પરિપત્ર:

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ કોલેજોનાં આચાર્યશ્રીઓને સવિનય જણાવવાનું કે સાયન્સ વિદ્યાશાખા હેઠળનો NEP-૨૦૨૦ અંતર્ગતનો કોમ્પ્યુટર સાયન્સ વિષય (બી.સી.એ વિથ ઓનર્સ) સેમેસ્ટર-૧ના અભ્યાસક્રમમાં રિવાઈઝડ પેપર સ્ટાઈલ (**SOP**, શિક્ષણ વિભાગ, ગુજરાત સરકાર ની ગાઈડલાઈન્સ પ્રમાણે) જેની સાથેનો ૨૦૨૩-૨૪નો અભ્યાસક્રમ આ સાથે સામેલ છે. જે આપને વિદિત થાય.

માનનીય કુલપતિશ્રીની મંજુરી અનુસાર સદર અભ્યાસક્રમ શૈક્ષણિક વર્ષ જુન,૨૦૨૩ થી અમલવારી કરવાની રહે છે. સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજો ધ્વારા તેની અમલવારી કરવા જણાવવામાં આવે છે.

Bhakta Kavi Narsinh Mehta University Junagadh.

૨૨/૧૦/૨૦૨૪

ખાસ ફરજ પરના અધિકારી
(એકેડેમિક)

ક્રમાંક/બીકેએનએમયુ/ એકેડેમિક/૧૪૦૯/૨૦૨૪
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી,
સરકારી પોલીટેકનિક કેમ્પસ,
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ,
ખડીયા, જૂનાગઢ-૩૬૨૨૬૩
તા.૨૨/૧૦/૨૦૨૪

પ્રતિ,

- ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમો ચલાવતી તમામ કોલેજોના આચાર્યશ્રીઓ તરફ....

નકલ સાદર રવાનાઃ-

- માન.કુલપતિશ્રી/કુલસચિવશ્રીનાં અંગત સચિવશ્રી.
- પરીક્ષા નિયામકશ્રી, ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જુનાગઢ

નકલ રવાના જાણ તથા યોગ્ય કાર્યવાહી અર્થેઃ

- સીસ્ટમ મેનેજરશ્રી, આઇ.ટી.સેલ વિભાગ (વેબસાઇટ ઉપર પ્રસિદ્ધ થવા અર્થે.)

BHAKTA KAVI NARSINH MEHTA UNIVERSITY

FACULTY OF SCIENCE

SYLLABUS FOR

B.C.A (HONOURS) PROGRAMME

(SEMESTER- I)

EFFECTIVE FROM JUNE, 2023

TABLE -1

Credit Framework for 3 years/ 4 years UG Programme

NCrF Credit Levels	Qualification Title	Credit Requirements	No. Of Semesters	Year
4.5	UG Certificate	44	2	1
5.0	UG Diploma	88	4	2
5.5	Three Year Bachelor‟s Degree	132	6	3
6.0	Bachelor‟s Degree-Honours **OR** Bachelor‟s Degree-Honours with Research	176	8	4

TABLE -2

Year Wise Distribution of Total Credits among Different Courses (As per UGC norms)

Sr. No.	Category of Course	Credit Requirement		
		3- Years' UG Programme (Bachelor's Degree)	4- Years' UG Programme (Bachelor's Degree- Honours)	4- Years' UG Programme (Bachelor's Degree Honours with Research)
1	Major (Core) Courses (With Internship)	68	92	92

TABLE -3

Credit Structure for BCA/BSc(IT)– Honours with and without Research Arrangement of Credit Distribution Framework for three/four years Honours/Honours with Research Degree Programme with Multiple Entry and Exits Options

NCrF Credit Level	Sem-ester	Major (Core)	Minor (Electives)	Multi/ Inter-disciplinary	AEC	SEC/ Internship	VAC/ IKS	RP/ OJT	Total Credit per Sem.	Qualification /Certificate
4.5 First Year	I	8	4	4	2	2 (SEC)	2 (IKS)	-	22	UG Certificate
	II	8	4	4	2	2 (SEC)	2 (VAC)	-	22	
1st Year Total Credits		**16**	**8**	**8**	**4**	**4**	**4**	**-**	**44**	
Exit 1: Award of UG certificate in Major course with 44 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for next NCrF credit level										
5.0 Second Year	III	12	-	4	2	2 (SEC)	2 (IKS)	-	22	UG Diploma
	IV	12	4	-	2	2 (SEC)	2 (VAC)	-	22	
2nd Year Total Credits		**40**	**12**	**12**	**8**	**8**	**8**	**-**	**88**	
Exit 2: Award of UG Diploma in Major course with 88 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for next NCrF credit level										
5.5 Third Year	V	12	8	-	-	2 (SEC)	-	-	22	UG Degree
	VI	12	4	-	2	4 (Internship)	-	-	22	
3rd Year Total Credits		**64**	**24**	**12**	**10**	**14**	**8**	**-**	**132**	
Award of UG Degree in Major course with 132 credits and Internship in core discipline OR continue with Major and Minor course for next NCrF credit level										
6.0 Fourth Year	VII	**12**	4	-	-	-	-	6 (OJT)	22	UG Honours Degree
	VIII	**12**	4	-	-	-	-	6 (OJT)	22	
4th Year Total Credits		**88**	**32**	**12**	**10**	**14**	**8**	**12**	**176**	
Award of UG Honours Degree in Major course with total 176 credits										
6.0	VII	12	4	-	-	-	-	6 (RP)	22	UG Honours with Research Degree
	VIII	12	4	-	-	-	-	6 (RP)	22	
4th Year Total Credits		**88**	**32**	**12**	**10**	**14**	**8**	**12**	**176**	
Award of UG Honours with Research Degree in Major course with total 176 credits										

