ALAGAPPA UNIVERSITY

(A State University Established in 1985)

Karaikudi – 630003. Tamil Nadu, India

FACULTY OF EDUCATION
ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT

B.Voc., SOFTWARE DEVELOPMENT

REGULATIONS AND SYLLABUS

(For the candidates admitted from the
Academic Year 2022 - 2023)

B.Voc. PROGRAMME

In

SOFTWARE DEVELOPMENT

Under

CHOICE BASED CREDIT SYSTEM (CBCS)

&

CREDIT FRAMEWORK FOR SKILL DEVELOPMENT (CFSD)

PROGRAMME STRUCTURE

(2022-23Batch onwards)

ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT
ALAGAPPAUNIVERSITY
(Accredited with A+ Grade by NAAC (CGPA: 3.64) in
the Third Cycle & Graded as Category– I University
by MHRD-UGC)
KARAIKUDI–630003

Tamil Nadu

Alagappa Institute of Skill Development

B.Voc (Software Development)

REGULATIONS AND SYLLABUS
[For the candidates admitted from the Academic Year 2022–2023]

ALAGAPPA UNIVERSITY
(A State University Accredited with "A+" grade by NAAC (CGPA: 3.64) in the Third Cycle and Graded as
Category-I University by MHRD-UGC)
Karaikudi-630003, TamilNadu.

The panel of Members – Broad Based Board of Studies

Chairperson: Dr.C.Vethirajan, Director i/c Alagappa Institute of Skill Development,Alagappa University, Teaching Experience: 27 Years,Research Experience: 20 Years, Area of Research: Corporate Finance, Corporate Taxation, Investors" Protection – SEBI, Customer Relationship Management, Women Entrepreneurs – HRM Competencies, Corporate Social Responsibility Corporate Financial Reporting, Environmental Protection, Corporate Stake holders Interest.	
Foreign Expert: Dr.Seshadri Ram Kumar,Professor Department of Environmental Toxicology, Texas Tech University,Teaching Experience: 40 Years, Research Experience: 39 Years, Area of Research: Advanced Materials	
Indian Expert: Dr.J.Hayavadana, Professor & Head Department of Textile Technology, Osmania University, Teaching Experience: 35 Years, Research Experience: 34 Years, Area of Research: Fabrication and Techno Economics of Textile production and intradiscipline Projects Linking Industry with Institute & Lean & Six sigma	
Indian Expert: Dr.S.Nickolas, Professor in Computer Application National Institute of Technology, Teaching Experience: 30 Years, Research Experience:15 Years, Area of Research: Data Mining, Big Data Analytics, Cloud Computing and High Performance Computing.	
Industry Expert: Ms.Neethu Deepak, General Manager, Opuu Fashion private Limited, Chennai, Experience: 20 Years, Area: Design and Product Development	
Industry Expert: Mr. A. Arockia Arulnathan, Senior Automation Developer K7 Computing Pvt.Ltd, Chennai, Experience:07 Years, Area: Automation	

Special Invitee Dr.B.SenthilKumar, Assistant Professor in Textile EngineeringDepartment of Rural Industries and Management,Gandhigram Rural Institute – Deemed University, Teaching Experience:16 Years, Research Experience:12 Years, Area of Research: Clothing Technology, Antimicrobial Textiles, Medical textile structures & natural dyes, Advance Textile Reinforced Composite Structures TQM/LEAN applications in Textile & Clothing industries.	
Special Invitee Mr. Dinesh Paranthagan,Founder & CEO Hackup Technology Ethical Hacker | Pen tester,Experience: 07 Years, Area: Hacking	
Special Invitee Dr.M.Sutha Associate Professor Department of Tamil,Alagappa University, Teaching Experience:16 Years, ResearchExperience:18 Years, Area of Research: Sangam literature to Modern literature Specialization: Kappiyangal, Comparative literature.	
Special Invite **e**Dr.S.Valliammai Assistant Professor, Department of English and Foreign Languages, Alagappa University, Teaching Experience:14 Years, Research Experience:10 Years, Area of Research: English Language Teaching	
Alumnus/Alumna: Ms.B.Suganthi, CAD Operator, Industry: SRV Knit Garments, Perumanallur, Tirupur, TamilNadu, India	

ALAGAPPA UNIVERSITY
ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT
Karaikudi -630003, Tamil Nadu.

REGULATIONS AND SYLLABUS-(CBCS-University Department)
[For the candidates admitted from the Academic Year 2022 – 2023 onwards]

Name of the Department: Alagappa Institute of Skill Development
Name of the Subject Discipline: Software Development
Programme of Level: B.Voc
Duration for the Course: Full Time (Three / Four Years)

1. **Choice-Based Credit System**

    A choice-Based Credit System is a flexible system of learning. This system allows students to gain knowledge at their own tempo. The student shall decide on electives from a wide range of elective courses offered by the University Departments in consultation with the Department committee. Students undergo additional courses and acquire more than the required number of credits. They can also adopt an inter- disciplinary and intra-disciplinary approach to learn, and make the best use of the expertise of available faculty.

2. **Programme**

    "Programme" means a course of study leading to the award of a degree in a discipline.

3. **Courses**

    „Course" is a component (a paper) of a Programme. Each course offered by the Department is identified by a unique course code. A course contains lectures/ tutorials / laboratory / seminar / project / practical training / report writing / Viva-voce or a combination of these, to meet effectively the teaching and learning needs.

4. **Credits**

    The term "Credit" refers to the weightage given to a course, usually in relation to the instructional hours assigned to it. Normally in each of the courses credits will be assigned on the basis of the number of lectures/tutorials /laboratory and other forms of learning required to complete the course contents in a 15-week schedule. One credit is equal to one hour of lecture per week. For laboratory/field work one credit is equal to two hours.

5. Semesters

An Academic year is divided into two Semesters. In each semester, courses are offered in 15 teaching weeks and the remaining 5 weeks are to be utilized for conduct of examination and evaluation purposes. Each week has 30 working hours spread over 5 days a week.

6. Departmental committee

The Departmental Committee consists of the faculty of the Department. The Departmental Committee shall be responsible for admission to all the programmes offered by the Department including the conduct of entrance tests/selection, verification of records, admission, and evaluation. The Departmental Committee determine the deliberation of courses and specifies the allocation of credits semester-wise and course- wise. For each course, it will also identify the number of credits for lectures, tutorials, practicals seminars etc. The courses (Core/Discipline Specific Elective/Non-Major Elective) are designed by teachers and approved by the Departmental Committees. Courses approved by the Departmental Committees shall be approved by the Board of Studies. A teacher offering a course will also be responsible for maintaining attendance and performance sheets (CIA -I, CIA-II, assignments and seminar) of all the students registered for the course. The Non-major elective Programme and MOOCs coordinator are responsible for submitting the performance sheet to the Head of the department. The Head of the Department consolidates all such performance sheets of courses pertaining to the programmes offered by the department. Then forward the same to be Controller of Examinations.

7. Programme Educational Objectives (PEO) -Minimum 6 objectives are required

PEO-1	• To offer skill / vocational curriculum adhere to the National Occupational Standards (NOS) towards improving the employability of the youth and industrial revolution of the Country.
PEO-2	• To create strong linkage with respective Sector Skill Council (SSC), Industries and academia to offer and vet the progress of the pedagogical process of Skill Vocational training
PEO-3	• To prepare students for successful careers in software engineering and graduate education with a thorough understanding of software development
PEO-4	• To create experiential learning opportunities to apply that computer knowledge to solve real-world problems.
PEO-5	• To prepare the students to be successful professionals in the field with solid fundamental knowledge of software technologies.
PEO-6	• To develop and apply personal management and team member skills as a professional software developer
PEO-7	• Provide a judicious mix of skills relating to a profession and appropriate content of general education.
PEO-8	• Ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.

PEO-9	• Integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce
PEO-10	• Provide vertical mobility to students coming out of (a) 10+2 with vocational subjects and (b) Community Colleges.

8. Programme Outcome-(PO) -Minimum 6 Outcomes required

The curriculum of the B.Voc. (Software Development) Programme enables the students to become any of the below mentioned Job Roles:

PO-1	➤ Improve their computer literacy, their basic understanding of operative systems and a programming languages process.
PO-2	➤ Understand analyse and develop computer programs in the areas related to recent technologies and design.
PO-3	➤ An ability to design a computing system to meet desired needs within realistic constraints.
PO-4	➤ Apply the knowledge of mathematics, science, and computing to the Solution of complex scientific problems.
PO-5	➤ An ability to enhance the theory concepts and also its application Oriented tools.
PO-6	➤ Create, select, and apply appropriate techniques, resources, and modern computing and IT tools including prediction and modelling to Complex scientific activities with an understanding of the limitations.
PO-7	➤ Analyze real world problems and use available technological solutions to design and implement the same
PO-8	➤ Exhibit the skill of critical design thinking and use them to predict a Range of creative solutions towards a design problem.
PO-9	➤ Use the Systems Analysis Design paradigm to critically analyze a Problem.
PO-10	➤ Become an entrepreneur who can provide solutions and develop Software products for Enterprise needs.

9. Programme Specific Objectives-(PSO)-Minimum 5 Specific objectives required

PSO-1	• To inculcate the students with Technical, Generic and Industry specific skills related to Software Development for better employment possibilities and to open avenues for self-employment.
PSO-2	• To empower the students in terms of career goals, decision making and livelihood options.
PSO-3	• To Utilize and exhibit strong communication and interpersonal skills, as well as professional and ethical principles when functioning as members and leaders of multi-disciplinary teams
PSO-4	• To set up the students to apply their foundations in software engineering to adapt to readily changing environments using the appropriate theory, principles and processes
PSO-5	• To extend the students to work as a professional maintaining high standards of practice, making ethical/legal judgments and decisions, and sustaining a professional standing through a commitment to life-long learning

10. Programme Specific Outcome-(PO) -Minimum 5 Outcomes required

The curriculum of the B.Voc. (Software Development) Programme enables the students to become any of the below mentioned Job Roles:

PSO-1	➢ Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems
PSO-2	➢ Understand the impact of general education in the area like Gender studies, Environmental Science, Entrepreneurship and need for sustainable development
PSO-3	➢ Develop competent technical speaking and writing skills in English so as to enable the graduate effectively communicate in the work place
PSO-4	➢ Develop competency in advanced programming languages such as Big data, IOT, Python, J2EE. Android etc. Learn the development of software and web applications using these.
PSO-5	➢ Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

11. Eligibility for admission

i. **For Admission**: Students already acquired NSQF certification Level 4 in a particular industry sector / at school level.

ii. A pass in the Higher Secondary Examination (Academic / Vocational Stream) conducted by the Government of Tamil Nadu, or an examination accepted as equivalent thereto (like PUC) by the Syndicate, subject to such conditions as may be prescribed therefore.
   - Provided that the candidates who have passed the qualifying examination with Science group shall be considered for 1/2 of seats in B.Voc (Software Development) and 1/2 of seats for other subject students.

iii. Candidates who have passed vocational Programme at the higher secondary stage through Open and Distance Learning (ODL), for example, from the National Institute of Open Schooling, State Open Schools, or equivalent.

iv. Candidates qualifying from Polytechnics with equivalent qualification to higher secondary

12. Medium of Instruction: English

13. Minimum Duration of Programme:

The programme is for a period of three years. Each academic year shall comprise of two semester viz. Odd and Even semesters. Odd semesters shall be from June / July to October / November and Even Semesters shall be from November / December to April /May. Each semester there shall be 90 working days consisting of 6 teaching hours per working day (5 days/week).

i) **The B.Voc. Course is for a period of three years.**

The B.Voc. Course has single entry and multiple exit points. **Thus, the Students can opt to leave** (if passed the examinations) in the following stages with appropriate Certificate / Diploma / Advanced Diploma / B.Voc. Degree as indicated in Table 1:

Table 1. B.Voc. Programme duration and credit framework with exit points

NSQF Level	Skill Component Credits	General Education Credits	Total Credits for Award	Normal Duration	Exit Points / Awards
7	108	72	180	Six Semesters	B.Voc. Degree
6	72	48	120	Four Semesters	Advanced Diploma
5	36	24	60	Two Semesters	Diploma
4	18	12	30	One Semester	Certificate

i) **For the Degree (B.Voc)**: The candidates shall have subsequently undergone the prescribed course of study for a period of not less than **three academic years**, passed the examinations prescribed and fulfilled such conditions as have been prescribed therefore.

ii) **For the Advanced Diploma**: The candidates shall have subsequently undergone the prescribed course of study for a period of not less than **two academic years**, passed the examinations prescribed and fulfilled such conditions as have been prescribed therefore.

iii) **For the Diploma**: The candidates shall have subsequently undergone the prescribed course of study for a period of not less than **one academic year**, passed the examinations prescribed and fulfilled such conditions as have been prescribed therefore.

14. Components

A UG Programme consists of a number of courses. The term "course" is applied to indicate a logical part of the subject matter of the Programme and is invariably equivalent to the subject matter of a "paper" in the conventional sense. The following are the various categories of the courses suggested for the PG programmes:

A. Core courses (CC)- "Core Papers" means "the core courses" related to the programme concerned including practical's and project work offered under the programme and shall cover Core competency, critical thinking, analytical reasoning, research skill.

