

ಮಂಗಳೂರು  
MANGALORE



ವಿಶ್ವವಿದ್ಯಾನಿಲಯ  
UNIVERSITY

ಕ್ರಮಾಂಕ/No. :MU/ACC/CR.28/2021-22/A8

ಕುಲಸಚಿವರ ಕಛೇರಿ  
ಮಂಗಳಗಂಗೋತ್ರಿ - 574 199  
Office of the Registrar  
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ದಿನಾಂಕ/Date: 24.12.2021

### NOTIFICATION

Sub: Modified Syllabus of Computer Applications, a vocational course for B.Com (Basic/Hons) Degree Programmes under NEP 2020-reg

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Pursuant to the above, the modified syllabus of Computer Applications, a vocational course for B.Com (Basic/Hons) Degree Programmes under NEP 2020 is hereby notified for implementation with effect from the academic year 2021-22 subject to the ratification of Academic Council meeting .

Copy of the Syllabus shall be downloaded from the Mangalore University Website.  
[www.mangaloreuniversity.ac.in](http://www.mangaloreuniversity.ac.in)

  
REGISTRAR.

To:

1. The Principals of all the Colleges affiliated to Mangalore University.
2. The Registrar (Evaluation), Mangalore University.
3. Prof. Manjaiah D.H, Chairman, UG Combined BOS in Computer Applications & Computer Science & Department of Computer Science, Mangalore University, Mangalagangothri.
4. The Assistant Registrar/The Superintendent, Academic Section, O/o the Registrar, Mangalore University.
5. The Director, DUIMS, Mangalore University – with a request to publish in the Website.
6. Guard File.

# **B.Com (Computer Applications) (Basic/Hons) (Vocational)**

## **Programme Objectives (PO):**

**PO1:** Impart advanced learning to students in the discipline of Commerce, specifically with the application of software technology for professional requirements, merging the academic domains of Commerce and Computer Applications

**PO2:** To impart central knowledge and skills to the students in emerging areas of commerce like accounting, auditing, finance, marketing, HR, company laws, taxation etc with computing skills for effective domain enrichment

**PO3:** To groom students with desired competence in commerce education and research with computing leverage.

**PO4:** To strengthen theoretical and applied aspects of commerce for preparing the students for higher education and research.

**PO5:** To equip the students with necessary skill sets pertaining to computing principles, software technologies and business practices in software solutions essential for gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

**PO6:** To impart demonstratable knowledge, skills and values in order to support students' eventual progression to higher learning and gainful career with resilient value system.

## **Programme Outcomes (PO)**

The Commerce graduates should be able to:

**PO1:** Apply the knowledge of commerce and computers to obtain constructive solutions to complex business & management problems.

**PO2:** Understand the concepts of key areas in computer science and apply latest technologies to solve problems in the areas of computer applications in business and commerce

**PO3:** Design solutions for Socio-economic, commerce and business problems and plan case study, processes to meet the specifications with consideration for sustainable development.

**PO4:** Use modern computing models and tools to conduct investigations of complex economic, business and management problems including analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5:** Understand digital ethics - what can be made possible by digital technology and what is ethically desirable, in order to be successful leaders in the business world

**PO6:** Use digital edge in order to function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings, communicate effectively with the business community & IT professionals and with society at large.

**PO7:** Demonstrate knowledge and understanding of Commerce, Management & Software engineering principles and apply these to one's own work, as a member and leader in a team.

**PO8:** Recognize the need for and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

**Program Structure**  
**Proposed Scheme of Teaching & Evaluation for B.Com (Computer Applications)(Basic/Hons) with Commerce as Core subject**

<b>Semester I</b>							
<b>Sl. No.</b>	<b>Course Code</b>	<b>Title of the Course</b>	<b>Credits</b>	<b>Teaching Hours per Week (L + T + P)</b>	<b>SEE</b>	<b>CIE</b>	<b>Total Marks</b>
1	Lang.1.1	Language-I	3	3+1+0	60	40	100
2	Lang.1.2	Language-II	3	3+1+0	60	40	100
3	B.Com.1.1	Financial Accounting	4	3+0+2	60	40	100
4	B.Com.1.2	Information Technology	3	3+0+0	60	40	100
5	B.Com.1.3	Problem solving with C	3	3+0+0	60	40	100
6	B.Com.1.4	IT & C Lab	2	0+0+4	25	25	50
7	B.Com.1.5	Digital Fluency	2	1+0+2	30	20	50
8	B.com. 1.6	Yoga	1	0+0+2	-	25	25
9	B.com. 1.7	Health and Wellness	1	0+0+2	-	25	25
10	B.Com.1.8	Accounting for Everyone/Financial Literacy/Managerial Economics	3	3+0+0	60	40	100
<b>Sub–Total (A)</b>			<b>25</b>		<b>415</b>	<b>335</b>	<b>750</b>