Based on above credit framework, calculation of credits in third and fourth years shall be as below:

Year	Major (Core) (Internship credits to be added)	Minor (Electives)	Multi/Inter disciplinary	AEC	SEC	VAC/ IKS	Research Project/ On-the-Job Training	Semester wise cumulative total credits
Third	64 + 4 (internship) = 68	24	12	10	10	8	-	132
Fourth	88 + 4 (internship) = 92	32	12	10	10	8	12	176

Abbreviation: AEC (Ability Enhancement Course); IKS (Indian Knowledge System); NCrF (National Credit Framework); NSS (National Service Scheme); NCC (National Cadet Corps); NSQF (National Skills Qualification Framework); OJT (On-the-Job Training); SEC (Skills Enhancement Course); RP (Research Project); VAC (Value Added Course), ODL (Open and Distance Learning

TABLE - 4

Summary of Course Category and Credit

Type of Course	Credit 3-Year Course Credit	Credit 4-Year Honours Without Research	Credit 4-Year HonoursWith Research
Major Course	64	88	88
Minor Course	24	32	32
Multi-disciplinary Course (MDC)	12	12	12
Ability Enhancement Course (AEC)	10	10	10
Indian Knowledge System (IKS) Value-added Course (VAC)	8	8	8
Skill Enhancement Course (SEC)	10	10	10
Internship	4	4	4
	132	**164**	**164**
On-the-Job Training (OJT)	-	12	-
Research Project (RP)	-	-	12
	132	**176**	**176**

SEMESTER-1

BCA	SEMESTER-1	LEVEL 4.5

Program name	Code	Course name	CREDIT
BCA-1	Minor		
Level 4.5	Major-1	Problem solving methodologies andprogramming in c (theory)	4
	MAJOR-2	PROBLEM SOLVING METHODOLOGIES ANDPROGRAMMING IN C (Practical)	4
	MINOR-1	BASICS OF WEB PAGE DEVELOPMENT	4
	MDC-1	Computer fundamentals and emerging technology	4
	AEC-1	ENGLISH/HINDI/GUJARATI/SANSKRIT	2
	SEC-1	OFFICE AUTOMATION	2
	VAC-1	IKS	2

MAJOR-1

Name of Program	Name of course	Course Code	Total Teaching Hours	Weekly Credits			Total Credits
BCA	Problem Solving Methodologies and Programming in C(Theory)	Major-1	Theory-60 Practical-0	Theory 4	Practical	0	4
1 Hour Theory = 1 Credit / 2 Hours Practical = 1 Credit							

Objectives:

- To develop basic programming skill
- To develop skill to implement logical aspects into practice
- To understand the code organization and functional decomposition of problem statement
- To gain understanding on memory managementand file concept.

Outcomes:

- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.
- Understanding a defensive programming concept. Ability to handle possible errors during program
- Learn program formation and execution.

Teaching Pedagogy: Interactive classroom session, group discussion, seminar, case study, problem-solving-based learning, performance-related tasks, fieldwork, or any other methods can be used. Multimedia device and other relevant tools and modern technology should be used to make the teaching and learning process effective and interesting. Computer Lab Session for Practical and Project Related Courses.

UNIT		Hours
1	**Introduction of C Language** ▪ Introduction to Programming	12

	▪ Various Computer Languages ▪ History & Overview of C Language ▪ Difference between traditional C and modern C ▪ C character set ▪ C tokens o Keywords o Constants o Strings o Identifiers and variables o Operators ▪ Operators & Hierarchy of operators ▪ Data types in c ▪ Type casting & Type Conversion ▪ Pre – Processors in C **Introduction To Logic Development Tools** ▪ Introduction of Logic & Basic of Algorithm. ▪ Basics of Flow Chart ▪ Dry-run and its Use. ▪ Other Logic development techniques (Algorithm and Flowchart Based on Programming)	
2	**Branching & Looping** ▪ Decision structure o If statements(All Types) o Switch statement o Conditional ternary operator ▪ Looping Structures o For loop o Do…while loop o While loop o Nesting of loops ▪ Jumping statements o Break statement o Continue statement o Go to statement	12
3	**Library Functions** ▪ Introduction of Library Function ▪ Brief overview of Header Files (stdio.h, conio.h, math.h, string.h, stdlib.h, ctype.h, graphic.h, process.h, dos.h) ▪ Types of library functions o **String Function:** strcpy, strncpy, strcat, strncat, strchr, strcmp, strncmp, strlen, strstr o **Mathematical Functions:** ceil, div, exp, fabs, floor, fmod, log, pow, sqrt	12