B. Discipline-specific electives (DSE) means the courses offered under the programme related to the major but are to be selected by the students and shall cover additional academic knowledge, critical thinking, and analytical reasoning.

C. Non-Major Electives (NME)- Exposure beyond the discipline

➢ Students have to undergo a total of two Non Major Elective courses (UG) with 2 credits offered by other departments (one in III semester another in IV Semester).

➢ A uniform time frame of 3 hours on a common day (Tuesday) shall be allocated for the Non-Major Electives.

➢ Non-Major Elective courses offered by the departments UG Programme pertaining to a semester should be announced before the end of the previous semester.

➢ Registration process: Students have to register for the Non-Major Elective course within 15 days from the commencement of the semester either in the department or NME portal (University website).

D. Self-Learning Courses from MOOCs platforms.

➢ MOOCs shall be on voluntary for the students.

➢ All UG programmes students have to undergo a total of 2 Self Learning Courses (MOOCs) one in III semester another in IV semester.

➢ The actual credits earned through MOOCs shall be transferred in the credit plan of programmes as extra credits.

➢ If the Self Learning Course (MOOCs) is without credit, 2 credit/ course shall be given and transferred as extra credit

➢ While selecting the MOOCs, preference shall be given to thecourse related to employability skills.

E. Projects / Dissertation /Internships:

The duration of the Project/Dissertation/internship shall be a minimum of onemonths in the final semester.

Project/Dissertation

➢ Plan of work

The candidate shall undergo Project/Dissertation Work during the final semester. The candidate should prepare a scheme of work for the dissertation/project and should get approval from the guide. The candidate, after completing the dissertation /project work, shall be allowed to submit it to the university departments at the end of the final semester. If the candidate is desirous of availing the facility from other departments/universities/laboratories/organizations they will be permitted only after getting approval from the guide and HOD. In such a case, the candidate shall acknowledge the same in their dissertation/project work.

Internship

The students who have opted for an Internship must undergo industrial training in the reputed organizations to accrue industrial knowledge in the final semester. The student has to find industry related to their discipline (Public limited/Private Limited/owner/NGOs etc.,) in consultation with the faculty in charge /Mentor and get approval from the head of the department and Departmental Committee before going for an internship.

➢   No. of copies of the dissertation/project report/internship report

The candidate should prepare three copies of the dissertation/project/internship report and submit the same for the evaluation of the examiners. After evaluation, one copy will be retained in the department library, one copy will be retained by the guide and the student shall hold one copy.

➢ Format to be followed for dissertation/project report
The format /certificate for thesis to be followed by the student are given
below

➢   Title page -**Format of the title page**
Title of Dissertation/Project work
Dissertation/Project submitted in partial fulfilment of the
requirementfor the degree of UG Programme into the
Alagappa University, Karaikudi -630003.
By (Student Name)
(Register Number)
University Logo

Department of ---
Alagappa University
(A State University Accredited with "A+" grade by NAAC (CGPA:
3.64)in the ThirdCycle and Graded as Category-I University by
MHRD-UGC,2019: QS ASIA Rank- 216, QS BRICS Rank-104,
QS India Rank-20)
Karaikudi – 630003
(Year)

- ➢ Certificate-**Format of certificate –Guide**

This is to certify that the Dissertation / thesis entitled "-------------------------------------" submitted to Alagappa University, Karaikudi-630 003 in partial fulfillment for theB.A.,/B.Sc.,/B.F.A.,/B.P.A.,/Integrated Programmes in --------------by Mr/Mis (Reg No:------------) under my supervision. This is based on the results of studies carried out byhim/her in theDepartment of -------- , Alagappa University, Karaikudi-630003 This dissertation/project or any part of this work has not been submitted elsewhere for any other degree, diploma, fellowship, or any other similartitles or record of any University or Institution.

Place: Karaikudi

Date: _____

Certificate (HOD)

This is to certify that the Dissertation/Project work entitled "" submitted by Mr/Mis (Reg No) to the Alagappa University, in partial fulfilment for the award of the B.A.,/B.Sc.,/B.F.A.,/B.P.A.,/Integrated Programmes is a bonafide record of research work done under the supervision of --------------, Assistant Professor, Department of , Alagappa University. This is to further certify that the thesis or any part thereof has not formed the basis of the award to the student of any degree, diploma, fellowship, or any other similar title of any University or Institution.

Place: Karaikudi   Head of the Department

Date:_____

Declaration (student)

I hereby declare that the dissertation/project entitled " ----------------- " Submitted to the Alagappa University for the award of the B.A/B.Sc.,/B.F.A/ integrated programme in ----------- has been carried out by me under the guidance of-- , Assistant Professor, Department of-------------, Alagappa University, Karaikudi – 630 003. This is my original and independent work and has not previously formed the basisof the award of any degree, diploma, associateship, fellowship, or any other similar title of any University orInstitution.

Place: Karaikudi

Date:＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

- ➤ Acknowledgment

- ➤ Content as follows:

Chapter No	Title	Page number
1	Introduction	
2	Aim and objectives	
3	Review of literature	
4	Materials and methods	
5	Result	
6	Discussion	
7	Summary	
8	References	

Internship

- ➤ **Format to be followed for Internship report**

The format /certificate for internship report to be followed by the student are givenbelow

- ➤ Title page -**Format of the title page**

<div align="center">

Title of internship report
Internship report submitted in partial fulfillment of the
requirement for the BA/B.Sc/B.FA/B.Com degree in   to the
Alagappa University, Karaikudi -630003.
By (Student Name)
(Register Number)
University Logo

</div>

Department of --

<div align="center">

Alagappa University
(A State University Accredited with "A+" grade by NAAC (CGPA: 3.64) in
the ThirdCycle and Graded as Category-I University by MHRD-UGC, 2019:
QS ASIA Rank- 216, QS BRICS Rank-104,QS India Rank-20)
Karaikudi - 630003
(Year)

</div>

➢ Certificate-**Format of certificate – faculty in-charge**

  This is to certify that the Internship report entitled "---

----" submitted to Alagappa University, Karaikudi-630 003 in partial fulfillment for

the   B.A.,/B.Sc.,/B.F.A.,/B.P.A.,/Integrated   Programmes   in   -------------by   Mr/Mis

 --(Reg

No-----------) under my supervision. This is based on the work carried out by him/her in the

Organization M/S------------------. This Internship report or any part of this work has not been

Submitted elsewhere for any other degree, diploma, fellowship, or any other similar

record of anyUniversity or Institution.

Place: Research Supervisor

Date:

Certificate (HOD)

This is to certify that the Internship report entitled " --------- " Submitted by Mr/Mis. ----------------- (Reg No ----------) to the Alagappa University, in Partial fulfilment for the award of the B.A.,/B.Sc.,/B.F.A.,/B.P.A.,/Integrated Programmes is abonafide record of Internship report done under the supervision of , Assistant Professor,Department of ---------------------, Alagappa University and the work carried out by him/her in the organization M/S ------------------. This is to further certify that the thesis or any part thereof hasnot formed the basis of the award to the student of any degree, diploma, fellowship, or any othersimilar title of any University or Institution.

Place:Karaikudi   Head of the Department

Date:

> ➤ Certificate-(Format of certificate – Company supervisor/ Head of the Organization)

This is to certify that the report entitled "-----------------------------------" Submitted to Alagappa University, Karaikudi-630   003in partial fulfilment for the B.A.,/B.Sc.,/B.F.A.,/B.P.A.,/Integrated Programmes in -------------by Mr/Mis (Reg No   ) under my supervision. This is based on the work carried out by him/her in our Organization M/S -------------------------- for the period of three months or   --. This Internship report or any part of this work has not been submitted elsewhere for any other degree,diploma, fellowship, or any other similar record of any University or Institution.

Place: Supervisor or in charge

Date:

<u>Declaration (student)</u>

I hereby declare that the dissertation/project entitled "-----------------"
Submitted to the Alagappa University for the award of the B.A/B.Sc.,/B.F.A/
integratedprogramme in ----------- has been carried out by me under the
guidance of--- ,
Assistant Professor, Department of-------------, Alagappa University, Karaikudi –630 003.
This is my original and independent work carried out by me in the organization M/S
-------------------------- For the period of three months or and has not previously formed
The basis of the award of any degree, diploma, associateship, fellowship, or any
other similartitle ofany University or Institution.

Place: Karaikudi

Date:_____   (-------------)

- ➢ Acknowledgment

- ➢ Content as follows:

2. Teaching methods

The teacher delivers the lecture and provides some time after the lecture for discussion among the students and teacher in the classroom. The student's views, comments experiences, problems, difficulties in understanding any point or portion of the lecture come to teacher's knowledge and teacher replies, and clarifies the doubts. It is an important strategy in stimulating the student's interests and assesses their understanding of the concept. In the laboratory the instruction was given associated with their course, the students are allowed to attend the demonstration and allow them todo the experiment individually. Skill oriented workshop and demo classes are arranged with industrial experts. Periodic tests would be conducted and for the students of slow learners would begiven special attention.

3. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students who have earned 74% to 70% of attendance need to apply for condonation in the prescribed form with the prescribed fee. Students who have earned 69%to 60% of attendance need to apply for condonation in the prescribed form with the prescribed fee along with the Medical Certificate. Students who have below 60% of attendance are not eligible to appear for the End Semester Examination (ESE). They shall re-do the semester(s) after completion of the programme

4. Examination and Evaluation

The examinations shall be conducted separately for theory and practical's to assess (remembering, understanding, applying, analyzing, evaluating, and creating) the knowledge required during the study. There shall be two systems of examinations viz., internal and external examinations. The internal examinations shall be conducted as Continuous Internal Assessment tests I and II (CIA Test I& II).

A. Internal Assessment

The internal assessment shall comprise a maximum of 25 marks for each subject. The following procedure shall be followed for awarding internal marks.

Theory -25 marks

S.No	Content	Marks
1	Average marks of two CIA test	15
2	Seminar/group discussion/quiz	5
3	Assignment/field trip report/case study report	5
	Total	25

Project/Dissertation/Internship -25 Marks (assess by Guide & HOD /in charge/supervisor)

1	Two presentations (mid-term)	15 Marks
2	Progress report	10 Marks
	Total	25 Marks

B. **External Examination**

- There shall be examinations at the end of each semester, for odd semesters in the month of October / November; for even semesters in April / May.
- A candidate who does not pass the examination in any course(s) may be permitted to appear in such failed course(s) in the subsequent examinations to be held in October / November or April / May. However candidates who have arrears in Practical shall be permitted to take their arrear Practical examination only along with Regular Practical examination in the respective semester.
- A candidate should get registered for the first semester examination. If registration is not possible owing to shortage of attendance beyond condonation limit / regulation prescribed OR belated joining OR on medical grounds, the candidates are permitted to move to the next semester. Such candidates shall re-do the missed semester after completion of the programme.

- For the Project Report/ Dissertation Work / internship the maximum marks will be 75/150 percent for project report evaluation and for the Viva-Voce it is 25/50 percent (if in some programmes, if the project is equivalent to more than one course, the project marks would be in proportion to the number of equivalent courses).
- Viva-Voce: Each candidate shall be required to appear for Viva-Voce Examination (in defense of the Dissertation Work /Project/ internship).

C. **Scheme of External Examination (Question Paper Pattern)**

Theory - Maximum 75 Marks

Section A	10 questions. All questions carry equalmarks.	10 x1 = 10 Marks	10 questions – 2 eachfrom every unit
Section B	5 questions Either / or type like 1.a (or) b. All questions carry equal marks and each answer should not exceed one page	5 x 5 = 25	5 either or questions from each unit (one either-or question fromeach unit)
Section C	5 questions Either / or type like 1.a (or) b. All questions carry equal marks	5x8= 40	5 either or questions from each unit (one either-or question fromeach unit)

Internship /Dissertation /Project report Scheme of evaluation

Internship/Dissertation /Project report	50 Marks
Vivo voce	25 Marks

5. Results

The results of all the examinations will be published through the Department where thestudent underwent the course as well as through University Website.

6. Passing minimum

A candidate who secured not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in First class. All other successful candidates shall be declared to have passed in the Second class. The candidate who obtains 76% of marks in the aggregate shall be deemed to have passed the examination in first class with distinction provide they should have passed all the examination at the first appearance. Candidates who passed all the examinations prescribed for the course in the first instance and within two academic years from the year of admission to the course are alone eligible for university ranking.

A candidate is deemed to have secured the first rank provided if he/she should have passed all the papers in the first attempt itself and should have secured the highest Cumulative gradepoint average (CGPA).

Each student should have taken --- credits as a core course, **-- credits as a major elective; --- credits as non-major elective, credits as dissertation / Internship / Project work, in a**ddition, MOOCs courses as extra credits, thus totaling at least 140 credits is required to complete UG degree Programme.

7. Grading of the Courses

The following table gives the marks, Grade points, Letter Grades and classifications meant toindicate the overall academic performance of the candidate.