<b>Semester II</b>							
<b>Sl. No.</b>	<b>Course Code</b>	<b>Title of the Course</b>	<b>Credits</b>	<b>Teaching Hours per Week (L + T + P)</b>	<b>SEE</b>	<b>CIE</b>	<b>Total Marks</b>
11	Lang.2.1	Language-I	3	3+1+0	60	40	100
12	Lang.2.2	Language-II	3	3+1+0	60	40	100
13	B.Com.2.1	Advanced Financial Accounting	4	3+0+2	60	40	100
14	B.Com.2.2	Operating System	3	3+0+0	60	40	100
15	B.Com.2.3	Desktop Publishing	3	3+0+0	60	40	100
16	B.Com.2.4	Linux & DTP Lab	2	0+0+4	25	25	50
17	B.Com.2.5	Sports	1	0+0+2	-	25	25
18	B.Com.2.6	NCC/NSS/R&R(S&G)/Cultural	1	0+0+2	-	25	25
19	B.Com.2.7	Environmental Studies	2	2+0+0	30	20	50
20	B.Com.2.8	Financial Environment/Investing in Stock Markets/ Public Finance	3	3+0+0	60	40	100
<b>Sub–Total(B)</b>			<b>25</b>		<b>415</b>	<b>335</b>	<b>750</b>

**EXIT OPTION WITH CERTIFICATION-with ability to solve well defined problems**

Semester III							
Sl. No.	Course Code	Title of the Course	Credits	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks
21	Lang.1.1	Language-I	3	3+1+0	60	40	100
22	Lang.1.2	Language-II	3	3+1+0	60	40	100
23	B.Com.3.1	Corporate Accounting	4	3+0+2	60	40	100
24	B.Com.3.2	Java Programming	3	3+0+0	60	40	100
25	B.Com.3.3	DBMS	3	3+0+0	60	40	100
26	B.Com.3.4	Java & DBMS lab	2	0+0+4	25	25	50
27	B.Com.3.5	Artificial Intelligence	2	1+0+2	30	20	50
28	B.Com.3.6	Sports	1	0+0+2	-	25	25
29	B.Com.3.7	NCC/NSS/R&R(S&G)/Cultural	1	0+0+2	-	25	25
30	B.Com.3.8	Advertising Skills/Entrepreneurial Skills/Modern Bank Management	3	3+0+0	60	40	100
<b>Sub-Total(C)</b>			<b>25</b>		<b>415</b>	<b>335</b>	<b>750</b>

Semester IV							
Sl. No.	Course Code	Title of the Course	Credits	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks
31	Lang.1.1	Language-I	3	3+1+0	60	40	100
32	Lang.1.2	Language-II	3	3+1+0	60	40	100
33	B.Com.4.1	Advanced Corporate Accounting	4	3+0+2	60	40	100
34	B.Com.4.2	Web Application Development	3	3+0+0	60	40	100
35	B.Com.4.3	Computerized Accounting	3	3+0+0	60	40	100
36	B.Com.4.4	Web & Tally Lab	2	0+0+2	25	25	50
37	B.Com.4.5	Constitution of India	2	2+0+0	30	20	50
38	B.Com.4.6	Sports	1	0+0+2	-	25	25
39	B.Com.4.7	NCC/NSS/R&R(S&G)/Cultural	1	0+0+2	-	25	25
40	B.Com.4.8	Business Ethics/ Corporate Governance/ International Trade	3	3+0+0	60	40	100
<b>Sub-Total(D)</b>			<b>25</b>		<b>415</b>	<b>335</b>	<b>750</b>

**EXIT OPTION WITH DIPLOMA –Ability to solve broadly defined problems.**

Semester V							
Sl. No.	Course Code	Title of the Course	Credits	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks
41	B.Com.5.1	Financial Management	4	3+0+2	60	40	100
42	B.Com.5.2	VB.NET Programming	3	3+0+0	60	40	100
43	B.Com.5.3	Computer Graphics and Animations	3	3+0+0	60	40	100
44	B.Com.5.4	VB.Net & CG lab	2	0+0+4	50	50	100
45	B.Com.5.4 Elective	One Course from the Selected Elective Group	3	3+1+0	60	40	100
46	B.Com.5.6 Elective	GST- Law & Practice	3	2+0+2	60	40	100
47	B.Com.5.6 Elective	Internship	2	0+0+4	-	50	50
48	B.Com.5.7	Sports	1	0+0+2	-	25	25
49	B.Com.5.8	NCC/NSS/R&R(S&G)/ Cultural	1	0+0+2	-	25	25
50	B.Com.5.7	Cyber Security/Ethics & Self Awareness	2	1+0+2	30	20	50
<b>Sub–Total(E)</b>			<b>24</b>		<b>380</b>	<b>370</b>	<b>750</b>