	○ **Date & Time Functions:** clock, time, gmtime, localtime ○ **Graphics Functions:** initgraph,closegraph,arc,line,circle,ellipse,getx,putx,setcolor, setbkcolor ○ **I/O Formatting Functions:** printf, scanf, getc, getchar, gets, putc, putchar, puts ○ **Miscellaneous Functions:** delay, clrscr, isalnum, isalpha,isdigit, islower, isprint, isspace, isupper, toupper, tolower ○ **Standard Library functions:** abs , exit , free , rand ○ **Memory Allocation Functions:** malloc ,realloc , calloc **User Define Functions (udf)** ▪ Concept of User Define Function ▪ Types of user defined functions ▪ call by value & call by reference ▪ Nesting & Recursion ▪ Storage classes	
4	**Array** ▪ Concept of Array ▪ Types of arrays ○ Single dimensional array ○ Two dimensional array ○ Multi-dimensional array ▪ String arrays ▪ Array with functions using UDF ▪ Use of Arrays in Programming **Structures** ▪ Concept of Structure ▪ Initializations and declarations ▪ Array with structures ○ Array of Structure ○ Array within structure ▪ Udf with structures ▪ Nested structures ▪ Introduction to union ▪ Difference between Structure & Union	12
5	**Pointers** ▪ Concept of Pointers ▪ Pointer to Variables ▪ Pointer to Array ▪ Pointer within Array ▪ Pointer To Structure ▪ Pointers within structure ▪ Pointer to Pointer ▪ Use of pointers in Dynamic Programming	12

	File Handling ▪ Concept of data files ▪ Importance of file handling ▪ I/O Operation ▪ Command line arguments	

Reference Books: No.	Name	Author / Publication
1	Programming in ANSI C	E. Balagurusami
2	Let Us C	Yashwant Kanetkar.
3	Working with C	Yashwant Kanetkar.
4	Programming in C	Schaum Series publication.

Web site References :

- https://www.tutorialspoint.com/cprogramming/index.htm
- http://www.eskimo.com/~scs/cclass/notes/top.html
- http://c-faq.com/
- http://www.learn-c.org/
- https://www.tutorialspoint.com/cprogramming/cprogramming_tutorial.pdf
- https://www.w3schools.in/c-tutorial/
- https://www.javatpoint.com/c-programming-language-tutorial

Evaluation Scheme and Distribution of marks

Semester End Evaluation (SEE) **External Assessment**	
Total marks: 50	**Time: 2.00 Hrs**
Questions : From Unit	Marks
Question-1 : Questions from Unit-1 (Any Two out of Four)	10
Question-2 : Questions from Unit-2 (Any Two out of Four)	10
Question-3 : Questions from Unit-3 (Any Two out of Four)	10
Question-4 : Questions from Unit-4 (Any Two out of Four)	10
Question-5 : Questions from Unit-5 (Any Two out of Four)	10
Total	**50**
Passing Marks for External Examination: 18 Marks (36% of 50 Marks)	

Continuous & Comprehensive Evaluation (CCE) **Internal Assessment**	
Particulars	**Marks**
Mid-term Examination	25

Any 5 (five) components, each of 5 marks: (N**ote:** Select the components from the Annexure1, attached at the end of this syllabus.	25
Total	**50**
Passing Marks for Internal Assessment: 18 (marks (36% of 50 marks)	

Annexure1:

Scheme for Internal Assessment (As per SOP by the Government)

For 4 (Four) Credit and 100-marks Course

INTERNAL EVALUATION SCHEME

	Particulars	Marks
	Mid-Semester Examination (Mandatory)	**25**
	Any Five Components from the Following List:	**25**
	Class Test	05
	Open book exam/test	05
	Open note exam/test	05
	Self-test/ Online test	05
	Essay/Article writing	05
	Quizzes/Objective test	05
	Class assignment	05
	Home assignment	05
	Reports Writing	05
	Research/Dissertation	05
	Case Studies	05
	Viva/Oral exam	05
	Group Discussion	05
	Role Play	05
	Paper presentation/Seminar	05
	Language Lab work	05
	Interview	05
	Craft work	05
	Co-curricular work	05
	Field Assignment	05
	Poster Presentation	05
	Attendance	05
	Total	**50**

Note: The student has to obtain 18 marks (36% marks out of total 50 marks) for passing the Internal Examination

MAJOR-2

Name of Program	Name of course	Course Code	Total Teaching Hours	Weekly Credits		Total Credits
BCA	Problem Solving Methodologies and Programming in C(Practical)	Major-2	Theory-0 Practical-120	Theory 0	Practical 4	4
1 Hour Theory = 1 Credit / 2 Hours Practical = 1 Credit						

Objectives:

- To develop basic programming skill
- To develop skill to implement logical aspects into practice
- To understand the code organization and functional decomposition of problem statement
- To gain understanding on memory managementand file concept.

Outcomes:

- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.
- Understanding a defensive programming concept. Ability to handle possible errors during program
- Learn program formation and execution.

Teaching Pedagogy: Interactive classroom session, group discussion, seminar, case study, problem-solving-based learning, performance-related tasks, fieldwork, or any other methods can be used. Multimedia device and other relevant tools and modern technology should be used to make the teaching and learning process effective and interesting. Computer Lab Session for Practical and Project Related Courses.

