouse, Data Marts, Metadata, Data Mining Definition & Application, DBMS Vs. Data Mining, KDD Versus Data Mining, Data Mining Techniques, Business Intelligence Introduction, Cycle of a Business Intelligence AnalysisData Preprocessing: Need, Data Cleaning, Integration & Transformation

UNIT-II

Data Warehouse Process & Architecture, OLAP and OLTP Definitions, Difference Between OLAP and OLTP, Dimensional Analysis, Multidimensional Data Mode, Data Cubes, Drill-Down and Roll-Up – Slice and Dice or Rotation, Operations, Types of OLAP, ROLAP Vs. MOLAP, Schemas for Multidimensional Database: Stars, Snowflakes and Fact Constellations

Relation between BI and DW, the Business Intelligence User Types, Standard Reports, Interactive Analysis and Ad Hoc Querying, Parameterized Reports and Self-Service Reporting, Dimensional Analysis, Alerts/Notifications, Visualization: Charts, Graphs, Widgets, Scorecards and Dashboards

UNIT-III

Association Rule Mining, Single-Dimensional Boolean Association Rules Apoiri Algorithm, FP Growth, Multi-Level Association Rules from Transaction Databases

UNIT-IV

Classification and Prediction, Concepts of Decision Tree Induction and Bayesian Classification,

Cluster Analysis, Categorization of Methods, Partitioning Methods, K-Means Algorithm, Outlier Analysis, Hierarchical Methods.

UNIT-V

Emerging Technologies - Machine Learning, Big Data: Introduction, Importance, Four Vs

Data Mining for Business Applications Like Fraud Detection, Market Segmentation, Retail Industry, Telecommunications Industry, Banking & Finance and CRMetc.,

Spatial Databases, Multimedia Databases, Time Series and Sequence Data, Text Databases, Web Mining Concepts.

TEXT &REFERENCE BOOKS

- Jiawei Han, Michelinekamber, “Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers
- Arun K Pujari, “Data Mining Concepts and Techniques”, University Press
- G.K.Gupta, “Data Mining with Case Studies”, PHILtd.

Semester –VII

7BCA-GE5-CSG05 BIG DATA

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
4/4	0	1/2	5/6	60	20	20	100

COURSE OBJECTIVES:

- Familiarize the students with most important information technologies used in manipulating, storing, and analyzing big data.
- This course gives students all around learning of the big data framework using Hadoop and spark, including yarn, HDFS and MapReduce
- Itprovide an overview of approaches facilitating data analytics on huge datasets.

COURSE OUTCOME:

- Ability to identify the characteristics of datasets and compare the trivial data andbig data for various applications.
- Demonstrate an ability to useHadoopframeworkto efficiently store retrieve and process Big Data for Analytics.
- Implement several Data Intensive tasks using the MapReduce Paradigm

UNIT -WISE SYLLABUS

UNIT - I

Big Data- Introduction, Characteristics, Types, Elements, Traditional vs. Big Data Business Approach, Big Data Analytics, Advantages, Applications, Distributed & Parallel Computing for Big Data, Components in Big Data Architecture, Virtualization Approaches.

UNIT - II

Statistics and Probability: Sampling Techniques - Data Classification, Tabulation, Frequency and Graphic Representation, Measures of Central Value - Mean, Mode, Median, Random Variable and Probability Theory.

UNIT - III

Hadoop- Introduction, Features, Advantages, Versions, Key Considerations of Hadoop, RDBMSVsHadoop, Hadoop Ecosystem, HDFS - Architecture, Features, Commands, Processing Data withHadoop, Hadoop Yarn.

UNIT - IV

MapReduce Framework, Features, Uses, WorkingonMapReduce, MapReduce Input and Output Operations, Exploring Map and Reduce Functions, MapReduce Optimization Technique, HBASE Introduction, Architecture, HBASE in Hadoop Applications.

UNIT - V

Processing Data withMapReduce, Task Execution & Environment – Installation of Eclipse, Hadoop, Java Development Kit and Linux Ubuntu OS, MapReduce Program Steps to Obtain Word Count, Functionality of Input Format- Inputsplit, Recordreader, Fileinputformat, Output Process of Fileoutputformat – Outputformat, Recordwriter, Role of Combiner, Partitioner, Debugging MapReduce.