Semester VI							
Sl. No.	Course Code	Title of the Course	Credits	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks
51	B.Com.6.1	Software Engineering	3	3+0+0	60	40	100
52	B.Com.6.2	Information securities & Cyber Laws	3	3+0+0	60	40	100
53	B.Com.6.3	Project	2	0+0+4	50	50	100
54	B.Com.6.3	Financial Derivatives	4	3+0+2	60	40	100
55	B.Com.6.4 Elective	One courses from the Selected Elective Group	3	3+1+0	60	40	100
56	B.Com.6.5	Basics of Spread Sheet Modeling OR Report on Study of Startups and Innovative Business Ideas	3	2+0+2	60	40	100
57	B.Com.6.6 Elective	Internship	2	0+0+4	-	50	50
58	B.Com.6.7	Sports	1	0+0+2	-	25	25
59	B.Com.6.8	NCC/NSS/R&R(S&G)/ cultural	1	0+0+2	-	25	25
60	B.Com.6.9	Professional Communication	2	2+0+0	30	20	50
<b>Sub–Total(F)</b>			<b>24</b>		<b>380</b>	<b>370</b>	<b>750</b>
<b>Grand Total - Degree</b>			<b>148</b>		<b>2420</b>	<b>2080</b>	<b>4500</b>

**EXIT OPTION WITH BACHELOR DEGREE-Ability to solve complex problems that are ill-structured requiring multi-disciplinary skills to solve them.**

<b>Semester VII</b>							
<b>Sl. No.</b>	<b>Course Code</b>	<b>Title of the Course</b>	<b>Credits</b>	<b>Teaching Hours per Week (L + T + P)</b>	<b>SEE</b>	<b>CIE</b>	<b>Total Marks</b>
61	B.Com.7.1	International Business	4	4+1+0	60	40	100
62	B.Com.7.2	Advanced Business Statistics	4	4+1+0	60	40	100
63	B.Com.7.3	Advanced Financial Management	4	4+1+0	60	40	100
64	B.Com.7.4	One Course from the Selected Elective Group	3	3+1+0	60	40	100
65	B.Com.7.5	ERP Applications	3	2+0+2	60	40	100
66	B.Com.7.6	Research Methodology	3	2+0+2	60	40	100
<b>Sub-Total(G)</b>			<b>21</b>		<b>360</b>	<b>240</b>	<b>600</b>

<b>Semester VIII</b>							
<b>Sl. No.</b>	<b>Course Code</b>	<b>Title of the Course</b>	<b>Credits</b>	<b>Teaching Hours per Week (L + T + P)</b>	<b>SEE</b>	<b>CIE</b>	<b>Total Marks</b>
67	B.Com.8.1	Financial Reporting-IND.AS	4	3+0+2	60	40	100
68	B.Com.8.2	Strategic Financial Management	4	4+0+0	60	40	100
69	B.Com.8.3	Business Analytics OR Data Analysis & Decision Sciences	4	3+0+2	60	40	100
70	B.Com.8.4	One Course from the Selected Elective Group	3	3+1+0	60	40	100
71	B.Com.8.5	Managing Digital Platforms	3	2+0+2	60	40	100
72	B.Com.8.6	Research Projects/Internship with Viva - voce	6	0+0+12	120	80	200
		OR	3*	3+1+0	60*	40*	100*
		Two Courses from the Selected Elective Group 8.5 (A) & 8.5 (B)	3*	3+1+0	60*	40*	100*
<b>Sub-Total (H)</b>			<b>21/ 21*</b>		<b>420/ 420*</b>	<b>280/ 280*</b>	<b>700/ 700*</b>
<b>Grand Total - Honors</b>			<b>190</b>		<b>3200/ 3200*</b>	<b>2600/ 2600*</b>	<b>5800/ 5800*</b>

\* Students who do not opt Research Project / Internship shall take two elective courses such as 8.5 (A) & 8.5 (B).

**Sub Total (H) and Grand Totals Honors vary accordingly.**

**BACHELOR DEGREE WITH HONORS – Experience of work place problem solving in the form of internship or research experience preparing for higher education or entrepreneurship experience.**

**Notes:**

- **One Hour of Lecture is equal to 1 Credit.**
- **One Hour of Tutorial is equal to 1 Credit (Except Languages).**
- **Two Hours of Practical is equal to 1 Credit**

**Acronyms Expanded**

- **AECC : Ability Enhancement Compulsory Course**
- **DSC © : Discipline Specific Core (Course)**
- **SEC-SB/VB : Skill Enhancement Course-Skill Based/Value Based**
- **OEC : Open Elective Course**
- **DSE : Discipline Specific Elective**
- **SEE : Semester End Examination**
- **CIE : Continuous Internal Evaluation**
- **L+T+P : Lecture+Tutorial+Practical(s)**

**Note: Practical Classes may be conducted in the Business Lab or in Computer Lab or in Class room depending on the requirement. One batch of students should not exceed half (i.e., 50 or less than 50 students) of the number of students in each class/section. 2 Hours of Practical Class is equal to 1 Hour of Teaching, however, whenever it is conducted for the entire class (i.e., more than 50 students) 2 Hours of Practical Class is equal to 2 Hours of Teaching.**