UNIT		Hours
1	**LAB SESSION** **Introduction of C Language** ▪ Introduction to Programming ▪ Various Computer Languages ▪ History & Overview of C Language ▪ Difference between traditional C and modern C ▪ C character set ▪ C tokens o Keywords o Constants o Strings o Identifiers and variables o Operators ▪ Operators & Hierarchy of operators ▪ Data types in c ▪ Type casting & Type Conversion	24

	▪ Pre – Processors in C **Introduction To Logic Development Tools** ▪ Introduction of Logic & Basic of Algorithm. ▪ Basics of Flow Chart ▪ Dry-run and its Use. ▪ Other Logic development techniques (Algorithm and Flowchart Based on Programming)	
2	**LAB SESSION** **Branching & Looping** ▪ Decision structure o If statements(All Types) o Switch statement o Conditional ternary operator ▪ Looping Structures o For loop o Do…while loop o While loop o Nesting of loops ▪ Jumping statements o Break statement o Continue statement o Go to statement	24
3	**LAB SESSION** **Library Functions** ▪ Introduction of Library Function ▪ Brief overview of Header Files (stdio.h, conio.h, math.h, string.h, stdlib.h, ctype.h, graphic.h, process.h, dos.h) ▪ Types of library functions o **String Function:** strcpy, strncpy, strcat, strncat, strchr, strcmp, strncmp, strlen, strstr o **Mathematical Functions:** ceil, div, exp, fabs, floor, fmod, log, pow, sqrt o **Date & Time Functions:** clock, time, gmtime, localtime o **Graphics Functions:** initgraph,closegraph,arc,line,circle,ellipse,getx,putx,setcolor, setbkcolor o **I/O Formatting Functions:** printf, scanf, getc, getchar, gets, putc, putchar, puts o **Miscellaneous Functions:** delay, clrscr, isalnum, isalpha,isdigit, islower, isprint, isspace, isupper, toupper, tolower o **Standard Library functions:** abs , exit , free , rand o **Memory Allocation Functions:** malloc ,realloc , calloc **User Define Functions (udf)** ▪ Concept of User Define Function ▪ Types of user defined functions ▪ call by value & call by reference	24

	▪ Nesting & Recursion ▪ Storage classes	
4	**LAB SESSION** **Array** ▪ Concept of Array ▪ Types of arrays o Single dimensional array o Two dimensional array o Multi-dimensional array ▪ String arrays ▪ Array with functions using UDF ▪ Use of Arrays in Programming **Structures** ▪ Concept of Structure ▪ Initializations and declarations ▪ Array with structures o Array of Structure o Array within structure ▪ Udf with structures ▪ Nested structures ▪ Introduction to union ▪ Difference between Structure & Union	24
5	**LAB SESSION** **Pointers** ▪ Concept of Pointers ▪ Pointer to Variables ▪ Pointer to Array ▪ Pointer within Array ▪ Pointer To Structure ▪ Pointers within structure ▪ Pointer to Pointer ▪ Use of pointers in Dynamic Programming **File Handling** ▪ Concept of data files ▪ Importance of file handling ▪ I/O Operation ▪ Command line arguments	24

Reference Books: No.	Name	Author / Publication
1	Programming in ANSI C	E. Balagurusami
2	Let Us C	Yashwant Kanetkar.
3	Working with C	Yashwant Kanetkar.
4	Programming in C	Schaum Series publication.

Web site References :

- https://www.tutorialspoint.com/cprogramming/index.htm
- http://www.eskimo.com/~scs/cclass/notes/top.html
- http://c-faq.com/
- http://www.learn-c.org/
- https://www.tutorialspoint.com/cprogramming/cprogramming_tutorial.pdf
- https://www.w3schools.in/c-tutorial/
- https://www.javatpoint.com/c-programming-language-tutorial

Evaluation scheme and distribution of marks

Semester End Evaluation (SEE) **External Assessment**	
Total marks: 50	**Time: 2.00 Hrs**
	Marks
External practical examination and viva	50
Total	**50**
Passing Marks for External Examination: 18 Marks (36% of 50 Marks)	

Continuous & Comprehensive Evaluation (CCE) **Internal Assessment**	
Particulars	**Marks**
Mid-term practical Examination	25
Any 5 (five) components, each of 5 marks: (N**ote:** Select the components from the Annexure1, attached at the end of this syllabus.	25
Total	**50**
Passing Marks for Internal Assessment: 18 (marks (36% of 50 marks)	

Annexure1:

Scheme for Internal Assessment (As per SOP by the Government)

For 4 (Four) Credit and 100-marks Course

INTERNAL EVALUATION SCHEME

	Particulars	Marks
	Mid-Semester Examination (Mandatory)	**25**
	Any Five Components from the Following List:	**25**
	Class Test	05
	Open book exam/test	05

	Open note exam/test	05
	Self-test/ Online test	05
	Essay/Article writing	05
	Quizzes/Objective test	05
	Class assignment	05
	Home assignment	05
	Reports Writing	05
	Research/Dissertation	05
	Case Studies	05
	Viva/Oral exam	05
	Group Discussion	05
	Role Play	05
	Paper presentation/Seminar	05
	Language Lab work	05
	Interview	05
	Craft work	05
	Co-curricular work	05
	Field Assignment	05
	Poster Presentation	05
	Attendance	05
	Total	**50**
Note: The student has to obtain 18 marks (36% marks out of total 50 marks) for passing the Internal Examination		