Conversion of Marks to Grade Points and Letter Grade (Performance in Course / Paper)

RANGE OF MARKS	GRADE POINTS	LETTER GRADE	DESCRIPTION
90 - 100	9.0 – 10.0	O	Outstanding
80 - 89	8.0 – 8.9	D+	Excellent
75 - 79	7.5 – 7.9	D	Distinction
70 - 74	7.0 – 7.4	A+	Very Good
60 - 69	6.0 – 6.9	A	Good
50 - 59	5.0 – 5.9	B	Average
40 - 49	4.0 – 4.9	C	Satisfactory
00 - 39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

a) Successful candidates passing the examinations and earning GPA between 9.0 and 10.0 andmarks from 90 – 100 shall be declared to have Outstanding (O).

b) Successful candidates passing the examinations and earning GPA between 8.0 and 8.9 and marksfrom 80 - 89 shall be declared to have Excellent (D+).

c) Successful candidates passing the examinations and earning GPA between 7.5 – 7.9 and marksfrom 75 - 79 shall be declared to have Distinction (D).

d) Successful candidates passing the examinations and earning GPA between 7.0 – 7.4 and marksfrom 70 - 74 shall be declared to have Very Good (A+).

e) Successful candidates passing the examinations and earning GPA between 6.0 – 6.9 and marksfrom 60 - 69 shall be declared to have Good (A).

f) Successful candidates passing the examinations and earning GPA between 5.0 – 5.9 and marksfrom 50 - 59 shall be declared to have Average (B).

g) Successful candidates passing the examinations and earning GPA between 4.0 – 4.9 and marksfrom 40 - 49 shall be declared to have Satisfactory (C).

h) Candidates earning GPA between 0.0 and marks from 00 - 39 shall be declared to have Re-appear (U).

i) Absence from an examination shall not be taken as an attempt.

From the second semester onwards the total performance within a semester and continuous performance starting from the first semester are indicated respectively **by Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA).** These two are calculated by the following formulate

GRADE POINT AVERAGE (GPA) = $\Sigma_i C_i G_i / \Sigma_i C_i$
GPA = Sum of the multiplication of grade points by the credits of the courses̲Sum of the credits of the courses in a Semester

21. Classification of the final result

The final result of the candidate shall be based only on the CGPA earned by the candidate.

a) Successful candidates passing the examinations and earning CGPA between 9.5 and 10.0 shall be given Letter Grade (O+) and those who earned CGPA between 9.0 and 9.4 shall be given Letter Grade (O) and declared to have First Class –Exemplary*.

b) Successful candidates passing the examinations and earning CGPA between 7.5 and 7.9 shall be given Letter Grade (D), those who earned CGPA between 8.0 and 8.4 shall be given Letter Grade (D+) and those who earned CGPA between 8.5 and 8.9 shall be given LetterGrade (D++) and declared to have First Class with Distinction*.

c) Successful candidates passing the examinations and earning CGPA between 6.0 and 6.4 shall be given Letter Grade (A), those who earned CGPA between 6.5 and 6.9 shall be given Letter Grade (A+) and those who earned CGPA between 7.0 and 7.4 shall be given Letter Grade (A++) and declared to have First Class.

d) Successful candidates passing the examinations and earning CGPA between 5.0 and 5.4 shall be given Letter Grade (B) and those who earned CGPA between 5.5 and 5.9 shall begiven Letter Grade (B+) and declared to have passed in Second Class.

e) Successful candidates passing the examinations and earning CGPA between 4.0 and 4.4 shall be given Letter Grade (C) and those who earned CGPA between 4.5 and 4.9 shall begiven Letter Grade (C+) and declared to have passed in Third Class.

f) Absence from an examination shall not be taken as an attempt.

Final result

CGPA	Grade	Classification of Final Result
9.5 – 10.0	**O+**	First Class – Exemplary*
9.0 and above but below 9.5	**O**	
8.5 and above but below 9.0	**D++**	First Class with Distinction*
8.0 and above but below 8.5	**D**	
7.5 and above but below 8.0	**+ D**	
7.0 and above but below 7.5	**A++**	First Class
6.5 and above but below 7.0	**A**	
6.0 and above but below 6.5	**+ A**	
5.5 and above but below 6.0	**B+**	Second Class
5.0 and above but below 5.5	**B**	
4.5 and above but below 5.0	**C+**	Third Class
4.0 and above but below 4.5	**C**	
0.0 and above but below 4.0	**U**	Re-appear

CUMMULATIVE GRADE POINT AVERAGE (CGPA) = $\Sigma_n \, \Sigma_i \, C_{ni} \, G_{ni} / \Sigma_n \, \Sigma_i \, C_{ni}$

CGPA = Sum of the multiplication of grade points by the credits of the entire ProgrammeSum of the credits of the course for the entire Programme

Where „**Ci**" is the Credit earned for Course i in any semester; „**Gi**" is the Grade Point obtained by thestudent for Course i and „n" refers to the semester in which such courses were credited.

CGPA (Cumulative Grade Point Average) = Average Grade Point of all the Courses passed startingfrom the first semester to the current semester.

Note: * The candidates who have passed in the first appearance and within the prescribed Semestersof the UG Programme (Major, Allied and Elective courses alone) are alone eligible for this classification.

a. Village Extension Programme

The Sivagangai and Ramnad districts are very backward districts where a majority of people lives in poverty. The rural mass is economically and educationally backward. Thus the aim of the introduction of this Village Extension Programme is to extend out to reach environmental awareness, social activities, hygiene, and health to the rural people of this region. The students in their third semester have to visit any one of the adopted villages within the jurisdiction of Alagappa University and can arrange various programs to educate the rural mass in the following areas for three day based on the theme.1. Environmental awareness 2. Hygiene and Health. A minimum of two faculty members can accompany the students and guide them.

B.Voc. (SOFTWARE DEVELOPMENT)

Course Code : 302   **Year : I**

NSQF Level	Sem	Part	Course Code	Course Name	Credits Skill (S)/ General G)		Theory / practical	Hrs. / Week	Marks		Total
					S	G			Int	Ext	
NSQF Level – 4 : Certificate	I	I	2BV1T1	Tamil / other Languages		4	T	4	25	75	100
		II	91CCE	Communicative English – I		3	T	3	25	75	100
		IV	2BV1G1	Life Coping Skills		3	P	3	25	75	100
		III	2BS1C1	**Core-I**-Fundamentals of C Programming	5		T	5	25	75	100
			2BS1C2	**Core-II-** Fundamentals of Digital Computer & Programming	4		T	4	25	75	100
			2BS1P1	**Core-III- Practical -** C Programming - Lab	5		P	5	25	75	100
			2BS1P2	**Core-IV- Practical -**Office Automation- Lab		2	P	2	25	75	100
			2BS1J1	**NSQF Level – 4 Job role** Junior Software Developer **(SSC/Q0508)** @	4		P	4	25	75	100
				Sub-Total	18	12					
				Total for Semester - I	30			30	--	--	800
NSQF Level – 5 : Diploma	II	I	2BV2T1	Tamil		4	T	4	25	75	100
		II	92CCE	Communicative English – II		3	T	3	25	75	100
		IV	2BV2G1	Environmental Studies *		2	T	2	25	75	100
		III	2BS2C1	**Core- V -** Web Technology	5		T	5	25	75	100
			2BS2C2	**Core-VI-** Introduction to Multimedia	5		T	5	25	75	100
			2BS2P1	**Core- VII - Practical** – Web Designing- Lab	5		P	5	25	75	100
			2BS2P2	**Core- VIII - Practical** – UI Design - Lab		3	P	3	25	75	100
			2BS2J1	**NSQF Level – 5 Job role** Web Developer **(SSC/Q0503)** @	3		P	3	25	75	100
				Sub-Total	18	12					
				Total for Semester – II	30			30	--	--	800

B.Voc. (SOFTWAREDEVELOPMENT)

Course Code:302   **Year: II**

Degree	Sem.	Part	Course Code	Course Name	Credits Skill(S)/ General(G)		Theory/ practical	Hrs./Week	Marks		Total
					S	**G**			**Int**	**Ext**	
NSQF Level –6:AdvancedDiploma	III	IV	2BV3G1	Technical English	-	3	T	3	25	75	100
			2BV3G2	Professional Etiquettes	-	3	P	3	25	75	100
			2BV3G3	PC Assembling and Troubleshooting–Lab	-	3	P	3	25	75	100
				Non-Major Elective –I	-	2	-	3	25	75	100
				Self-Learning Course-I– MOOCs-I	-	(E)	-	--	--	--	--
		V	2BV3G4	Extension Activities#	-	1	P	-	100	--	100
		III	2BS3C1	**Core-VIII**-Fundamentals of OperatingSystems	4	-	T	4	25	75	100
			2BS3P1	**Core- IX -Practical–**Data Structure &Algorithms in C–Lab	5	-	P	5	25	75	100
			2BS3P2	**Core -X–Practical–**RDBMS – Lab	5	-	P	5	25	75	100
			2BS3P3	**Core –XI–Practical** –Web Graphics–Lab	4	-	P	4	25	75	100
				Sub-Total	18	12					
				Total for Semester-III	30 +(E)			30	--	--	900
	IV	IV	2BV4G1	English for Competitive Examinations@	-	4	P	4	25	75	100
			2BV4G2	Accounting Skills@	-	4	P	4	25	75	100
				Non-Major Elective–II	-	2	-	3	25	75	100
			2BV4G3/ 2BV4G4/ 2BV4G5	Value Education /ManavalakalaiYoga/ Introduction to Gender Studies@*	-	2	P	2	25	75	100
				Self-Learning Course -II- MOOCs-II^	-	(E)	-	--	--	--	--
		III	2BS4C1	**Core–XII**-Introduction to PythonProgramming Concepts	4	-	T	4	25	75	100
			2BS4C2	**Core-XIII**-Computer Networks and Administration	5	-	T	4	25	75	100
			2BS4P1	**Core-XIV-Practical**–Python Programming -Lab	5	-	P	5	25	75	100
			2BS4J1	**NSQF Level– 6Jobrole** Master Trainer for Junior Software Developer **(SSC/Q0509)**@	4	-	P	4	25	75	100
				Sub-Total	18	12					
				Total for Semester–IV	30 +(E)			30	--	--	800

B.Voc. (SOFTWAREDEVELOPMENT)

Course Code: 302   **Year: III**

Degree	Sem.	Part	Course Code	Course Name	Credits Skill (S)/ General (G) S	G	Theory/ practical	Hrs./Week	Marks Int	Ext	Total
NSQF Level–7:B.Voc.Degree	V	IV	2BV5G1	Entrepreneurship/ Start-up Skills @	-	3	P	3	25	75	100
			2BV5G2	Quantitative Aptitude#	-	3	P	3	25	75	100
			2BV5G3	Fundamentals of Digital Privacy	-	3	T	3	25	75	100
			2BV5G4	Network Configuration - Lab	-	3	P	3	25	75	100
		III	2BS5C1	**Core-XV**-Programming with Java	4	-	T	4	25	75	100
			2BS5E1/ 2BS5E2	**Elective I –** Optimization Techniques/Discrete Mathematics	4	-	T	4	25	75	100
			2BS5P1	**Core-XVI-Practical–** Programming withJava– Lab	4	-	P	4	25	75	100
			2BS5P2	**Core-XVI- Practical –** Mobile Appdevelopment– Android	4	-	P	4	25	75	100
			2BS5P3	**Domain Study** @	2	-	P	2	25	75	100
				Sub-Total	18	12					
				Total for Semester– V	30			30	--	--	**900**
	VI	IV	2BV6G1	Corporate Grooming and Finishing skills@		4	P	4	25	75	100
			2BV6G2	Fundamentals of Digital Marketing		4	T	4	25	75	100
			2BV6G3	Interview Skills		2	P	2	25	75	100
			2BS6G4	Comprehensive Study#		2	P	2	100	--	100
		III	2BS6E1/ 2BS6E2	**Elective II –**Software Engineering/Software Project Management	4		T	4	25	75	100
			2BS6E3/ 2BS6E4	**Elective III –**PHP Programming– Lab (or)Distributed Programming–Lab	4		P	4	25	75	100
			2BS6I1	Industrial Internship with Project	7		P	7	25	75	100
			2BS6J1	**NSQF Level– 7Jobrole** Software Developer(**SSC/Q6702**)@	3		P	3	25	75	100
				Sub-Total	18	12					
				Total for Semester–VI	30			30	--	--	**800**
				Total Credits (B.Voc. Degree Programme)	180 + (E)		180				**5000**

*Syllabus of Affiliated colleges of Alagappa University will be followed#Fully-internal Course–Examination will be conducted internally @External Examination will be conducted as Viva-voce Examination
^Self-Learning Course–MOOCs–Extra Credits (E)–Extra credits earned through MOOCs

Non-Major Elective Courses:
SYLLABUS UNDER CBCS PATTERN (w.e.f.2022-23)

Sem.	Course Code	Non-major Elective Course Name	Credits	Hrs. /Week	Int.	Ext.	Total
					Marks		
III	2BS3N1	Non-major Elective–I :Office Automation	2	3	25	75	100
IV	2BS4N2	Non-major Elective–II: Web Designing	2	3	25	75	100

Course Code	Course Name	Credits	Theory/ Practical	Hrs./ Week	Int.	Ext.	Total
					Marks		
91BPEP	Professional English for Physical Sciences-I	4	T	4	25	75	100
92BPEP	Professional English for Physical Sciences-II	4	T	4	25	75	100

Extension Activities

Extension Activities will be organized for 2 days in the Third Semester. The programme may be organized in any Saturday and Sunday. A meeting of all the staff of the College (Teaching, Administrative and Technical Staff) be conducted before departing to the camp in which each and every a spect like Programmes to carried out, accommodation, food, medical aid, transport facilities, etc., should be thoroughly discussed. One credit will be allotted for this Extension Activities.