## ELECTIVE GROUPS AND COURSES:

<b>Discipline Specific Electives - V Semester</b>						
Sl. No	Accounting	Finance	Banking & Insurance	Marketing	Human Resources	IT
1	Ind. AS and IFRS	Financial Markets & Intermediaries	Indian Banking System	Retail Management	Human Resources Development	Financial Analytics

<b>Discipline Specific Electives - VI Semester</b>						
1	e-Business & Accounting	Investment Management	Banking Innovations & Technology	Customer Relationship Marketing	Cultural Diversity at Work Place	HR Analytics
2	Accounting for Services Sector	Global Financial System & Practices	Principles & Practice of Insurance	Digital Marketing	New Age Leadership Skills	Marketing Analytics
3	Accounting for Government and Local Bodies	Risk Management	Insurance Law and Regulations	Consumer Behavior & Marketing Research	Labour Laws & Practice	ICT Application in Business

<b>Discipline Specific Electives - VII Semester</b>						
1	Forensic Accounting	Corporate Structuring	Banking Products & Services	Logistics & Supply Chain Management	Strategic HRM	DBMS & SQL

<b>Discipline Specific Electives - VIII Semester</b>						
1	Innovations in Accounting	Corporate Valuation	e-Banking	E - Commerce	International HRM	Web & Social Intelligence
2	Accounting Information System	Analysis of Financial Statements	Insurance Planning & Management	Services Marketing	Employee Welfare & Social Security	Artificial Intelligence & Machine Learning in Business

**NOTE:** Student shall continue with the same elective group in V and VI semesters, however, he/she may change the elective group in VII semester, but shall continue in the same group in VIII semester.

## Scheme of Assessment for Theory Examination

**Duration: 3 Hrs**

**Max Marks: 60**

Question Pattern		Marks
<b>Part – A</b>		
1. Answer any <b>SIX</b> sub-questions (6×2=12)		<b>12</b>
Sub-question	Unit	
a, b	1	
c, d	2	
e, f	3	
g, h	4	
<b>Part – B</b>		
(Answer any <b>ONE</b> full question from each unit – 12 marks each)		
(Combinations of sub-questions of 3 to 6 marks)		
Unit-1		<b>12</b>
2.		
3.		
Unit-2		<b>12</b>
4.		
5.		
Unit-3		<b>12</b>
6.		
7.		
Unit-4		<b>12</b>
8.		
9.		
<b>Total</b>		<b>60</b>

## SEMESTER - 1

<b>Name of the Program:</b> Bachelor of Commerce (B.Com.- Computer Applications) <b>Course Code:</b> B.Com.1.2 <b>Name of the Course:</b> Information Technology.		
<b>Course Credits</b>	<b>No. of Hours per Week</b>	<b>Total No. of Teaching Hours</b>
<b>3 Credits</b>	<b>3 Hrs</b>	<b>42 Hrs</b>
<b>Pedagogy:</b> Classrooms lecture, Case studies, Group discussion, Seminar & Computer lab.		
<b>Course Outcomes: On successful completion of the course, the Students will be able to</b> <ol style="list-style-type: none"> <li>a) Be able to apply knowledge of computing analyze a problem, and identify and define the computing requirements appropriate to its solution</li> <li>b) Be able to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs</li> <li>c) Be able to effectively integrate IT based solutions into the user environment</li> </ol>		
<b>Syllabus:</b>		<b>Hours</b>
<b>Unit- 1</b>		<b>12</b>
<b>Introduction to Computers:</b> Introduction, Characteristics computers, Evolution computers, Generation of Computers, Classification of computers, the computer system, Application of computers. <b>Number system:</b> Introduction, Number system, Conversion between Decimal to Binary and vice versa <b>Computer Architecture:</b> Introduction, Central processing unit, main memory unit, interconnection of units, cache, communication between various units of a computer system. <b>Primary memory:</b> Introduction, memory representation, memory hierarchy, Random access memory: Types of RAM, Read-only memory, Types of ROM.		
<b>Unit- 2</b>		<b>10</b>
<b>Secondary Storage:</b> Introduction, classification, magnetic tape, magnetic disk, Optical disk Storage organization and the types (CD ,DVD , Blue-ray), Memory stick, Universal serial bus, Mass storage devices. <b>Input devices:</b> Introduction, Types of input devices - keyboard, mouse, joystick, Touch screen, scanner, Optical character recognition, Optical Mark Recognition, Magnetic ink character recognition, Bar code reader <b>Output devices:</b> Introduction, Types of output, Classification of output devices- printer, plotter, Monitor, Terminals		
<b>Unit- 3</b>		<b>10</b>
<b>Computer Program:</b> Introduction, algorithm, flowchart. <b>Computer languages:</b> Introduction, Evolution of programming languages, classification of programming languages, generation of programming languages, Features of a good programming language, selection of a programming language. <b>Computer software:</b> Introduction, software definition, relationship between software and hardware, software categories, terminology software <b>Network basics:</b> Computer networks, Network topologies, Network devices.		

**Unit- 4****10**

**Internet basics:** Introduction, Evolution, Basic internet terms, getting connected to internet, internet Applications.