MINOR-1

Name of Program	Name of course	Course Code	Total Teaching Hours	Weekly Credits		Total Credits
BCA	Basics of web page development	Minor-1	Theory- 45 Practical-30	Theory credit 3	Practical credit 1	4
1 Hour Theory = 1 Credit / 2 Hours Practical = 1 Credit						

Objectives:

- To gain insight into the usage of internet technology
- To give knowledge of Scripting languages like HTML, CSS and Java Script

Outcomes:

- Ability to create static and dynamic web pages using basic HTML
- Ability to create web pages with standardized designing elements
- Developing skill to create front end design of web page

Teaching Pedagogy: Interactive classroom session, group discussion, seminar, case study, problem-solving-based learning, performance-related tasks, fieldwork, or any other methods can be used. Multimedia device and other relevant tools and modern technology should be used to make the teaching and learning process effective and interesting. Computer Lab Session for Practical and Project Related Courses.

UNIT		Hours
1	**Basic of HTML** ▪ Fundamental of HTML ▪ Basic Tag and Attribute ▪ The Formatting Tags ▪ The List Tags & Link Tag ▪ inserting special characters, ▪ adding images and Sound, ▪ Table & Frame in HTML ▪ Forms	12
2	**Advance HTML 5** ▪ HTML 5 Document Structure & Syntax (section, article, aside, header, footer, nav, dialog) o Attributes of HTML 5 o Web Form (datetime, date, month, week, time, number, range, email, url) ▪ Audio / Video	11
3	**Cascading Style Sheet & CSS 3** ▪ Introduction to CSS ▪ Types of Style Sheets ▪ Class, ID Selector ▪ CSS Text & Font Properties ▪ CSS Background Properties ▪ CSS List Properties ▪ CSS Margin & Padding Properties ▪ CSS Comments ▪ CSS 3 o Border Property o Background & Gradient Property o Drop Shadow Property o 2D & 3D Transform Property o Transition Property	11

4	**Java Script** ▪ Introduction to JavaScript ▪ Variables ▪ JavaScript Operators ▪ Conditional Statements ▪ JavaScript Loops ▪ JavaScript Break and Continue Statements ▪ Dialog Boxes ▪ JavaScript User Define Function Built in Function (string, Maths, Array, Date) ▪ Events :onclick, ondblclick, onmouseover, onmouseout, onkeypress, onkeyup, onfocus, onblur, onload, onchange, onsubmit, onreset ▪ Form Validation & E-mail Validation	11
PRACTICAL	**PRACTICAL & VIVA** • Practical exercises based on concepts from unit -1 to 4	30

Reference Books: No.	**Name**	**Author / Publication**
1	HTML in 10 steps or less	Laurie Ann Ulrich, Robert G. Fuller
2	World Wide Web Design with Html	C Xavier.
3	Practical Html 4.O	Lee Philips.
4	Mastering In FrontPage	BPB

Web site References:

- https://www.javatpoint.com/html-tutorial
- https://www.tutorialspoint.com/html/index.htm
- https://www.w3schools.com/html/
- https://www.csstutorial.net

Evaluation Scheme and Distribution of marks

Semester End Evaluation (SEE) **External Assessment**	
Total marks: 50 **2.00 Hrs**	**Time:**
Questions : From Unit	Marks
Question-1 : Questions from Unit-1 (Any Two out of Four)	10
Question-2 : Questions from Unit-2 (Any Two out of Four)	10
Question-3 : Questions from Unit-3 (Any Two out of Four)	10
Question-4 : Questions from Unit-4 (Any Two out of Four)	10
Question-5 : Questions from Unit-1 to 4 (Any Two out of Four)	10
Total	**50**

Passing Marks for External Examination: 18 Marks (36% of 50 Marks)	

Continuous & Comprehensive Evaluation (CCE)
Internal Assessment

Particulars	Marks
Mid-term Examination (Internal Practical Examination)	25
Any 5 (five) components, each of 5 marks: (N**ote:** Select the components from the Annexure1, attached at the end of this syllabus.	25
Total	**50**

Passing Marks for Internal Assessment: 18 (marks (36% of 50 marks)

Total Passing Marks: The student shall obtain minimum **36 marks** (minimum 18 marks from Internal Assessment **Plus** minimum 18 marks from External Examination) out of **total 100** marks to pass course

Annexure1:

Scheme for Internal Assessment (As per SOP by the Government)

For 4 (Four) Credit and 100-marks Course

INTERNAL EVALUATION SCHEME

	Particulars	Marks
	Mid-Semester Examination (Mandatory)	**25**
	Any Five Components from the Following List:	**25**
	Class Test	05
	Open book exam/test	05
	Open note exam/test	05
	Self-test/ Online test	05
	Essay/Article writing	05
	Quizzes/Objective test	05
	Class assignment	05
	Home assignment	05
	Reports Writing	05
	Research/Dissertation	05
	Case Studies	05
	Viva/Oral exam	05
	Group Discussion	05
	Role Play	05
	Paper presentation/Seminar	05
	Language Lab work	05
	Interview	05
	Craft work	05
	Co-curricular work	05
	Field Assignment	05

	Poster Presentation	05
	Attendance	05
	Total	**50**
Note: The student has to obtain 18 marks (36% marks out of total 50 marks) for passing the Internal Examination		