பருவம்-I						
மொழி பாடம்	221**T**1		பொதுத் தமிழ் தற்காலக் கவிதையும் உரைநடையும்	**T**	கற்றல் அளவெண்4	நேரம்.∴. மணி 4

அலகு–I	
நோக்கம் 1	தற்காலக் கவிதைகளையும் கவிஞர்களையும் அறிமுகப்படுத்துதல்.

அ) மரபுக்கவிதை
1. பாரதியார் - பாரததேசமென்று பெயர் சொல்லுவார் (பாரததேசம்)
2. பாரதிதாசன் - கனியிடை ஏறிய சுளையும் முற்றல் கழையிடை ஏறிய சாறும்
3. நாமக்கல் கவிஞர் - காந்தியக் கவிஞர் (காந்தியஞ்சலி)
4. கண்ணதாசன் - மனிதரைப் பாட மாட்டேன் (கவிதைகள்)
5. முடியரசன் - தொழிலாளி
6. ஜீவானந்தம் - காலுக்கு செருப்புமில்லை ..கால்வயிற்றுக் கூழுமில்லை

ஆ) புதுக்கவிதை
1. அப்துல் ரகுமான் - வீட்டுக்கொரு மரம் வளர்ப்போம் (கூடு துறக்கும் பறவை)
2. மு.மேத்தா — கண்ணீர் பூக்கள்
3. சக்திஜோதி — தேடித்தீராத தெரு

பயன் 1	மரபுக்கவிதை மற்றும் புதுக்கவிதையின் இலக்கிய வடிவங்களைத் தெரிந்து கொள்வார்கள்.மரபுக் கவிதைக்கும் புதுக்கவிதைக்கும் உள்ள வேறுபாட்டை மாணவர்கள் புரிந்து கொள்வார்கள்	**K1**

அலகு –II	
நோக்கம் 2	உரைநடையின் வடிவத்தையும், எழுத்தாளரையும் தெரிந்து கொள்ளுதல்.

உரைநடை
1. சவால் விடு — சாதனை செய் - இராமையா இ.ஆ.ப.,

பயன் 2	எழுத்தாளர் இராமையா பற்றித் தெரிந்து கொள்வார்கள்.சவால்கள் நிறைந்த வாழ்க்கையில் சாதிப்பது எவ்வாறு என மாணவர்களை உணர்ந்து கொள்வார்கள்.	**K1**

அலகு–III	
நோக்கம் 3	எழுத்து பற்றிய அடிப்படை இலக்கணத்தைத் தெரிந்து கொள்ளுதல்.

இலக்கணம்
எழுத்திலக்கணம்: எண்-பெயர்-முறை- பிறப்பு-வடிவம்-மாத்திரை-மொழி முதல் எழுத்துக்கள் - மொழிஇறுதி எழுத்துகள்- மெய்ம்மயக்கம்- உருபுமயக்கம்

பயன் 3	மாணவர்களுக்கு அடிப்படை இலக்கணத்தை நினைவுறுத்தல்.	**K1**

அலகு-IV	
நோக்கம் 4	மரபுக்கவிதை, புதுக்கவிதை தொடர்பான தோற்றம் வளர்ச்சி வடிவம் பற்றி தெரிந்து கொள்ளுதல்.

இலக்கிய வரலாறு
மரபுக்கவிதை, புதுக்கவிதை தொடர்பான இலக்கிய வரலாறு

பயன் 4	மரபுக்கவிதையின் தோற்றம் வளர்ச்சி பற்றி அறிந்து கொள்வார்கள். புதுக்கவிதையின் பாடுபொருளையும், அதன் தோற்றம் வளர்ச்சியையும் தெரிந்து கொள்வார்கள்.	**K1**

அலகு–V	
நோக்கம் 5	மாணவர்களின் படைப்பாற்றலை வெளிப்படுத்துதல், மற்றும் பயிற்சியளித்தல்.

படைப்பும் பயிற்சியும்
கட்டுரை எழுதுதல்

பயன் 5	மாணவர்களின் படைப்பாற்றல் திறனைப் பெறுவார்கள்.மாணவர்களுக்கு கட்டுரை எழுதப் பயிற்சியளிப்பதன் மூலம் சிறந்த கட்டுரையாளர்களாக உருவாவார்கள்.	**K6**

பார்வை நூல்கள்:
பாரதியார் கவிதைகள், நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை
பாரதிதாசன் கவிதைகள், நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை
நாமக்கல் கவிஞரின் கவிதைகள்,நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை
கண்ணதாசன் கவிதைகள்,நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை

முடியரசன் கவிதைகள், தமிழ்மண் பதிப்பகம், தியாகராயர் நகர், சென்னை - 17
ஜீவானந்தம் கவிதைகள்,நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை
ஆப்துல் ரகுமான் கவிதைகள், யுனிவர்சல் பப்ளிசிங், சென்னை
மு.மேத்தா கவிதைகள,நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை
சக்திஜோதி கவிதைகள்
சவால்விடு – சாதனை செய், இராமையா இ.ஆ.ப., தாமரை பதிப்பகம், சென்னை – 98
அடிப்படைத் தமிழ் இலக்கணம், எம்.ஏ.நு/மான், யுனி ஆர்ட்ஸ் (பிரைவேட்) லிமிடெட், கொழும்பு

இணைய முகவரி:
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| K1-Remember | K2 - Understand | K3 - Apply | K4- Analyze | K5 - Evaluate | K6 – Create |

பாடத்திட்ட வடிவமைப்பு: முனைவர் சி.தன்மானம்

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	M(2)
CO2	M(2)	M(2)	S(3)	S(3)	S(3)	M(2)	S(3)	M(2)	S(3)	S(3)
CO3	S(3)	M(2)	M(2)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)
CO4	S(3)	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
W.AV	2.8	2.6	2.4	2.6	2.6	2.6	2.6	2.4	2.8	2.6

S–Strong (3), M-Medium (2), L-Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	S(3)	S(3)
CO2	S(3)	S(3)	S(3)	S(3)	S(3)
CO3	S(3)	M(2)	M(2)	S(3)	S(3)
CO4	M(2)	M(2)	S(3)	S(3)	S(3)
CO5	S(3)	S(3)	S(3)	S(3)	S(3)
W.AV	2.8	2.6	2.8	3	3

S–Strong (3),M-Medium (2), L-Low(1)

General	Course code: 912CE	Communicative English-I	T	C	H
				3	3

Unit I		
Objective 1	To enhance the learner's communication skills by giving adequate exposure in LSRW and related sub skills..	

Listening and Speaking
a. Introducing self and others
b. Listening for specific information
c. Pronunciation (without phonetic symbols)
i. Essentials of Pronunciation
ii. American and British Pronunciation

2. Reading and Writing
a. Reading short articles – newspaper reports / fact based articles

i. Skimming and Scanning
ii. Diction   and
Tone
iii.Identifying
Topic Sentences

b. Reading aloud: Reading an article/report
c. Journal (Diary) Writing
3. Study Skills - 1
a. Using dictionaries, Encyclopedias, Thesaurus
4. Grammar in
Context: Naming
and Describing
□ Nouns & Pronouns, Adjectives

Outcome 1	Students knowledge in communication skill is enhanced by teaching LSRW skills	K1

Unit II	
Objective 2	**To help the learners recognize and operate in various styles and registers in English.**

Listening and Speaking
a. Listening with a Purpose
b. Effective Listening
c. Tonal Variation
d. Listening for Information
e. Asking for Information
f. Giving Information
2. Reading and Writing
1. a. Strategies of Reading:
Skimming and Scanning
b. Types of Reading : Extensive and Intensive Reading
c. Reading a prose passage
d. Reading a poem
e. Reading a short story
2. Paragraphs: Structure
and Types a.What is a
Paragraph? b.Paragraph
structure c.Topic
Sentence d.Unity
e.Coherence
f. Connections between Ideas: Using Transitional words and expressions
g.Types of Paragraphs
3. Study Skills II:
Using the Internet as a Resource
a. Online search
b. Know the keyword
c. Refine your search
d. Guidelines for using the Resources
e. e-learning Resources of Government of India
a. Terms to know
4. Grammar in Context
Involving Action-I
a. Verbs b.Concord

Outcome 2	**Students understand and get acquainted with various styles of English language**	**K3,K1**

Unit III	
Objective 3	**To help the learners get rid of their present flaws and mistakes in pronunciation and grammar**

Listening and Speaking
a. Giving and following instructions
b. Asking for and giving directions
c. Continuing discussions with connecting ideas
2. Reading and writing
a. Reading feature articles (from newspapers and magazines)
   Reading to identify point of view and perspective
(opinion pieces, editorialsetc.)
c. Descriptive writing – writing a short descriptive essay of
two to three paragraphs.
3. Grammar in
Context: Involving
Action – II
□ Verbals - Gerund, Participle,
□ Infinitive
□ Modals

Outcome 3	**Students overcome their flaws with regard to pronunciation and grammar**	**K3**

Unit IV		
Objective 4	**To help the learners identify and repair the voids in the in present vocabulary and pronunciation targeting those specific arrays of words which create a barriers in their thought process.**	

. Listening and Speaking
a. Giving and responding to opinions
2. Reading and writing
a.Note taking
b. Narrative writing – Writing Narrative Essays of Two to Three
Paragraphs

Outcome 4	**Students analyze their writing skills and enhanced it**	**K3,K4**

Unit V		
Objective 5	**To help the learners identify and repair the voids in the in present vocabulary and pronunciation targeting those specific arrays of words which create a barriers in their thought process .**	

3. Grammar in
Context: Tense
□ Present
□ Past
□ Future

Outcome 5	**Students analyze their writing skills and enhanced it**	**K5**

Suggested Readings:
Tamil Nadu State Council For Higher Education (TANSCHE)

Online Resources:
http://www.gactvd.in/Documents/Learning/English/712CE Communicative English.pdf

| K1-Remember | K2 - Understand | K3 - Apply | K4- Analyze | K5 - Evaluate | K6 – Create |

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	L(1)	M(2)	L(1)	M(2)
CO2	M(2)	S(3)	M(2)	S(3)	M(2)	L(1)	S(3)	S(3)	S(3)	M(2)
CO3	S(3)	L(1)	M(2)	S(3)	L(1)	S(3)	M(2)	S(3)	M(2)	S(3)
CO4	L(1)	S(3)	M(2)	L(1)	S(3)	S(3)	S(3)	M(2)	S(3)	L(1)
CO5	S(3)	S(3)	S(3)	L(1)	S(3)	M(2)	L(1)	L(1)	S(3)	M(2)
W.AV	2.4	2.6	2.4	2.2	2.4	2.4	2	2.2	2.4	2

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	S(3)	M(2)	L(1)	L(1)
CO2	S(3)	L(1)	S(3)	S(3)	S(3)
CO3	S(3)	S(3)	M(2)	S(3)	L(1)
CO4	M(2)	S(3)	L(1)	M(2)	M(2)
CO5	S(3)	L(1)	S(3)	M(2)	S(3)
W.AV	2.6	2.2	2.2	2.2	2

S –Strong (3), M-Medium (2), L- Low (1)

General	Course code: 2BV1G1	Semester - I			
		Life Coping Skills	Practical	C	H/W
				3	3

Unit - I

Objective 1	To gain knowledge on the concepts, processes and of life skills.

Self–Concept, Self-Acceptance and Personality Development
Concept and definition of Self-Esteem, Factors influence Self-Esteem, Low Vs High Self-Esteem, Step to raise Self Esteem, Introduction, Definition and Theoretical perspective of self- Acceptance, Benefits of Self-Acceptance, Characteristics and Elements of Personality and Identity of the Individual.

Outcome 1	**Students have knowledge on self-esteem and Factors influence Self-Esteem.**	**K1**

Unit-II

Objective 2	To classify the types of goals and its importance

Goal Setting
Definition of Goal Setting, Different types of Goals, Importance of Goal setting, Obstacles to set Goals and Steps to Goal Setting.