**Working with Application Software, Productivity software:** Word processing software, **Spreadsheet** software (excel)

**Presentation software:** Introduction, , PowerPoint environment, creating a new presentation, working with different views, using masters, adding animation, adding transition, running slides.

**Skill Development Activities:**

1. Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
2. Integrate IT based solutions into the user environment.
3. Working with database, RDBMS.
4. Any other activities, which are relevant to the course.

**Text Books:**

1. ITL Education Solutions Limited, **Introduction to Information Technology**, Pearson Education India; 2<sup>nd</sup> edition, 2012.
2. Peter Norton, **Introduction to Computers**, 7<sup>th</sup> Edition, Tata McGraw Hill Publication, 2017 (Unit - IV).

**Name of the Program:** Bachelor of Commerce (B.Com.- Computer Applications)

**Course Code:**B.Com.1.3

**Name of the Course:** Problem Solving with C

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	3 Hrs	42 Hrs

**Pedagogy:**

Classrooms lecture, Case studies, Group discussion, Seminar & computer lab.

**Course Outcomes: On successful completion of the course, the Students will be able to**

- a) To apply programming knowledge to create solutions to challenging problems, including specifying, designing, implementing and validating solutions for new problems.

**Syllabus:**

**Hours**

**Unit - 1**

**12**

**Overview of C :** History of C , Importance of C Program, Basic structure of a C-program, Execution of C Program.

**C Programming Basic Concepts:** Character set, C token, Keywords and identifiers, Constants, Variables, data types, Declaration of variables, assigning values to variables, defining symbolic constants.

**Input and output with C:** Formatted I/O functions - printf and scanf, control stings and escape sequences, output specifications with printf functions; Unformatted I/O functions to read and display single character and a string - getchar, putchar, gets and puts functions.

**Unit - 2**

**10**

**Operators & Expressions:** Arithmetic operators; Relational operators; Logical operators; Assignment operators; Increment & Decrement operators; Bitwise operators; Conditional operator; Special operators; Operator Precedence and Associativity; Evaluation of arithmetic expressions; Type conversion.

**Control Structures:** Decision Making and Branching -Decision making with if statement, simple if statement, the if else statement, nesting of if ... else statements, the else if ladder, the switch statement, the ?: operator, the go to statement.

Decision making and looping - The while statement, the do statement, for statement, nested loops, exit, break, jumps in loops.

**Unit - 3**

**10**

**Derived data types in C:** Arrays - declaration, initialization and access of one-dimensional and two dimensional arrays. Programs using one- and two-dimensional arrays, sorting and searching arrays.

**Handling of Strings:** Declaring and initializing string variables, reading strings from terminal, writing strings to screen, Arithmetic operations on characters, String handling functions - strlen, strcmp, strcpy, strstr and strcat; Character handling functions - toascii, toupper, tolower, isalpha, isnumeric etc

**Unit - 4**

**10**

**User-defined functions:** Need for user-defined functions, Declaring, defining and calling C functions, return values and their types, Categories of functions: With/without arguments, with/without return values. Nesting of functions.

**Recursion:** Definition, example programs.

**Structures and unions:** Structure definition, giving values to members, structure initialization, comparison of structure variables, arrays of structures, arrays within structures, Structure and functions, structures within structures. Unions

**Skill Development Activities:**

1. Functional, logic and also learn skills of problem solving and implementation of solution
2. Specifying, designing, implementing and validating solutions for new problems.
3. Any other activities, which are relevant to the course.

**Reference Materials:**

1. E. Balagurusamy, **Programming in ANSI C**, McGraw Hill Education India Private Limited; Seventh edition, (2017)
2. .M. T. Somashekara, D. S. Guru, K. S. Manjunatha, **Problem Solving with C**, PHI Learning Pvt. Ltd.; Second edition, 2018
3. Hanly, **Problem Solving and Program Design in C**, Pearson Education India;7 edition, 2013
4. Satish Jain, **Programming & Problem Solving Through C Language**, BPB Publications, 2012

**Note: Latest edition of text books may be used.**

<b>Course Code: B.Com.1.4</b>	<b>Course Title: IT &amp; C Lab</b>
<b>Course Credits:2</b>	<b>Hours/Week:04</b>
<b>Total Contact Hours:52</b>	<b>Formative Assessment Marks:25</b>
<b>Exam Marks:25</b>	<b>Exam Duration:3 hrs</b>

## **PRACTICAL EXERCISES**

### **PART-A**

#### **WORD**

1. Prepare a word document that includes the following features inserting picture, bulleting and numbering, formatting (size, bold, underline, italic, superscript, subscript, color etc), border and shading, paragraph and line alignment.
2. Prepare a word document with a table to insert Roll No, name, class, and marks in three subjects. Find total and average.
3. Prepare a interview call letters for five candidates. The letter shall contain information about company, job profile and instructions about the interview. Using mail merge features.