IDC/MDC - 1

Name of Program	Name of course	Course Code	Total Teaching Hours	Weekly Credits	Total Credits
BCA	Computer Fundamentals & emerging technology	IDC/MDC-1	Theory-60	Theory 4 credit	4
1 Hour Theory = 1 Credit / 2 Hours Practical = 1 Credit					

Objective:

- To gain knowledge on history and basic concepts of computers
- To know various parts and devices of computers
- To know concepts of various memory management devices
- To understand numbering systems and conversion
- To gain insight on new and emerging technologies

Outcomes:

- Gain understanding on the fundamentals of computer system
- Gain insight into basics of computers, their parts and various peripherals
- Gain awareness on new and emerging technologies
- Ability to understand various numbering systems and implement conversion among them

Teaching Pedagogy: Interactive classroom session, group discussion, seminar, case study, problem-solving-based learning, performance-related tasks, fieldwork, or any other methods can be used. Multimedia device and other relevant tools and modern technology should be used to make the teaching and learning process effective and interesting. Computer Lab Session for Practical and Project Related Courses.

UNIT		Hours
1	**Introduction of Computers** ▪ Basics of Computers o What is Computer? o Characteristics of Computer o Data Processing Cycle(Data → Process →information) ▪ Classification of Computer by Data Processed o Analog, Digital and Hybrid Computers ▪ History and Generations of Computers o First to Fifth Generation Computers ▪ Classification of Computer by Processing Capabilities o Micro, Mini, Mainframe and Super Computers ▪ History and Generations of Computers . o First to Fifth Generation Computers	12

	▪ Simple Model of Computer o Input Devices o CPU (Central Processing Unit) o Arithmetic & Logic Unit o Control Unit o Internal Memory ▪ Output Devices ▪ Secondary Storage Devices **Internal/External parts used with Computer Cabinet** ▪ Introduction to Mother board ▪ Types of Processors . o Dual Core, Core 2 Duo, i2, i3, etc … ▪ Memory structure and Types of Memory o RAM (SRAM, DRAM, DDR.) o ROM (ROM, PROM, EPROM, EEPROM,Cache) ▪ Slots o ISA Slots / PCI Slots / Memory Slots/SATA ▪ Sockets ▪ Cables o Serial Cable / Parallel Cable / USB Cable/HDMI ▪ Ports o USB (2.0 &3.0)/ Serial / Parellel ▪ Power Devices :UPS ▪ Graphic Cards ▪ Network card, Sound Card	
2	**Input Devices** ▪ Introduction ▪ Types of Input Devices o Keyboard / Mouse / Trackball / Glide – Pad / Game Devices Joystick, etc.) / Light Pen / Touch Screen / Mic (Sound Input) / Camera (Photo and Video Input) / POS (Point of Sale) Terminal (Scanners, etc) o MIDI(Musical Instrument Digital Interface) Keyboard, o Wireless Devices (Keyboard, Mouse, etc) ▪ Types of Scanners o OMR, MICR, OBR **Output Devices** ▪ Introduction ▪ Types of Output Devices ▪ Types of Monitors o CRT Display Units o LCD o LED	12

	○ OLED ▪ Types of Printers ○ Impact (Dot Matrix Printer, Daisy Wheel Printer) ○ Non Impact(Ink Jet Printer, Laser Printer) ▪ Plotters ▪ Other Devices ○ Fascimile(FAX) o Headphone ○ SGD (Speech Generating Device) ○ COM (Computer Output Microfilm) ○ Google Glass	
3	▪ Data Storage ▪ Introduction ▪ Types of Magnetic Storage Devices ○ Floppy Disk / Hard Disk / Magnetic Tape / Magnetic Disks ▪ Storage Mechanism of Magnetic Storage Devices ○ Tracks / Sectors / Clusters / Cylinders ▪ Reading / Writing Data to and from Storage Devices ▪ Seek Time / Rotational Delay - Latency / Access ▪ Time /Response Time ▪ Other Storage Devices ○ USB - Pen Drive/CD/DVD/Blu-Rav Disk. Flash Memory, Cloud Storage(Like Google	12
4	**Numbering System and Codes** ▪ Introduction to Binary Codes / ○ Nibble / Bit / Byte / Carry Bit / Parity Bit / Sign Bit ○ KB / MB / GB / TB / HB (etc ... ▪ Types of Numbering System ○ Binary / Octal/Decimal / Hex-Decimal ▪ Conversion ○ Binary to Octal, Decimal and Hexa-Decimal ○ Decimal to Binary, Octal and Hexa-Decimal ○ Octal to Binary, Decimal and Hexa-Decimal ○ Hexa-Decimal to Binary, Octal and Decimal ▪ Binary Arithmetic ○ Addition ○ Subtraction (1's Compliment and 2's Compliment) ○ Division . ○ Multiplication ▪ Types of Codes ○ ASCII/BCD / EBCDIC / UniCode ▪ Parity Check ○ Event Parity System / Odd Parity System Languages,Operating Systems and Software Packages ▪ Introduction ▪ Translator (Assembler / Compiler / Interpreter) ▪ Types of Languages ○ Machine Level Language ○ Assembly Level Language ○ High Level Language (3GL, 4GL, 5GL, etc.)	12