REFERENCE BOOKS

- Rob Kitchin The Data Revolution: Big Data Open Data Data Infrastructures and theirConsequences SAGE Publications Ltd
- Croll and B. YoskovitzLean Analytics: Use Data to Build a Better Startup Faster o'reilly
- Mayer-Schönberger and K. CukierBig Data: A Revolution That Will Transform How We Live Work and Think
- E. Siegel-Predictive Analytics: The Power to Predict Who Will Click Buy Lie or Die
- Bernard Marr-Big Data in Practice Wiley publication.

Semester –VII

7BCA-CSC16- Thesis/Internship/Project

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	0	5/10	5/10	0	20	80	100

Semester –VIII

8BCA—CSE04(A)-ETHICAL HACKING

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

Course Objectives

- Explore ethical hacking basics
- Investigate reconnaissance: Information gathering for the ethical hacker
- Explore scanning and enumeration
- Explore hacking through the network: Sniffers and evasion
- Investigate how to attack a computer system
- Explore low tech hacking techniques
- Investigate password hacking
- Investigate database and other attacks

Course Outcomes

- Perform session hijacking
- Gathering information required in order to attack target
- Investigate trojans and other attacks
- Investigate web-based hacking

Unit-wise Syllabus :

UNIT-I

Ethical Hacking Overview, Hacking Life Cycle, Legal issues in Ethical Hacking, Hacking Terminology, Gathering Facts, CP/IP Concepts Review, Network and Computer Attacks,

UNIT-II

Network Enumeration and Foot Printing- DNS Query, WHOISQuery, OS Finger Printing, Banner Grabbing, CERT-In Guidelines :CERT-In Guideline for Securing Wireless Access Points/Routers, Credit Card, Email, Web Server Security, Auditing and Logging, Securing Home Computers, SQL Server Security, Linux and Windows Server security, IDS - Intrusion Detection System, Anti Virus Policy

UNIT-III

Programming for security professionals- web application vulnerabilities, buffer overflow attack, session hijacking, code injection attacks-cross site scripting attack, SQL injection attack. Required LAB Goals: basics of ethical hacking, gathering information required in order to attack target, finding critical bugs in servers.

UNIT-IV

Password hacking, windows hacking, logging by pass, network hacking, and anonymity and email hacking. Web servers hacking, session hijacking, surveillance, desktop, server and OS vulnerabilities, required lab. Goals: methods of password encryption and decryption learn to remain anonymous over the internet.

UNIT-V

Database attacks, hacking wireless networks, cryptography, network protection systems, Trojan and backdoor applications, legal resources, virtualization and ethical hacking. Required Lab Goals: ways to maintain access to a system using Trojan and backdoor, attacking database server and wireless networks.

References Books:

1. Michael T. Simpson, KentBackman, James Corley-Ethical Hacking and Network Defence.
2. Stuart McClure Joel Scambray, George Kurtz -Hacking Exposed—Network Security Secrets & Solutions,

Semester –VIII

8BCA—CSE04(**B**) - Artificial Intelligence & Machine learning

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
3/3	0	2/4	5/7	60	20	20	100

COURSE OBJECTIVES

- To Understand the Concepts of Artificial Intelligence and Machine Learning such as supervised and unsupervised learning, knowledge representation, Possibility and probability theory and also get update about current and futuristic trends of AI problems and solutions.
- To Gain Knowledge of search space and search strategies, different algorithms of Supervised and Unsupervised Learning
- Understand the various architectures and activation functions, training and testing approach used in Artificial Neural Network and also acquire knowledge of expert systems.
- Understand the concepts of Fuzzy Logic, Genetic Algorithms, and applythem to solve the real-life problems.

COURSE OUTCOMES

- Demonstrate Artificial Intelligence Techniques, Various Types of Production Systems, and Characteristics of Production Systems.
- Design and implement Neural Networks usinglayers, various activation functions and Various Algorithms to solve real life problems.
- Analyze fuzzy nature problem and Design, implement and test the Fuzzy Inference Systems for vague nature real life problem.
- Explain Genetic Algorithms theory, Design and validate the Genetic Algorithms based systems for search space driven problems.