#### **POWER POINT**

Prepare a Power point presentation with at least four slides (in each exercise) including picture, chart and other contents. Apply various transition and animations.

Exercise No. 1: About your college.

Exercise No. 2: Indian Banking System

### **PART-B**

#### **EXCEL**

1. Create an EMPLOYEE data having employees name, designation and basic pay of 5 employees. Calculate DA, HRA, Gross Pay, Income tax, Net pay, Provident fund as per the following rule  
DA=10% of basic pay  
HRA= if basic pay is< 2500, 10% of basic pay else 25% of basic pay  
Gross=DA+HRA+Basic pay  
Provident fund=12% of Basic pay  
Professional tax=Rs 100 if gross is<10000 else 200  
Net Pay=Gross- Professional tax - Provident Fund
2. Prepare a STUDENT table. Insert following information such as RollNo, Name, Class and Marks in three subjects. The insert details of 5 students. Calculate total marks, percentage, result (pass or fail), and Grade (distinction, first class, second class, pass class) as per usual rules. Draw a column chart showing the RollNo versus Percentage scored.

3. Create a table containing Zones and percentage of commission to be given to a sales man

<u>Zone</u>	<u>Percentage</u>
South	10%
North	12.5%
East	14%
West	13%

Create another table in the same worksheet to store salesman names, zone names, places, names of items sold, rate per unit, quantity sold. Calculate total sales amount for each salesman. For the above table write the formula to compute the commission to be given.

- Show the records of various zones separately.
- Show the records of only East and West zones.
- Display the details of the items which are sold more than 50 no.s in South or North zones.

### PART-C

#### C PROGRAMS

1. Write a program to read radius of a circle and find area and circumference of the circle.
2. Write a program to read three numbers and find the largest of three numbers using nested if statement.
3. Write a program to generate n Fibonacci numbers.
4. Write a program to read a multi-digit number find the sum of the digits, reverse the number and check it for palindrome
5. Program to read marks scored by n students and find the average of marks (Demonstration of single dimensional array).
6. Write a program to add two matrices (Demonstration of two dimensional arrays).
7. Write a program to read a string and to find the number of alphabets, digits, vowels, consonants, spaces and special characters.
8. Write a program to find the  ${}^n C_r$  of a given number using factorial function.
9. Write a program using structure, read N students RollNo, Name and Marks in three subjects. Calculate Total, Percentage and Grade for N students.

Assessment Criteria		Marks
Activity-1 from Part A	Word/ PowerPoint	06
Activity-2 from Part B	Excel	07
Activity-3 from Part C	C Program	07
Practical Record		05
Total		25

## SEMESTER - II

**Name of the Program:** Bachelor of Commerce (B.Com.- Computer Applications)

**Course Code:** B.Com. 2.2

**Name of the Course:** Operating System

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
<b>3 Credits</b>	<b>3 Hrs</b>	<b>42 Hrs</b>

**Pedagogy:**

Classrooms lecture, Case studies, Tutorial classes, Group discussion, Seminar & computer lab.

**Course Outcomes: On successful completion of the course, the Students will be able to**

- a) Analyze the structure of OS and basic architectural components involved in design
- b) Analyze the various resource management techniques
- c) Interpret the mechanisms adopted for file sharing
- d) conceptualize the components involved in designing a contemporary OS
- e) To be familiar with various types of operating systems

<b>Syllabus:</b>	<b>Hours</b>
<b>UNIT I</b>	<b>12</b>
<p><b>Introduction:</b> Operating system, Mainframe systems (Batch systems, Multiprogrammed systems, Time sharing systems)</p> <p><b>Operating System Structures:</b> System Components, Operating System Services</p> <p><b>Process Management:</b> Process concept, Process Scheduling, Operations on process, Cooperative Process</p> <p><b>Threads:</b> Overview, Multithreading Models.</p>	
<b>UNIT II</b>	<b>10</b>
<p><b>CPU Scheduling:</b> Basic concepts, Scheduling criteria, Scheduling algorithms.</p> <p><b>Process Synchronization:</b> Background, the critical section Problems, Synchronization, Semaphore, Classic problems synchronization</p> <p><b>Deadlocks:</b> System model, deadlock characterization, Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance, Deadlock detection</p>	
<b>UNIT III</b>	<b>10</b>
<p><b>Memory Management:</b> Background, Swapping, contiguous Memory allocations, Paging, segmentation</p> <p><b>Virtual Memory:</b> Background, demand paging, process creation, page replacement, allocation of frames and thrashing.</p> <p><b>File Management:</b> File concept, Access methods, Directory structure, Protection.</p>	

**UNIT IV****10**

**Linux:** An introduction, reason for its popularity, Linux file system, login and logout.

**Linux commands:**

Command format, Wild card characters

Directory oriented commands – ls, mkdir, rmdir, cd, pwd

File oriented commands – cat, cp, rm, mv, wc

File Access Permissions , chmod command

Communication oriented commands – write, mail, wall

General purpose commands – date, who, who am i, man, cal, expr

Pipe and Filters related commands - Redirection, pipe, sort, grep

vi editor, Shell programming

**Skill Developments Activities:**

1. Study structure of OS and basic architectural components involved in designing operating system of a company.
2. Visit any information technology company in your area and collect the information about File system Mounting, File sharing, Protection etc.
2. Any other activities, which are relevant to the course.