Outcome 2	**Students understand the importance of goal setting.**	**K2**

Unit III

Objective 3	To demonstrate the coping skills

Coping Skills: Depression, Fear and Anger
Definition, Symptoms, Causes and Impact of Depression, How to overcome Depression, Theoretical Input of Fear, Kinds of Fear, Coping with Fear, Ways to overcome Fear, Consequence of Anger, Managing Anger, Steps toward Anger Management

Outcome 3	**Students are able to apply the coping skill to overcome fear, depression and anger.**	**K 3**

Unit IV

Objective 4	To examine the time management and stress management.

Time management and Stress Management
Meaning and Importance of Time Management-Time factor-Steps for Avoiding Lateness Problems-Tips for time management. Meaning and Kinds of Stress -Types of Stress-How does Stress affect you- Source of Stress- Commandments for Managing Stress.

Outcome 4	**Students are able analyze the importance of time management and stress management.**	**K4**

Unit V

Objective 5	To evaluate the team work and learning review.

Team Work
Meaning of Team Work-Needed qualities for working as a Team-Team Learning: Questioning. Valuing Diversity – Communicating - Learning Review.

Outcome 5	**Students value the quality for working as a team.**	**K5**

Suggested Readings:
Xavier Alphones, S.J. (2004). We Shall Overcome - A Textbook on Life Coping Skills. Chennai: ICRDCE Publication. Faith G. Harper (2019) Coping Skills: Tools & Techniques for Every Stressful Situation Microcosm Publishing.

Online Resources
1. https://my.clevelandclinic.org/health/articles/6392-stress-coping-with-lifes-stressors
2. https://humankinetics.com/AcuCustom/Sitename/DAM/160/78_79
.pdf https://positivepsychology.com/goal-setting/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	S(3)	M(2)	L(1)	L(1)	M(2)	L(1)	L(1)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	L(1)	L(1)	L(1)
CO3	S(3)	S(3)	M(2)	M(2)	L(1)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	M(2)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
CO5	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)
W.A V	2.6	2.4	2.4	2.4	2.2	1.8	2.4	2.4	2	1.9

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	L(1)	L(1)	M(2)	L(1)
CO2	L(1)	M(2)	L(1)	L(1)	M(2)
CO3	L(1)	L(1)	M(2)	M(2)	L(1)
CO4	M(2)	M(2)	L(1)	L(1)	M(2)
CO5	L(1)	M(2)	M(2)	L(1)	M(2)
W.AV	1.4	1.6	1.4	1.4	1.6

S Strong (3), M Medium (2), Low (1)

I - Semester					
Core	**Course Code: 2BS1C1**	**Fundamentals of C Programming**	**Theory**	**C**	**H/W**
				5	5
Unit -I					
Objective 1	**To Remember the concept of a variable holding a value, how a variable is declared and How it can change.**				

Introduction to Algorithms and Programming Languages: Fundamentals of Computers- Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts – Pseudo code – Programming Languages – Generation of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C –Variables – Constants– I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting.

Outcome1	**Provide students with knowledge, general competence, and analytical skills in Computer Science on an advanced level**.	**K1, K3**
Unit II		
Objective 2	**To be able to break a large problem into smaller parts, writing each part as a module or Function.**	

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

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

Outcome2	**Use critical thinking, analyses and research skills.**	**K4**
Unit III		
Objective 3	**To be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data.**	

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

Strings: Introduction – Suppressive Input – String Taxonomy – String Operations – Miscellaneous String and Character functions.

Outcome3	**Build up programming, analytical and logical thinking abilities**.	**K5**

	Unit IV	
Objective 4	To be able to work with both character and numerical data.	

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays-Passing Array to Function – Difference between Array Name and Pointer – Pointers and Strings – Array of pointers – Pointer and 2D Arrays – Pointer and 3D Arrays – Function Pointers – Array 0f Function Pointer – Pointers to Pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation - Drawbacks of Pointers.

Recursion: Definitions, recursive function, Examples, Applications.

Outcome4	Create, Select and apply appropriate techniques, resources and modern computing and IT tools including prediction and modeling to complex scientific activities with an understanding of the limitations.	K2, K3,

	Unit V	
Objective 5	To understand the concept of a program in a high-level language being translated by a Compiler into machine language program and then executed.	

Files : Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations– Accepting Command Line Arguments – Functions for Selecting a Record Randomly -Remove() – Renaming a File – Creating a Temporary File.

The Pre-processor: Introduction, Macro substitution, File Inclusion, Compiler Control Directives.

Outcome5	Know the recent developments in IT, future possibilities and limitations, and understand the value of lifelong learning.	K1, K5

Suggested Readings:

1. Ashok N Kamthane. (2002). *Programming with ANSI and Turbo C. Pearson Edition Publ.*

2. E Balagurusamy. (2017). *Computing Fundamentals & C Programming. 2nd edition. TataMcGraw-Hill..*

3. Henry Mullish, Huubert L.Cooper. *(1996) The Sprit of C Jaico Pub. House.* Reema Thareja. (2012). *Computer Fundamentals and Programming in C. Oxford University Press.*

Online Resource: **https://en.cppreference.com/w/c/language,**
https://www.w3schools.com/c/c_intro.php

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
W.AV	2.6	2.4	1.6	1.4	1.6	3	1.2	1.8	1.2	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	S (3)	L (1)	L (1)	S (3)	M (2)
W.AV	2.6	1.6	1.8	2	1.6

S –Strong (3), M-Medium (2), L- Low (1)

I - Semester					
Core	Course Code: 2BS1C2	Fundamentals of Digital Computer and Programming	Theory	C	H/W
				4	4

Unit -I

Objective 1	To Understand the Fundamental components used in a Digital Computer which is Essential for the programme.

Number Systems and Codes: Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Binary Addition – Binary Subtraction – Binary Multiplication and Division – Octal Numbers – Hexadecimal Numbers – Binary Codes – Error Detecting Codes – Error Correcting Codes.

Logic Gates and Circuits: Boolean Algebra and Logic Gates – AND, OR, NOT, NAND, NOR, Exclusive OR and Exclusive OR Gates – Applications of XOR Gate – The Exclusive NOR Gate – Positive and Negative Logic – Logic Characteristics – Bipolar Logic Families – Integrated Circuits.

Outcome1	Perform Number Conversions from one System to another System Identify the logic gates and their functionality	K1,K3

Unit II

Objective 2	To learn about Boolean algebra and simplifications of different Boolean functions

Boolean Algebra: Definitions – Fundamentals of Boolean Algebra – Boolean Functions Min terms and Max terms – Laws and Theorems of Boolean Algebra – DE Morgan's Theorem – Universal Building Blocks (UBB)-AND Gate as UBB – NOR Gate as UBB- Simplifying Logic Circuits – Sum of Products – AND-OR Networks – Sum of Products and Product of Sums Forms – Karnaugh Maps – Product of Sums Simplification NAND and NOR Implementation – AND-OR-INVERT Implementation OR-AND-INVERT Implementation Don't Care Conditions – Overlapping Groups –Rolling the Map – Eliminating Redundant Groups- Combinational?

Outcome 2	Understand how logic circuits and Boolean algebra forms as the basics of digital computer.	K2,K4

Unit III

Objective 3	To understand Adders and Subtractors.

Logic Circuits: Introduction – Adders – The Half Adder – The Full Adder – Subtractors– BCD Adder – Multiplexers – DE multiplexers – Decoders – Encoders – Floating Point Number System – Range of Stored Numbers. Sequential Logic Circuits: Flip Flops – RS Flip Flop – Clocked RS Flip Flop – D Flip Flop – JK Flip Flop – T Flip Flop – Triggering of Flip Flops – Master Slave Flip Flop – Conversion of D Flip Flop –Conversion of T Flip Flop.

Outcome 3	Demonstrate the building up of Sequential and combinational logic from basic gates.	K2,K3

Unit IV	
Objective 4	**To enable the students to learn the design of flowcharts for solving problems.**

Programming: Flowchart basics – Standard symbols for Flowcharts Design and Develop

Flowchart and Algorithm for the following:

- Basic Arithmetic operations with two numbers
- Find Area of shapes (Square, Rectangle, Circle, parallelogram, surface area of acone)
- Calculate Simple interest
- Determine the greater of two / three given numbers
- Determine whether a given number is (1. even or odd, 2. Prime or not, 3. Perfect number or not)
- Categorize the shape of a quadrilateral as either a square, rhombus, rectangle, parallelogram, or irregular quadrilateral, having input the lengths of the four sides and one internal angle.
- A bookseller offers two rates of commissions. If the price of a book is below Rs. 500, the rate of commission is 12% of the price, otherwise, it is 18% of the price. Develop a procedure to determine thediscount and the net price of a book.
- Obtain the sum of the first 30 natural numbers
- Find all even natural numbers that are divisible by 7 in a given range.

Outcome4	**Understand and evaluate the basic program concepts and logic very easy.**	**K1, K5**

Unit V		
Objective 5	**To enable the students to learn the design of flowcharts for solving problems.**	

Programming: Flowchart basics – Standard symbols for Flowcharts Design and Develop

Flowchart and Algorithm for the following:

- Find sum of the digits of a given number until it is reduced to a single digit
- Find out the sum of first N terms of the following series. 5 + 55 + 555 + 5555 +up to N terms
- Determine the difference between two given dates
- Determine the name of the starting day of any given year
- Rearrange the elements in an array so that they appear in reverse order
- Product of two matrices
- Convert a decimal number into its equivalent binary, octal, or hexadecimal form according to thegiven option
- Test whether a given string is a palindrome
- Unscramble a four-letter word
- Count the number of vowels, consonants, and special characters in a given string

Outcome5	**Understand the flowcharts and its methods**	**K2, K5**

Suggested Readings:-

Dr. K. Meena. (2009). *Principles of Digital Electronics*, New Delhi: PHI Learning Private Limited.

A. B. Chaudhuri. (2020). *Flowchart and Algorithm Basics: The Art of Programming*, (2nd Edn.). MercuryLearning and Information.

Online Resource:
https://www.britannica.com/technology/digital-computer
https://www.encyclopedia.com/science-and-technology/computers-and-electrical-
engineering/computers-and-computing/digital-computer

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO 2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

I - Semester					
Core	Course Code: 2BS1P1	C Programming - Lab	Practical	C	H/W
				5	5

UNIT I

Objective 1	To gain a thorough understanding of the fundamentals of C programming	

➢ Write a C program to perform all arithmetic operations.

➢ Write a C program to find the sum and average of given set of numbers.

➢ Write a C program to check the given number is prime or not.

Outcome1	Demonstrate an understanding of computer programming language concepts.	K1, K6

UNIT II

Objective 2	To develop code, compile and test C programs.	

➢ Write a C program to calculate simple interest and compound interest.

➢ Write a C program to print Fibonacci Series using while statement.

➢ Write a program to swap values of two variables with and without using third variable.

➢ Write a program to check whether a number is Palindrome or not.

Outcome 2	Ability to design and develop Computer programs, analyzes, and interprets the concept of declarations, initialization, operations and their usage.	K4,K6

UNIT III

Objective 3	To Understanding the concept of Array, pointers, declarations, initialization, operations on pointers and their usage	

➢ Write a Program to access an element in 2-D Array.

➢ Write a Program to add two numbers using pointers.

➢ Write a program to concatenate two string using pointers.

Outcome3	Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures.	K5,K6

UNIT IV

Objective 4	To implement generic functions using function pointers and utilize generic functions in modular program development	

➢ Write a C program to print contents of file.

➢ Write a C program to find maximum and minimum between two numbers using functions.

Outcome 4	Apply code reusability with functions and pointers.	K2, K6

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Alagappa University

B.Voc. Software Development

UNIT V	
Objective 5	Demonstrate some understanding of object-oriented programming.

> Write a C program to add two matrices.

> Write a C program to multiply two matrices.

> Write a C program to transpose a matrix

Outcome5	Ability to write object-oriented programs of moderate complexity in C.Developing real world application using	K1, K6

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO 4	PSO 5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

I - Semester					
General	Course Code: 2BS1P2	Office Automation- Lab	Practical	C	H/W
				2	2

UNIT I		
Objective 1	Understand the concept of a program (i.e., a computer following a series of Instructions).	

MS-Word:
- ➢ Create a document file for your Resume
- ➢ Create a document file for a Leave Letter
- ➢ Use of Bold, Underline, Font Size, style, Background color, Text color, Line spacing, SpellCheck, Alignment, Header & Footer, inserting pages and page numbers, Find and Replace in a document

Outcome1	Provide students with knowledge, general competence, and analytical skills in Computer Science on an advanced level.	K1, K3

UNIT II		
Objective 2	Understand the concept of a variable holding a value, how a variable is declared and How it can change.	

- ➢ Prepare a Class Time Table and perform the following operations: Inserting the table, Data Entry, Alignment of Rows and Columns, Inserting and Deleting the Rows and Columns and Change of Table Format.
- ➢ Create mail and cover using Mail Merge feature

Outcome2	Gain ability to apply knowledge of programs to the real-world issues.	K1, K3

UNIT III		
Objective 3	Understand the concept of a loop – that is, a series of statements which is written once. But executed repeatedly- and how to use it in a programming language.	