	▪ Types of Operating Systems o Batch Operating System o Multi Processing Operating System o Time Sharing Operating System o Online and Real Time Operating System ▪ Uses and applications of Software Packages o Word Processing Packages o Spread Sheet Packages o Graphical Packages o Database Packages I o Presentation Packages o Animation / Video / Sound Packages	
5	**Emerging Technologies and Virus** ▪ Different Communication methods o GIS / GPS / COMA / GSM/ VOLTE ▪ Communication Devices o Cell Phones / Modem / Infrared / Bluetooth / WiFi / LiFi ▪ Virus o ontroduction to Virus and related terms o Origin and History o Types of Virus o Problems and Protection from Virus ▪ Cloud Computing o What is Cloud Computing? o Characteristic & Service Models(Iaas, Paas, Saas) o Architecture o Security & Privacy	12

Reference Books:

No.	Name	Author / Publication
1	Computer Fundamentals	By P.K.Sinha
2	Fundamental of IT for BCA	By S.Jaiswal
3	Engineering Physics	By V.K.Gaur
4	Teach Yourself Assembler	By Goodwin.

Web site References :

- https://www.javatpoint.com/computer-fundamentals-tutorial
- https://www.tutorialspoint.com/computer_fundamentals/index.htm
- https://www.tutorialspoint.com/computer_fundamentals/computer_fundamentals_tutorial.pdf
- http://www.kvadilabad.org/admin/downloads/1788662251computer_fundamentals_tutorial.pdf

Evaluation Scheme and Distribution of marks

Semester End Evaluation (SEE) **External Assessment**	
Total marks: 50	**Time: 2.00 Hrs**
Questions : From Unit	Marks
Question-1 : Questions from Unit-1 (Any Two out of Four)	10

Question-2 : Questions from Unit-2 (Any Two out of Four)	10
Question-3 : Questions from Unit-3 (Any Two out of Four)	10
Question-4 : Questions from Unit-4 (Any Two out of Four)	10
Question-5 : Questions from Unit-5 (Any Two out of Four)	10
Total	**50**
Passing Marks for External Examination: 18 Marks (36% of 50 Marks)	

Continuous & Comprehensive Evaluation (CCE)
Internal Assessment

Particulars	Marks
Mid-term Examination	25
Any 5 (five) components, each of 5 marks: (N**ote:** Select the components from the Annexure1, attached at the end of this syllabus.	25
Total	**50**

Passing Marks for Internal Assessment: 18 (marks (36% of 50 marks)

Total Passing Marks: The student shall obtain minimum **36 marks** (minimum 18 marks from Internal Assessment **Plus** minimum 18 marks from External Examination) out of **total 100** marks to pass course

Annexure1:

Scheme for Internal Assessment (As per SOP by the Government)

For 4 (Four) Credit and 100-marks Course

INTERNAL EVALUATION SCHEME

	Particulars	Marks
	Mid-Semester Examination (Mandatory)	**25**
	Any Five Components from the Following List:	**25**
	Class Test	05
	Open book exam/test	05
	Open note exam/test	05
	Self-test/ Online test	05
	Essay/Article writing	05
	Quizzes/Objective test	05
	Class assignment	05
	Home assignment	05
	Reports Writing	05
	Research/Dissertation	05
	Case Studies	05
	Viva/Oral exam	05
	Group Discussion	05
	Role Play	05
	Paper presentation/Seminar	05

	Language Lab work	05
	Interview	05
	Craft work	05
	Co-curricular work	05
	Field Assignment	05
	Poster Presentation	05
	Attendance	05
	Total	**50**
Note: The student has to obtain 18 marks (36% marks out of total 50 marks) for passing the Internal Examination		

SEC-1

Name of Program	Name of Course	Course Code	Total Teaching Hours	Weekly Credits		Total Credits
BCA	Office Automation	SEC -1	Theory-15 Practical-30	Theory Credits 1	Practical Credit 1	2
1 Hour Theory = 1 Credit / 2 Hours Practical = 1 Credit						

Course Objectives

- Acquire confidence in using computers in Office and General Life.
- Understand file management.
- Create documents using word processor, spreadsheet & presentation software.

Course Outcomes:

- WellacquaintedwithOperatingSystemanditsapplicationsforbothdesktopand Laptop.
- Abletoidentifyvariousdesktopscreen componentsand modify variousproperties,date,timeetc.
- Abletoaddandremove new program andfeatures,managefilesandfolders.
- Wellversedwithprintingandknowvarioustypesoffile extensions.
- Gaining Knowledge of WordProcessing,theusage,detailsofwordprocessingscreen.
- After completion of MsExcel , Students will have Knowledge of Spreadsheet Processing ,their usage, details of Spreadsheet screen in depth .

Teaching Pedagogy: Interactive classroom session, group discussion, seminar, case study, problem-solving-based learning, performance-related tasks, fieldwork, or any other methods can be used. Multimedia device and other relevant tools and modern technology should be used to make the teaching and learning process effective and interesting. Computer Lab Session for Practical and Project Related Courses.