**Text Books:**

1. Silberschartz, Galvin and Gagne, **Operating Systems Concepts**, 8<sup>th</sup> Edition, John Wiley & sons, Pvt. Ltd. 2008
2. B Mohamed Ibrahim, **Linux: A Practical Approach**, Laxmi Publications; First edition, 2016

**Reference Books:**

1. Pramod Chandra P. Bhatt, **An Introduction to Operating Systems: Concepts and Practice (GNU/Linux)**, Prentice Hall India Learning Private Limited; Fourth edition, 2013
2. Richard Blum, Christine Bresnahan, **Linux Command Line and Shell Scripting Bible**, Third edition, Wiley, 2015.
3. Sobell, **Practical Guide to Linux Commands Editor**, Pearson Education India; 3 edition, 2013.

**Note: Latest edition of text books may be used.**

**Name of the Program:** Bachelor of Commerce (B.Com.- Computer Applications)

**Course Code:**B.Com.2.3

**Name of the Course:** Desktop Publishing

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	4 Hrs	48 Hrs

**Pedagogy:** Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

**Course Outcomes: On successful completion of the course, the Students will be able to**

- Gain basic understanding of the field of desktop publishing
- Acquire skills of preparing projects for publication which include layout and design
- Learn both the technical and aesthetic aspects of text, image manipulation and integration
- Learn using design as a means of communication, along with using tools to implement effective design strategies

Syllabus:	Hours
UNIT - I	12

**Introducing InDesign CS4:** Getting started with InDesign CS4, Exploring the InDesign CS4 workspace, working with custom workspace, creating a new document, saving a document, closing the document and quitting the application.

**Working with Documents:** Opening an existing document, Introducing master page, working with text, working with the type on a path tool, performing basic formatting tasks, performing advance formatting tasks, working with paragraph styles.

**Working with drawing tools and objects:** Using shape tools, using pencil tool, using pen tool, transforming objects.

**Publishing the document :** Creating a table of contents, creating and applying styles in TOC, importing styles, printing a document, exploring the types of print options, saving the document as a PDF file

UNIT - II	10
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**Introduction to Corel DRAW graphics suit x4:** New and enhanced features in Coreldraw graphics suit X4. Getting started with Coreldraw X4, Exploring the workspace of Coreldraw X4, drawing basic geometric figures, saving the drawing, opening an existing document, previewing with the drawing, working with page layout, closing the drawing and quitting Coreldraw.

**Working with lines:** About lines in Coreldraw: Drawing a curve, drawing calligraphic lines, About outline tool: defining lines and outlines setting, creating a calligraphic outline, adding an arrowhead.

**Working with objects:** Selecting and deselecting objects, deleting objects, sizing objects, rotating objects, combining objects, grouping in Coreldraw: grouping object, ungrouping objects. Selecting color for an object, filling objects.

**Working with text:** Types of text: preparing a layout for using the text, creating artistic text, creating paragraph text, converting text from one type to another, changing the appearances of text, changing a font, changing the font size and color of the text, changing the alignment, applying effects to the text, wrapping paragraph text around objects, fitting text to an object using curve command.

**Working with bitmaps:** About vector and bitmap image, change vector images into bitmap images, importing a bitmap into a drawing, cropping, resampling and resizing a bitmap.

**UNIT - III**

**10**

**Getting Familiar with CS4:** Introducing and launching Photoshop CS4, Exploring the new interface. Move tool, eyedropper tool, zoom tool, type tool. The layer palette, the channels palette, the color palette, the history palette, the brush palette, clone source palette, the actions palette. Opening an existing file or Photoshop document, creating a new document, saving files, reverting files, closing files.

**Working with images and selections:** Changing the resolution of an image, changing the size of a document Editing images: rotating an image, cropping an image, trim command. Working with selections tool: Marquee tool, working with selections. Lasso tools(3 types of tools only meaning) Magic wand tool( only meaning exclude different options)

**Drawing painting and retouching tools:** Setting the current foreground and background colors, Exploring color picker dialog box (only meaning exclude different components), using eyedropper tool. Using retouching tool, healing brush tool, patch tool, clone stamp tool, eraser tool, background eraser tool, magic eraser tool.

**Master layers in Photoshop:** Working with layers, creating a new layer, hiding and showing layers, deleting layers, Applying blend modes.

**UNIT - IV**

**10**

**Getting Started with Flash Professional CS6:** Starting Flash Professional CS6, Creating new flash File, Exploring the Flash Professional Cs6 workshop (The application Bar, Stage, panels, using tool panels, properties inspector). Transform Panel, swatches panel, color panel, scene panel. Understanding Timeline and layers, Motion Editor, Creating or choosing a new workspace, Saving Flash Files.