MS-Excel
- ➢ Create a spreadsheet to Calculate Student Marks Total and average
- ➢ Create a spreadsheet for Tax Calculation

Outcome3	Use critical thinking, analyses and research skills.	K4

UNIT IV		
Objective 4	Be able to break a large problem into smaller parts, writing each part as a module or Function.	

- ➢ Use Math Functions in cells
- ➢ Create a spreadsheet for Sorting a Database
- ➢ Draw Chart – use different formats

Outcome4	Use critical thinking, analyses and research skills.	K4

UNIT V	
Objective 5	**Be able to use an array to store multiple pieces of homogeneous data, and use a structure to store multiple pieces of heterogeneous data.**

MS-PowerPoint
> Design presentation slides for the Seminar/Lecture Presentation using animation effects and perform the following operations: Creation of different slides, changing background color, font color using word art.
> Design a Slide Show for your College function

Outcome 5	**Build up programming, analytical and logical thinking abilities**.	**K5**

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

		I - Semester			
Core	**Course Code: 2BS1J1**	**Junior Software Developer (SSC/Q0508) @**	**Practical**	**C**	**H/W**
				4	**4**

Unit -I	

Objective 1	To obtain a Junior Software Developer position with a reputable company that will allow me to utilize my knowledge and experience in software development.	
Basic computer and internet literacy: operating a computer and its major components - using Windows and Linux OS - operating a browser, searching the internet, managing mails - using social internet media - Aptitude for analyzing information - making logical conclusions - foundational mathematical concepts in computing - Design algorithms to solve problems - convert them into code using the Appropriate programming language Constructs - test case - Communicate effectively in simple English – both oral and written.		
Outcome1	A strong knowledge of computers and numeracy.	**K1,K3**

Unit II	

Objective 2	Seeking a challenging role as a Junior Software Developer where I can use my technical skills and creativity to develop innovative solutions.	
Establish work requirements: Work area clean and tidy - Utilize time effectively - Use resources correctly - Treat confidential information correctly – Organizations policies and procedures - Limits of job role - Ensure work meets the agreed requirements - Analysis on the performed data - Data analysis outside their area of competence - Review the results - Undertake modifications based on inputs -Communicate with colleagues - Work with colleagues - Pass on essential information to colleagues - Respect for colleagues - Carry out commitments to colleagues -Explaining the reasons of cannot carry out commitments- Identify any problems and solve these problems - Organizations policies and procedures..		
Outcome2	Capable of describing technical processes in a way that is easy to understand	**K1,K2**

Unit III	

Objective 3	To secure a position as a Junior Software Developer utilizing my strong analytical and problem-solving skills.	
Organizations health, safety and security policies and procedures: Report any breaches in policies and Procedures - Identify and correct any hazards - Report any hazards that warn – Follow organizations emergency Procedures - Identify and recommend opportunities -Complete any health and safety records.		
Outcome 3	Manage work to meet requirements	**K5**

Unit IV	

Objective 4	To establish the working requirements of organizations	
Obtain the data/information from reliable sources: Check the data/information - Advice or guidance from appropriate people where there are problems with the data/information - Carry out rule based analysis - Insert the data/information into the agreed Formats - Check the accuracy of work, involving colleagues -Report any unresolved anomalies in the data/information - Complete, accurate and up-to-date data..		
Outcome 4	Assist in performing software construction and software testing entry-level tasks in the IT Services industry.	**K4**

Unit V	
Objective 5	**To develop the knowledge about skill based activities**
Develop knowledge, skills and competence: Identify knowledge and skills –Identify current level of knowledge, skills and development needs - Plan of learning and development activities - Undertake learning and development activities - Apply new knowledge and skills in the workplace - Feedback from appropriate People – Review knowledge, skills and competence.	

Outcome5	**Acquire knowledge about the job role Junior Software Developer**	**K1, K5**

Suggested Readings:-

SSC – NASSCOM – Qualification Pack : https://www.sscnasscom.com/qualification-pack/SSC/Q0508/

 SSC/N9001 (Manage your work to meet requirements) / 2. SSC/N9002 (Work effectively with colleagues)

SSC/N9003 (Maintain a healthy, safe and secure working environment)   /

SSC/N9004(Provide data/information i n   standard   formats) /

SSC/N9005 (Develop your knowledge, skills and competence) /

SSC/N0506 (Assist in Software Construction and Testing)

Online Resources: **https://www.psscive.ac.in/storage/uploads/curriculums/pdf/english/junior-software-developer-english.pdf**

K1-Remember	**K2- Understand**	**K3-Apply**	**K4-Analyze**	**K5-Evaluate**	**K6-Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
W.AV	2.6	2.4	1.6	1.4	1.6	3	1.2	1.8	1.2	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO3	PSO 4	PSO 5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	S (3)	L (1)	L (1)	S (3)	M (2)
W.AV	**2.6**	**1.6**	**1.8**	**2**	**1.6**

S –Strong (3), M-Medium (2), L- Low (1)

பருவம் -II					
மொழி பாடம்	222T1	இடைக்கால இலக்கியமுழும் சிறுகதையும்	T	கற்றல் அளவெண்3	நேரம்∴ மணி 6

அலகு–I	
நோக்கம் 1	இடைக்கால இலக்கியத்தையும் சிந்தனையையும் வெளிப்படுத்துதல்

அ) திருஞானசம்பந்தர் - திருமறைக்காடு (முதல் இரண்டு பாடல்கள்)
ஆ) திருநாவுக்கரசர் - திருவதிகை வீரட்டானம் (முதல் இரண்டு பாடல்கள்)
இ) சுந்தரர் - திருவெண்ணைநல்லூர் பதிகம் (முதல் இரண்டு பாடல்கள்)
ஈ) மாணிக்கவாசகர் - திருவெம்பாவை (முதல் பாடல்)
உ) குலசேகர ஆழ்வார் - பெருமாள் திருமொழி (முதல் இரண்டு பாடல்கள்)
ஊ) ஆண்டாள் - திருப்பாவை (முதல் பாடல்)
எ) சிற்றிலக்கியம்
1. நந்திக்கலம்பகம் - முதல் ஐந்து பாடல்கள்
2. கலிங்கத்துப்பரணி – முதல் ஐந்து பாடல்கள்

பயன் 1	இடைக்கால இலக்கியத்தின் வடிவங்களையும் சிந்தனைகளையும் மாணவர்கள் உணர்வார்கள்.சிற்றிலக்கியங்களையும், அவற்றின் இலக்கிய வடிவங்களையும் மாணவர்கள் தெரிந்து கொள்வார்கள்.	K1

அலகு–II		
நோக்கம் 2	சிறுகதையின் வகைகளையும் பாடுபொருளையும் உணர்த்துதல்.	
சிறுகதை	நவரத்தினக் கதைகள்	
புயன 2	சிறுகதையின் பாடுபொருளைக் கற்றுக் கொள்வார்கள்.சிறுகதை இலக்கணங்களைப் பயின்று கொள்வார்கள்.	K2

அலகு–III		
நோக்கம் 3	அடிப்படைச் சொல்லிலக்கணத்தை மாணர்களுக்கு உணர்த்துதல்	
இலக்கணம்	சொல்வகை – பெயர்ச்சொல் - வினைச்சொல் - இடைச்சொல் - உரிச்சொல் - வேற்றுமை மயக்கம் - ஆகுபெயர்	
பயன் 3	சொல்லிலக்கணம் பற்றித் தெரிந்து கொள்வார்கள்.சொல் வகைகளைத் தெரிந்து கொள்வார்கள்.	K1

அலகு –IV		
நோக்கம் 4	பக்தி இலக்கியம் மற்றும் சிற்றிலக்கியம் தொர்பான இலக்கிய வரலாற்றை எடுத்தியம்புதல்.	
இலக்கிய வரலாறு	பக்தி இலக்கியம் மற்றும் சிற்றிலக்கியம் தொடர்பான இலக்கிய வரலாறு	
பயன் 4	பக்தி இலக்கியத்தின் தோற்றம் வளர்ச்சி பற்றித் தெரிந்து கொள்வார்கள். சிற்றிலக்கியத்தின் தோற்றம் வளர்ச்சி பற்றி அறிந்து கொள்வார்கள்.	K1

அலகு–V		
நோக்கம் 5	மாணவர்களின் படைப்பாற்றல் திறனை வெளிப்படுத்துதல்	
படைப்பாற்றல்	சிறுகதை படைத்தல்	
பயன் 5	சிறுகதை எழுதப் பயிற்சியளித்தல்.சிறுகதை படைப்பாளர்களை உருவாக்குதல்.	K6

பார்வை நூல்கள்
பன்னிரு திருமுறைகள், அன்னை சாரதா பதிப்பகம், அண்ணா நகர், சென்னை - 40

நாலாயிர திவ்விய பிரபந்தம்,அன்னை சாரதா பதிப்பகம், அண்ணா நகர், சென்னை - 40
நந்திக் கலம்பகம்,உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை
கலிங்கத்துப்பரணி, ∴,உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை
நவரத்தினக் கதைகள், முனைவர் நயினார், அறிவுப் பதிப்பகம், சென்னை - 14
அடிப்படைத் தமிழ் இலக்கணம், எம்.ஏ.நு.∴மான், யுனி ஆர்ட்ஸ் (பிரைவேட்) லிமிடெட், கொழும்பு

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Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	S(3)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)	M(2)
CO2	S(3)	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)
CO3	S(3)	S(3)	S(3)	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)
CO4	M(2)	S(3)	M(2)	M(2)	M(2)	S(3)	M(2)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
W.AV	2.8	3	2.8	2.2	2.4	2.6	2.2	2.2	2.4	2.4

S–Strong(3), M-Medium(2), L-Low(1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	S(3)	M(2)
CO2	S(3)	S(3)	S(3)	S(3)	M(2)
CO3	S(3)	S(3)	S(3)	S(3)	S(3)
CO4	S(3)	S(3)	M(2)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	S(3)	S(3)
W.AV	3	3	2.8	2.8	2.4

S–Strong(3), M-Medium(2), L-Low(1)

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		II- Semester			
General	**Course code: 92CCE**	**Communicative English- II**	**T**	**Credits: 3**	**Hours:3**

Unit I	
Objective 1	To enhance the learner's communication skills by giving adequate exposure in LSRW and related sub skills .

Listening and Speaking
a. Listening and responding to complaints (formal situation)
b. Listening to problems and offering solutions (informal)
2. Reading and writing
a. Reading aloud (brief motivational anecdotes)
b. Writing a paragraph on a proverbial expression/motivational idea.
3. Word Power/Vocabulary
a. Synonyms & Antonyms
4. Grammar in Context
a. Adverbs
Prepositions

Outcome 1	**Remember to Practice listening effectively to communicate in English**	**K1**

Unit II		
Objective 2	To help the learners recognize and operate in various styles and registers in English	

Listening and Speaking
a. Listening to famous speeches and poems
b. Making short speeches- Formal: welcome speech and
vote of thanks. Informal occasions- Farewell party,
graduation speech
2. Reading and Writing
a. Writing opinion pieces (could be on travel, food, film /
book reviews or on any contemporary topic)
b. Reading poetry
    Reading aloud: (Intonation and Voice Modulation)
     Identifying and using figures of speech - simile,
metaphor, personification etc.
3. Word Power
a. Idioms & Phrases
4. Grammar in Context
a. Conjunctions and Interjections

Outcome 2	**Understand language for speaking with confidence in an intelligible and acceptable**	**K2**

	Unit III	
Objective 3	To help the learners get rid of their present flaws and mistakes in pronunciation and Grammar	

Listening and Speaking
a. Listening to Ted talks
b. Making short presentations – Formal presentation with PPT,
analytical presentation of graphs and reports of multiple kinds
c. Interactions during and after the presentations
2. Reading and writing
a. Writing emails of complaint
2022 – ''23 onwards
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b. Reading aloud famous speeches
3. Word Power
a. One Word Substitution
4. Grammar in Context
a. Sentence Patterns

Outcome 3	**Apply sufficient knowledge in vocabulary and grammar**	**K3**
	Unit IV	
Objective 4	To help the learners identify and repair the voids in the in present vocabulary and pronunciation targeting those specific arrays of words which create a barriers in their thought process.	

Listening and Speaking
a. Participating in a meeting: face to face and online
b. Listening with courtesy and adding ideas and giving opinions
during the meeting and making concluding remarks.
2. Reading and Writing
a. Reading visual texts – advertisements
b. Preparing first drafts of short assignments
3. Word Power
a. Denotation and Connotation
4. Grammar in Context:
a. Sentence Types

Outcome 4	**Analyze the viewpoints with confidence in English.**	**K4**

Unit V	
Objective 5	To impart better writing skills by sensitizing the learners to the dynamics of effective writings.

Listening and Speaking

a. Informal interview for feature writing

b. Listening and responding to questions at a formal interview

2. Reading and Writing

a. Writing letters of application

b. Readers' Theatre (Script Reading)

c. Dramatizing everyday situations/social issues through skits.