UNIT-WISE SYLLABUS

UNIT-I

AI Introduction, The AI problems, AI technique, Characteristics of AI Applications, Current Trends in AI. Machine Learning: Machine Learning Overview, Design of a Learning system, Types of machine learning, Applications of machine learning, Variables and probabilities - Probability Theory, Probability distributions

UNIT-II

Problem Solving, General Problem Solving, Production Systems, Control Strategies Forward and Backward Chaining, Searching:Searching for Solutions, Uniformed Search Strategies – Breadth First Search, Depth First Search. Heuristic Search, Greedy Best First Search, Knowledge Representations Mapping & Issues

UNIT-III

Soft Computing: Introduction to Soft Computing, Soft Computing vs. Hard Computing, Various Types of Soft Computing Techniques, Applications of Soft Computing. Basic Concepts of Neural Network, Human Brain- Biological Neural Network, Evolution of Artificial Neural Network, Structure and Function of a Single Neuron, Difference Between ANN and Human Brain, Characteristics and Applications of ANN, Learning Methods, Activation Function, Neural Network Architecture.

UNIT-IV

Supervised Learning: Perceptron learning, - Single layer, multilayer, Back propagation network, Unsupervised Learning Neural Networks – Competitive LearningNetworks – Kohonen Self-Organizing Networks

UNIT-V

Introduction to expert system and application of expert systems, case studies, MYCIN

Fuzzy Logic: Fuzzy Set Theory, Crisp Set, Fuzzy Set, Operations on Fuzzy Sets: Compliment, Intersections, Unions, Product, Difference, Properties of Fuzzy set

Genetic Algorithm: Fundamentals, Basic Concepts, Working Principle, Encoding, Fitness Function, Reproduction, Crossover, Mutation

TEXT &REFERENCE BOOKS

- Elaine Rich and Kevin Knight "Artificial Intelligence" - Tata McGraw Hill.
- Dan W. Patterson "Introduction to Artificial Intelligence and Expert Systems", Prentice India.
- Nils J. Nilson "Principles of Artificial Intelligence", Narosa Publishing House
- Christopher Bishop, "Pattern Recognition and Machine Learning", Springer
- Kevin P. Murphy, "Machine Learning: A Probabilistic Perspective", MIT Press
- EthemAlpaydin, "Introduction to Machine Learning", MIT Press
- Tom Mitchell, "Machine Learning", McGraw-Hill
- Stephen Marsland, "Machine Learning - An Algorithmic Perspective", Chapman andHall/CRC Press
- S, Rajasekaran& G.A. VijayalakshmiPai, Neural Networks, Fuzzy Logic & Genetic Algorithms, Synthesis & Applications, PHI publication.
- S.N. Sivanandam&S.N.Deepa, Principles of Soft Computing, Wiley Publications.

Semester –VIII

8BCA-GE6 –CSG06- ANALYSIS OF ALGORITHMS

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
4/4	0	1/2	5/6	60	20	20	100

UNIT- I

Introduction to Algorithms, The role of algorithm in computing, Important Types of Algorithm,

Fundamentals of the Analysis of Algorithmic Efficiency –Performance Analysis: Space complexity, Time complexity, Asymptotic Notations and their properties: Big-Oh notation (O), Omega notation (Ω), Theta notation (Θ), and Little-oh notation (o), Mathematical analysis of Non-Recursive and recursive Algorithms

Fundamental Data Structures: Stacks, Queues, Graphs, Trees etc.

Important Problem Types: Sorting, Searching, String processing, Graph Problems.

UNIT- II

Brute Force Method: Brute Force Introduction, Selection Sort and Bubble Sort, Sequential Search and Brute-Force String Matching, Exhaustive Search.

Divide and Conquer: Introduction, Advantages and Disadvantages of divide and conquer, Merge sort, Quick sort, Binary Search, Binary tree traversals and related properties.

UNIT- III

Dynamic programming: Overview of Dynamic Programming, Fibonacci numbers, Binomial coefficient, Warshall's and Floyd's Algorithms, Optimal binary search trees, knapsack problem, memory functions.

Greedy Technique: Introduction to Greedy Technique, Prim's Algorithm, Kruskal's Algorithm, Dijkstra's Algorithm, Huffman Trees.

UNIT-IV

Backtracking: General method, N-Queens problem, Sum of subsets problem, Graph coloring, Hamiltonian cycles

Branch and Bound – LIFO Search and FIFO search.

UNIT-V

Lower – Bound Argument: P, NP NP- Complete and NP Hard Problems, non deterministic algorithms, Approximation Algorithms for NP-Hard Problems – Travelling Salesman problem – Knapsack problem.

Semester –VIII

8BCA-CSC17- Thesis/Internship/Project

L	T	P	Load	Theory Marks	Internal Marks	Practical Marks	Total Marks
Credits/Hours							
0	0	10/20	10/20	0	40	160	200