**Working with Graphics:** Bitmap and vector graphics, Merge Drawing mode, Object drawing mode, Primitive drawing mode, Creating graphics in flash professional CS6, Selecting Objects(Using selection tool, Subselection tool, lasso tool, selection using lasso tool, Lasso tool with polygon modifier, line tool), Drawing rectangles and ovals, Rectangles and shapes, ovals and circles, polygon and stars, pencil tool, pen tool. Draw straight line with the pen tool, creating a curved path using pen tool, Adding anchor points on paths, deleting corner and curve points, painting with the brush tool, spray brush tool, Drawing patterns with the deco tool. Paint bucket tool, In bottle tool, eyedropper tool, using eraser tool, Transforming objects, Distorting objects, rotating and skewing objects. Using gradient and bitmap fills( All)

**Working with symbols and instances:** Using symbols, creating symbols, duplicate symbols, create instances, editing instance properties, break apart a symbol instance, editing symbols

**Timeline with timeline:** Working with timeline, about layer, create a layer, rename layer, outline layer, viewing layer, guide layer. Creating animation, types of animation, Classification of animation in the timeline. Understanding motion tweens, Easing tween animation, orienting objects to the path, swapping targets, motion presets.

**Skill Development Activities:**

- a) Identify the tasks and use appropriate software and documentation to create specific projects in desktop publishing house in the local area.
- b) Create and present publication project using and describing the principles and skills necessary for its creation.
- c) Evaluate projects according to criteria defined in technology application standards for desktop publishing
- c) Any other activities, which are relevant to the course.

**Text Books:**

1. Ramesh Bangia, **Learning Desk Top Publishing (DTP)**, Khanna Book Publishing Co. (P)Ltd.; 1 edition, 2016.
2. Satish Jain, **BPB DTP Course**, BPB, 2014
3. Satish Jain, Adobe Flash Professional CS6 Training Guide Paperback, First edition, BPB Publications, 2016

**Reference Books:**

1. Kogent Learning Solutions Inc., **InDesign CS6 in Simple Steps**, Dreamtech Press, 2012
2. Kogent Learning Solutions Inc., **Photoshop CS6 in Simple Steps**, Dreamtech Press, 2012
3. Kogent Learning Solutions Inc., **“Flash CS6 in Simple Steps”, First Edition, Dreamtech Press, 2013.**
4. Kogent Learning Solutions Inc., **CorelDRAW X7 in Simple Steps**, Dreamtech Press, 2014.

**Note: Latest edition of text books may be used.**

<b>Course Code: B.Com.2.4</b>	<b>Course Title: Linux &amp; DTP lab</b>
<b>Course Credits:2</b>	<b>Hours/Week:04</b>
<b>Total Contact Hours:52</b>	<b>Formative Assessment Marks:25</b>
<b>Exam Marks:25</b>	<b>Exam Duration:3 hrs</b>

## **PRACTICAL EXERCISES**

### **PART-A**

#### **Linux**

1. Write a shell script to accept 'n' integers and count +ves, -ves and zeros separately. Also find the sum of +ves, and -ves.
2. Write a shell script to accept student name and marks in 3 subjects. Find the total marks and grade (depending on the total marks).
3. Write a shell script program to copy the content of one file1 to file2 and display the content of both the files.
4. Write a menu driven shell script for the following.
  - a) To list files and directories.
  - b) Renaming a file (check for the existence of the source file).
  - c) To display the current working directory
  - d) To list the users logged in
  - e) Exit

### **PART-B**

#### **Adobe InDesign**

1. Design College day invitation by using InDesign tools.
2. Design a Newspaper cutting.

#### **Adobe Coreldraw X4**

1. Create any banner in Corel Draw using different tools.
2. Create Business card (visiting card) in CorelDraw using different tools.

### **PART-C**

#### **Adobe Photoshop**

1. Create image in Photoshop painting tools or use existing images copy the portions of one image to another image. Use Toolbox options. Marquee Tool (Rectangular Marquee, elliptical Marquee), Move, Lasso Tool, Magic wand and Crop Tools.
2. Create images of artistic architectures using Photoshop painting tools (brush, pencil, color, paint bucket tools), Drawing tools and retouching tools.
3. Create image or use existing images to create a new layer, delete layer, show and hide layers and apply different blend modes.

### **Adobe Flash**

1. Create a moving butterfly using simple motion tween animation in Adobe Flash.
2. Using Adobe Flash, design a building in background using different tools and simple motion tween animation for moving the bus.

<b>Assessment Criteria</b>		<b>Marks</b>
<b>Activity-1 from Part A</b>	<b>Linux</b>	<b>06</b>
<b>Activity-2 from Part B</b>	<b>Adobe InDesign/ Adobe Coreldraw X4</b>	<b>07</b>
<b>Activity-3 from Part C</b>	<b>Adobe Photoshop/ Adobe Flash</b>	<b>07</b>
<b>Practical Record</b>		<b>05</b>
<b>Total</b>		<b>25</b>