(writing scripts and performing)

3. Word Power

a. Collocation

4. Grammar in Context

a. Working With Clauses

Outcome 5	**Compose articles and compositions to evaluate in English**	**K5**

Suggested Readings:

Tamil Nadu State Council For Higher Education (TANSCHE)

Online Resources:

http://www.gactvd.in/Documents/Learning/English/712CE Communicative English.pdf

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	S(3)	M(2)	M(2)	L(1)	L(1)	S(3)	S(3)	S(3)
CO2	M(2)	S(3)	L(1)	L(1)	S(3)	S(3)	L(1)	S(3)	S(3)	L(1)
CO3	S(3)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)
CO4	L(1)	S(3)	S(3)	S(3)	L(1)	S(3)	S(3)	S(3)	S(3)	S(3)
CO5	S(3)	M(2)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)
W.A V	2.2	2.6	2.4	2.4	2.2	2.4	2.2	2.8	2.8	2.4

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

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CO	PSO 1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	S(3)	S(3)	M(2)	S(3)
CO2	S(3)	M(2)	L(1)	S(3)	M(2)
CO3	M(2)	S(3)	S(3)	M(2)	S(3)
CO4	L(1)	S(3)	L(1)	M(2)	M(2)
CO5	S(3)	S(3)	S(3)	M(2)	L(1)
W.AV	2.2	2.8	2.2	2.2	2.2

S –Strong (3), M-Medium (2), L- Low (1)

2
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Semester - II					
General	**Course code: 2BV2G1**	**Environmental Studies**	**Theory**	**C**	**H/W**
				3	**3**

Unit - I		

Objective 1	**To impart the knowledge about Environmental sciences and to demonstrate the in-depth understanding about the environment**	

The Multidisciplinary Nature of Environmental Studies Definition, Scope and importance, Need for public awareness.

Outcome 1	**Appreciate the intellectual and practical complexities of environmental problems and solutions**	**K1**

Unit-II	

Objective 2	**To understand the concept for students to learn about Environmental problems**

Natural Resources: Renewable and non-renewable resources

a) Forest Resources: Use and over-exploitation, deforestation, case studies, Timber extraction, mining, dams and their effect on forests and tribal people.

b) Water Resources: Use and over-Utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.

c) Mineral resources: Use and exploitation, experimental effects of extracting and using mineral resources, case studies.

d) Food resources: world food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy resources, Case studies.

f) Land resources: Land as a resource, land degradation, main induced landsides, soil-erosion and desertification.
   ➢ Role of individual in conservation of natural resources Equitable use of resources for sustainable lifestyle

Outcome 2	**Master in key concepts and methods of environmental analysis drawn from, and integrating, a broad range of disciplines**	**K3**

Unit III	

Objective 3	To create awareness about various pollutions and its impact on Environment

Ecosystems, Bio-diversity and its conservation Ecosystems

1. Concept of an Ecosystem.
2. Structure and function of an Ecosystem.
3. Energy Flow in the Ecosystem.
4. Food Chains, Food Webs and Ecological Pyramids. Biodiversity

and its conservation

1. Introduction- Definition: Genetic, Species and Ecosystem Diversity.
2. Bio-Geographical Classification of India.
3. Value of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetician Option Values.
4. Biodiversity at Global, National and Local Levels.

5. India as a Mega-Diversity Nation.

6. Hot Spots of Biodiversity.

7. Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wild life Conflicts. Endangeredand Endemic Species of India. Conservation of Biodiversity in-Situ and Ex-Situ Conservation of
Biodiversity.

Outcome 3	**Fuse this background knowledge and analytical ability with leadership**	**K2, K3**

	Unit IV	
Objective 4	**To develop their knowledge about energy resources**	

Environmental Pollution - Causes, Effects and Control measures of

a. Air Pollution

b. Water pollution

c. Soil pollution

d. Marine pollution

e. Noise pollution

f. Thermal pollution Nuclear hazards

Outcome 4	**Students enable to know communication skills to successfully devise andimplement creative**	**K5**

	Unit V	
Objective 5	**To know about rural and urban field trip**	

Field Work

a) Visit to a local area to document environmental assets–river/ forest/ grassland/hill/mountain.

b) Visit to a local polluted site- Urban/Rural/Industrial/Agricultural.

c) Study of common Plants, insects, birds.

Study of simple ecosystem-pond, River, Hill slopes, etc.

Outcome 5	**Students enable to know about the environmental problems.**	**K4**

Suggested Readings:-

Agarwal, K.C. (2001). *Environmental Biology*. Bikaner: Nidi Publ. Ltd.

AUPD, (2006). *Environmental studies*. Karaikudi: Alagappa University Publ. Division.

Bharucha Erach, (2002). *The Biodiversity of India*. Ahamedabad: Mapin Publishing Pvt.Ltd.

Burnner, R.C. (1989). *Hazardous Waste Inclineration*. New York: McGraw Hill Inc.

Cunningham, Cooper, W.P., T.H. Gorhani. E, & Hepworth, M.T. (2001). *Environmental Encyclopedia*, Mumbai: Jaico Publ. House.

De, A.K. (2007). *Environmental Chemistry*. New Delhi: Wiley Eastern India Ltd.

Gleick, H.P. (1993). *Water in Crisis, Pacific Institute for Studies in Environment & Security.*

Stockholm env. Institute. UK, Oxford: Oxford Univ. Press.

Hawkins, R.E. (1987). *Encyclopedia of Indian Natural History*. Bombay: Bombay NaturalHistorySociety. Trivedi, R.K. & Goel, P.K. (2013). *Introduction to Air Pollution*. Mumbai: Techno-Science Publications.

Online Resource:
https://www.tutorialspoint.com/environmental_studies/environmental_studies_environment.htm **https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf**

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	M (2)	L (1)	M (2)
CO3	M (2)	S (3)	L (1)	M (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	S (3)	M (2)
W.AV	2.4	2.2	2.0	1.8	2.0	2.4	1.4	1.8	1.6	1.4

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO 2	PSO3	PSO 4	PSO 5
CO1	L (3)	M (3)	S (2)	M (1)	L (1)
CO2	M (2)	L (1)	M (2)	L (2)	S (2)
CO3	S (3)	M (2)	L (2)	M (1)	L (1)
CO4	M (2)	S (1)	M (2)	L (3)	M (2)
CO5	S (3)	M (1)	L (1)	S (3)	M (2)
W.AV	2.6	1.6	1.8	2.0	1.6

S Strong (3), M Medium (2), Low (1)

Semester II					
Core	**Course Code: 2BS2C1**	**Web Technology**	**Theory**	**C**	**H/W**
				5	**5**

Unit -I	
Objective 1	**To Review the current topics in Web & Internet technologies.**

Introduction and Overview: Growth of Computer Networking – Why Networking Seems Complex – The FiveKey Aspects of Networking – Public And Private Parts of The Internet – Networks, Interoperability, And Standards – Protocol Suites And Layering Models – How Data Passes Through Layers – Headers And Layers – ISO and the OSI Seven Layer Reference Model – The Inside Scoop – Remainder of The Text.

Internet Trends: Introduction – Resource Sharing – Growth of The Internet – From Resource Sharing to Communication – From Text to Multimedia – Recent Trends

Outcome1	**Describe and differentiate different Web Extensions and Web Services.**	K2, K3

Unit II	
Objective 2	**To Learn the basic working scheme of the Internet and World Wide Web**

Traditional Internet Applications: Introduction – Application-Layer Protocols – Representation and Transfer – Web Protocols – Document Representation with HTML – Uniform Resource Locators and Hyperlinks – Web Document Transfer with HTTP – Caching In Browsers – Browser Architecture – File Transfer Protocol (FTP) – FTP Communication Paradigm – Electronic Mail – The Simple Mail Transfer Protocol (SMTP) – ISPs, Mail Servers, And Mail Access – Mail Access Protocols (POP, IMAP) – Email Representation Standards (RFC2822, MIME) – Domain Name System (DNS) – Domain Names That Begin with www – The DNS Hierarchy And Server Model – Name Resolution

Outcome2	**Apply fundamental computer theory to basic programming techniques andfundamental skills to maintain web server services required to host a website.**	K3,K1

Unit III	
Objective 3	**To Constructing basic websites using HTML and Cascading Style Sheet.**

Introduction to HTML/XHTML: Basic Syntax – Standard HTML Document Structure – Basic Text Markup – Images – Hypertext Links – Lists – Tables – Forms – The audio Element – The video Element – Organization Elements – The time Element

Outcome3	**Select and apply markup languages for processing, identifying, andpresenting of information in web pages**	K2,K5

Unit IV	
Objective 4	**To Designing and implementing dynamic websites with good aesthetic sense of designing And latest technical know-how's.**

The Basics of JavaScript: Overview of JavaScript – Object Orientation and JavaScript – General Syntactic Characteristics – Primitives, Operations, and Expressions – Screen Output and Keyboard Input – Control Statements – Object Creation and Modification – Arrays – Functions – Constructors.

JavaScript and HTML Documents: Events and Event Handling – Handling Events from Body Elements –
Handling Events from Button Elements – Handling Events from Text Box and Password Elements

Outcome4	Use scripting languages and web services to transfer data and add interactive components to web pages.	K4,K5

Unit V	
Objective 5	**To provide knowledge of the characteristics of good web application design principles.**

Getting Started with Bootstrap: Mobile-first design – Why Bootstrap

Installing and Customizing Bootstrap: Including Bootstrap in your HTML file – The Bootstrap CDN – Overriding with custom CSS – Using the Bootstrap customizer – Deep customization of Bootstrap

Using the Bootstrap Grid: Using the Bootstrap Grid classes – Using the Bootstrap variables and mixins –Creating a blog layout with the Bootstrap Grid mixins and variables

Using the Base CSS: Implementing the Bootstrap Base CSS – Customizing the Base CSS using LESSVariables.

Outcome5	Create and manipulate web media objects using editing software.	K3,K5

Suggested Readings:-

Matt Lambert. (2016). Learning Bootstrap - Unearth The Potential Of Bootstrap To Create

Responsive Web Pages Using Modern Technique. (2nd Edn.). Mumbai: Packt Publishing.

Sergey Akopkokhyants, Stephen Radford. (2016). Web Development with Bootstrap 4 and

Angular 2.(2ndEdn). Packt Publishing Ltd.

H.M.Deitel, P.J.Deital & T.R.Neito. (2014). Internet and World wide web - How to Program.

(4thEdn).Pearson Education Asia-Addison Wesley Longman pvt Ltd.

N.P. Gopalan, J. Akilandeswari. (2014). Web Technology – A Developer's Perspective. (2nd Edn.).
NewDelhi: PHI Learning Private Limited.

Online Resource: https://www.geeksforgeeks.org/web-technology/ https://www.w3.org/standards/					
K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	L (1)	M (2)	L (1)	M (2)
CO2	M (2)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	L (1)	M (2)	L (1)
CO3	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	L (1)	M (2)	L (1)	M (2)
CO4	M (2)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	L (1)	L (1)	L (1)
CO5	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	M (2)	M (2)	M (2)
W.AV	2.6	3	2.4	1.4	1.6	2.4	1.4	1.6	1.4	1.6

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	2.6	1.8	1.8	1.4	2

S –Strong (3), M-Medium (2), L- Low (1)

		Semester II			
Core	Course Code: 2BS2C2	Introduction to Multimedia	Theory	C	H/W
				5	5

Unit -I		
Objective 1	To Study the History and Concept of Multimedia	

Introduction to Multimedia - Basics of multimedia, Components of multimedia - Web and Internetmultimedia applications - Transition from conventional media to digital media.

Computer Fonts and Hypertext - Usage of text in Multimedia - Families and faces of fonts - outline fonts -Bitmap fonts International character sets and hypertext - Digital font's techniques.

Outcome1	Understand the basics of Multimedia	K2,K1

Unit II		
Objective 2	Practicing skills and applying knowledge learned in class.	

Audio fundamentals and representations - Digitization of sound - frequency and bandwidth - decibel system - data rate - audio file format - Sound synthesis – MIDI – wavetable - Compression and transmission of audio on Internet - Adding sound to your multimedia project - Audio software and hardware.

Outcome2	Apply fundamental computer theory to basic programming techniques and fundamental skills to maintain web server services required to host a website.	K3,K4

Unit III		
Objective 3	To identify a range of concepts, techniques and tools for creating and editing the interactive Multimedia applications.	

Image fundamentals and representations - Colour Science – Colour - Colour Models - Colour palettes – Dithering - 2D Graphics - Image - Compression and File Formats :GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF - Basic - Image Processing - Use of image editing software - White balance – correction - Dynamic Range correction - Gamma correction - Photo Retouching.

Outcome3	Select and apply markup languages for processing, identifying, and presentingof information in web pages	K4,K5

	Unit IV	
Objective 4	**To identify both theoretical and practical aspects in designing multimedia systems surrounding the emergence of multimedia technologies using contemporary hardware and Software technologies.**	

Video and Animation - **Video** : Basics - How Video Works - Broadcast Video Standards - Analog video -Digital video - Video Recording and Tape formats - Shooting and Editing Video (Use Adobe Premier for editing)

- Video Compression and File Formats - Video compression based on motion compensation: MPEG-1, MPEG-2,

MPEG-4, MPEG-7, MPEG-21.
Animation: Cell Animation, Computer Animation, Morphing.