Units	Title of the Unit and the Topics	No. of Lectures

Unit 1	**WORDPROCESSING & BASICS OF SPREADSHEET** **WORDPROCESSING** Introduction Objective WordProcessingBasics • OpeningWordProcessingPackage • TitleBar,MenuBar,Toolbars&Sidebar • CreatingaNewDocument • OpeningandClosingDocuments • OpeningDocuments • SaveandSaveAs • ClosingDocument • UsingTheHelp • PageSetup • PrintPreview • Printing of Documents • PDF file and Savinga Document as PD Ffile TextCreationandmanipulation • DocumentCreation • EditingText • TextSelection • Cut,CopyandPaste • Font,Color,StyleandSizeselection • AlignmentofText • Undo & Redo • Auto Correct, Spelling & Grammar • Find and Replace FormattingtheText • ParagraphIndentation • BulletsandNumbering • Changecase • Header&Footer TableManipulation • Insert&DrawTable • Changingcellwidthandheight • AlignmentofTextincell • Delete/InsertionofRow,ColumnandMerging&SplittingofCellsBorderandShading **BASICS OF SPREADSHEET** Introduction Objectives ElementsofSpreadSheet CreatingofSpreadSheet • Concept of Cell Address [Row and Column]andselectinga Cell • Entering Data[text,number,dateinCells • Page Setup • Printing of Sheet • Saving Spreadsheet • OpeningandClosing	**8**

Unit 2.	**ADVANCED SPREADSHEET MANAGEMENT & PRESENTATION** **ADVANCED SPREADSHEET MANAGEMENT** ManipulationofCells&Sheet • Modifying/ EditingCellContent • Formatting Cell(Font,Alignment,Style) • Cut,Copy, Paste& PasteSpecial • ChangingCellHeight andWidth • InsertingandDeletingRows,Column • AutoFill • Sorting Filtering • Freezing panes Formulas,FunctionsandCharts • UsingFormulasforNumbers(Addition,Subtraction,Multiplication&Division, IF) • AutoSum • Functions(Sum,Count,MAX,MIN,AVERAGE) Charts(Bar,Pie,Line) **PRESENTATION** Introduction Objectives Creation of Presentation • Creating a Presentation Using a Template • Creating a Blank Presentation • Inserting & Editing Text on Slides • Inserting and Deleting Slides in a Presentation • Saving a Presentation Manipulating Slides • Inserting Table • Adding Clip Art Pictures • Inserting Other Objects • Resizing and Scaling an Object • Creating & using Master Slide Presentation of Slides • Choosing a SetUp for Presentation • Running a Slide Show • TransitionandSlideTimings • Automating a Slide Show • Providing A esthetics to Slides & Printing • Enhancing Text Presentation • Working with Color and Line Style • Adding Movie and Sound • Adding Headers, Footer sand Notes Printing Slides and Handouts	**7**
Practical	**PRACTICAL** LAB SESSIONS Practical exercises based on unit -1 to 2	**30**

Reference Books:

No.	Name	Author / Publication
1	Microsoft Office for Beginners	By M. L. Humphrey
2	Microsoft Office 2019 Beginner	By M. L. Humphrey
3	Mastering MS Office	By Bittu Kumar

4	Microsoft Office Training Guide	By Prof. Satish Jain M. Geetha Kratika, BPB Publications
5	Working in Microsoft Office	By Ron Mansfield
6	Windows 10 Step By Step	By Joan Lambert
7	Windows 10 Inside Out	By Ed Bott and Craig Stinson

Website References:

- https://edu.gcfglobal.org/en/subjects/office/#
- https://www.customguide.com/training/
- https://www.guru99.com/free-microsoft-courses-certifications.html
- https://alison.com/tag/microsoft-office
- https://www.makeuseof.com/tag/microsoft-office-tutorials-courses/
- https://www.udemy.com/topic/microsoft-word/free/
- https://www.w3schools.com/excel/index.php

Evaluation Scheme and Distribution of marks

Semester End Evaluation (SEE) **External Assessment**	
Total marks: 25	**Time: 1.00 Hrs**
Questions : From Unit	Marks
Question-1 : Questions from Unit-1 (Any Two out of Four)	10
Question-2 : Questions from Unit-2 (Any Two out of Four)	10
Question-3 : Questions from Unit-1 to 2 (Any One out of two)	05
Total	**25**
Passing Marks for External Examination: 9 Marks (36% of 25 Marks)	

Continuous & Comprehensive Evaluation (CCE) **Internal Assessment**	
Particulars	**Marks**
Mid-term Examination (Internal Practical Examination)	13
Any 4 (five) components, each of 3 marks: (N**ote:** Select the components from the Annexure-2, attached at the end of this syllabus.	12
Total	**25**
Passing Marks for Internal Assessment: 9 (marks (36% of 25 marks)	

Annexure-2:

Scheme for Internal Assessment (As per SOP by the Government)

For 2 (Four) Credit and 50-marks Course

INTERNAL EVALUATION SCHEME

	Particulars	**Marks**
	Mid-Semester Examination (Mandatory)	**13**

	Any Five Components from the Following List:	**12**
	Class Test	03
	Open book exam/test	03
	Open note exam/test	03
	Self-test/ Online test	03
	Essay/Article writing	03
	Quizzes/Objective test	03
	Class assignment	03
	Home assignment	03
	Reports Writing	03
	Research/Dissertation	03
	Case Studies	03
	Viva/Oral exam	03
	Group Discussion	03
	Role Play	03
	Paper presentation/Seminar	03
	Language Lab work	03
	Interview	03
	Craft work	03
	Co-curricular work	03
	Field Assignment	03
	Poster Presentation	03
	Attendance	03
	Total	03