Outcome4	**Describe how visual images, graphics and audio can be added to a multimedia presentation.**	**K1,K4**

	Unit V	
Objective 5	**Name the basic elements including the input and output devices and the storage device that exit in a multimedia computer.**	

Multimedia Authoring: Multimedia Authoring Basics, Some Authoring Tools, Macromedia Director & Flash.

Outcome 5	**Explain the developments, and research on multimedia technology as well asits current and future challenges..**	**K5,K2**

Suggested Readings:-

Parekh Ranjan. (2007). Principles of Multimedia. Tata McGraw-Hill.

Rajneesh Aggarwal, B. B Tiwari. (2007). Multimedia Systems. New Delhi: Excel Publication.Tay Vaughan. (2014). Multimedia making it work. Tata McGraw-Hill.

Peter Shirley, Michael Ashikhmin, Michael Gleicher, Stephen R Marschner, Erik Reinhard, KelvinSung, and AK Peters, —Fundamentals of Computer Graphics, CRC Press, 2010.

Online Resource: https://www.citationmachine.net/multimedia-tools-and-applications
https://libguides.uww.edu/apa/multimedia

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	L (1)	M (2)	L (1)	M (2)
CO2	M (2)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	L (1)	M (2)	L (1)
CO3	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	L (1)	M (2)	L (1)	M (2)
CO4	M (2)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	L (1)	L (1)	L (1)
CO5	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	M (2)	M (2)	M (2)
W.AV	2.6	3	2.4	1.4	1.6	2.4	1.4	1.6	1.4	1.6

S –Strong (3), M-Medium (2), L- Low (1)

**Course Outcome VS Programme
Specific Outcomes**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	2.6	1.8	1.8	1.4	2

S –Strong (3), M-Medium (2), L- Low (1)

Semester II					
Core	**Course Code: 2BS2P1**	**Web Designing- Lab**	**Practical**	**C**	**H**
				5	5

Unit -I		

Objective 1	**To Understand the basic concept of web designing**	

JavaScript:
1. Design a webpage to find the maximum of three given numbers using JavaScript
2. Design a webpage to perform all arithmetic operations using JavaScript

Outcome1	**Students should be able to: Test and debug JavaScript web applications.**	**K2, K4**

Unit II		

Objective 2	**To be Work with JavaScript and its data types, variables, operators and functions.**	

3. Write a Program Using Date object, to display appropriate greeting message "Good Morning" or "GoodAfternoon" or "Good Night", in an alert box with the user''s name, after receiving the same inthe prompt box.

Outcome2	**Apply a program using JavaScript.**	**K3**

Unit III		

Objective 3	**To Learn the language of the web: HTML**	

HTML:
1. Design to create a webpage about the different art forms of India, with appropriate title on thetitle bar. Use different heading tags for the headings, and list them using ordered list
2. Design to create sections in the document using appropriate tags and apply different color as

Background to them. Use internal hyperlinks to move to different points within the page.

Outcome3	**Students will be able to implement HTML techniques to create a functionalwebsite..**	**K6**

Unit IV		

Objective 4	**To Learn the language of the web: CSS.**	

CSS:
1. Design a list with colors using CSS
2. Design a colored table using CSS
3. Design a vertical navigation bar and change the link color on hover using CSS
4. Design a responsive image gallery that will look good on desktops, tablets and smart phonesusing CSS

Outcome4	**Students will be able to implement CSS, and digital imaging techniques tocreate a functional website.**	**K5**

Unit V	
Objective 5	**To Build a mobile-first website using Bootstrap**
Bootstrap:	

     1.   Design a webpage header using jump botton in bootstrap

     2.   Design a series of buttons together in a button group using bootstrap

     3.   Design a spinner/loader, use the .spinner-border class using bootstrap

Outcome5	**Learn the application of Bootstrap in the website design**	**K2, K3**
K1-Remember	**K2 - Understand** **K3 - Apply** **K4- Analyze** **K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.A V	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

Semester II					
				C	H/W
General	Course Code: 2BS2P2	User Interface Design- Lab	Practical	3	3

Unit -I

Objective 1	To Distinguish between different types of computer users and design considerations for Each.	
	➢ Add Frames and calculator display using Figma ➢ Create other screens and Create a clickable prototype using Figma ➢ Exporting Assets for Web: SVG, JPEG, & PNG	
Outcome1	Understand iterative user-centered design of graphical user interfaces Apply the user Interfaces to different devices and requirements	K1, K3

Unit II

Objective 2	To specify interactions between information processing and presentation concerns.	
	➢ Making Links that Scroll Up/Down a Page ➢ Making the Navbar Fixed to the Screen ➢ Intro to Smart Animate o The Basics of Smart Animate o Different Kinds of Easing	
Outcome 2	Analyze a user interface context and choose an appropriate type of userinterface	K4

UNIT III

Objective 3	To analyse the interaction between slideshow and presentation concerns.	
	▪ Adding Interactions to a Slideshow: Tap, Drag, & Keys ▪ Creating a Working Slideshow Prototype ▪ Adding Tap Interactions ▪ Adding the Ability to Drag ▪ Adding Keystroke ▪ Custom Easing	
Outcome 3	To develop the Slideshow	K6,K5

UNIT IV

Objective 4	To create architectural description in multiple viewpoints	
	➢ Create Desktop view of Social Media. ➢ Create Mobile App Registration page.	
Outcome4	Design the prototypes and test plans of user interface	K2,K6

UNIT V	
Objective 5	**To develop social media presentation in mobile app**
➢	Create Social Media layout for Mobile App.
Outcome5	**Create and evaluate the mobile app.**

Outcome5 gives **K5,K6**

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

**Course Outcome VS Programme
Specific Outcomes**

CO	PSO 1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.A V	3	1.8	1.6	1. 6	3

S –Strong (3), M-Medium (2), L- Low (1)

II - Semester					
Core	**Course Code: 2BS2J1**	**NSQF Level – 5 Job role Web Developer (SSC/Q0503)@**	**Practical**	**C**	**H/W**
				3	3

Unit -I	
Objective 1	**To work as a Web Developer for an innovative company that allows me to utilize my technical skills and knowledge.**

Design basic programming structures - Requirements defined in BRS/URS, SRS and HLD - Understanding of the BRS/URS - Understanding of the SRS - Understanding of HLD - Review designs - Analyze inputs - Document the designs using standard templates and tools - Organization's policies, procedures and guidelines - Access reusable components, media and graphical packages and tools - Convert requirements into media content and graphic designs - Review media content and graphic designs - Record any defects and corrective actions - Rework media content and graphic designs - Submit media content and graphic designs for approval – Update organization's knowledge.

Outcome1	**Design basic programming structures to implement functionality in line with requirements defined in BRS/URS, SRS and HLD**	**K1, K2**

Unit II	
Objective 2	**Extensive experience using multiple standard programming languages Seeking a Web Developer role in an organization that values creativity and encourages collaboration.**

Establish work requirements - Work area clean and tidy - Utilize time effectively - Use resources - Treat confidential information correctly - Organization's policies and procedures - Limits of job role - Ensure work meets the agreed requirements - Analysis on the performed data - Data analysis outside their area of competence - Review the results - Undertake modifications based on inputs - Communicate with colleagues - Work with colleagues - Pass on essential information to colleagues - Respect for colleagues - Carry out commitments to colleagues - Explaining the reasons of cannot carry out commitments- Identify any problems and solve these problems - Organization's policies and procedures.

Outcome2	**Manage their work to meet requirements Work effectively with colleagues**	**K3,K4**

Unit III	
Objective 3	**Critical thinking and problem-solving skills**

Organization's health, safety and security policies and procedures - Report any breaches in policies and procedures to the designated person - Identify and correct any hazards - Report any hazards that warn other people who may be affected - Follow their organization's emergency Procedures promptly, calmly, and efficiently - Identify and recommend opportunities - Complete any health and safety records legibly and Accurately.

Outcome3	**Maintain a healthy, safe and secure working environment**	**K5**

Unit IV	
Objective 4	**Evaluation and analysis abilities**
Obtain the data/information from reliable sources - Check that the data/information- Advice or guidance from appropriate people where there are problems with the data/information - Carry out rule based analysis - Insert the data/information into the agreed Formats - Check the accuracy of work, involving colleagues where Required - Report any unresolved anomalies in the data/information to appropriate people - Provide complete, accurate and up-to- date data/information to the appropriate people in the required formats on time.
Outcome4	**Check that the data/information is accurate, complete and up-to-date** **K2, K3**

Unit V	
Objective 5	**To use my knowledge of web development technologies to create dynamic websites with engaging content.**
Develop knowledge, skills and competence –Identify knowledge and skills - Identify current level of knowledge, skills and development needs - Plan of learning and development activities - Undertake learning and development activities - Apply new knowledge and skills in the workplace - Feedback from appropriate People – Review knowledge, skills and competence.
Outcome5	**Identify accurately the knowledge and skills they need for their job role Identify accurately their current level of knowledge, skills and competence and any learning and development needs.** **K1, K5**

Suggested Readings:-
SSC – NASSCOM – Qualification Pack : https://www.sscnasscom.com/qualification-pack/SSC/Q0503/
SSC/N9001 (Manage your work to meet requirements)
SSC/N9002 (Work effectively with colleagues)
SSC/N9003 (Maintain a healthy, safe and secure working environment) 4. SSC/N9004 (Provide data/information in standard formats)
SSC/N9005 (Develop your knowledge, skills and competence)
SSC/N0501 (Contribute to the design of software products and) SSC/N0503 (Develop media content and graphic designs for soft)

Online Resource:
https://www.computerscience.org/careers/web-developer/ https://webdeveloper.com/
https://www.careerexplorer.com/careers/web-developer/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
W.AV	2.6	2.4	1.6	1.4	1.6	3	1.2	1.8	1.2	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	S (3)	L (1)	L (1)	S (3)	M (2)
W.AV	2.6	1.6	1.8	2	1.6

S –Strong (3), M-Medium (2), L- Low (1)

		Semester–III			
General	**Course code: 2BV3G1**	**Technical English**	**Theory**	**C**	**H/W**
				3	**3**

	Unit I	
Objective 1	**To learn the basics of English and the usages.**	

Introduction to Vocabulary – General vocabulary- Changing words from one form to another-Adjectives, comparative adjectives-Adverbs- Active and Passive voice- Tenses – Simple Present, Present Continuous-Adverb forms- nouns.

Outcome 1	**The students gain the basic grammar knowledge**	**K1**

	Unit II	
Objective 2	**To enable students write letters and reports effectively in formal and business modes**	

Vocabulary-Prefixes & Suffixes- Simple Past Tenses-Spelling and punctuation- 'wh''Question forms-Scanning, inference-listening & note taking – Spelling rules

Outcome 2	**The students will be able to understand to speak with correctpronunciation.**	**K2**

	Unit III	
Objective3	**To help the learners to develop the vocabulary.**	

Tenses- Simple past-Simple future and Past perfect- Reading in context-
Listening & Notetaking-Single line definitions- Sequencing of sentences-
instructions-Persuasive Speaking
3. Word Power
a. One Word Substitution
4. Grammar in Context
a. Sentence Patterns

Outcome 3	**Students will heighten to apply their awareness of correct usage ofEnglish grammar in writing and speaking.**	**K3**

	Unit IV	
Objective4	**To help the learners to know the basic levels of grammar.**	

Modal verbs and Probability – concord- Subject Verb Agreement- Homonyms-Contronym-Heteronyms-Palindromes-pangrams.

Outcome 4	**Students will Analyze their speaking ability in English both in terms offluency and comprehensibility.**	**K4**

	Unit V	
Objective5	**To enhance the learners to know the usages of correct English.**	

If conditionals- Gerunds- Intensive reading-Speaking- Presentation of problems & Solutions- One word substitution- foreign words-Group terms.

Outcome 5	**Students will Evaluate oral presentations and receive feedback on theirperformance.**	**K5**

Suggested Readings: Kamprath, Christine, et al. "Controlled language for multilingual document production: Experience with Caterpillar technical English." *Proceedings of the Second International Workshop on Controlled Language Applications*. Vol. 146. 1998.

Online Resources:
https://www.google.co.in/books/edition/Technical_English_1/4Wb-DwAAQBAJ?hl=en&gbpv=1&dq=Technical+english&printsec=frontcover

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
W.AV	2.6	2.4	1.6	1.4	1.6	3	1.2	1.8	1.2	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	S (3)	L (1)	L (1)	S (3)	M (2)
W.AV	2.6	1.6	1.8	2	1.6

Semester - V					
General	**Course code: 2BV3G2**	**Professional Etiquettes**	**Practical**	**C**	**H/W**
				3	**3**

Unit - I	
Objective 1	**To impart various etiquettes, dress code in business environment**

Why Business Etiquette, Greeting and Introduction: who to introduce first, Guidelines for Determining Importance, A few tips, Shaking Hands, Use of Names, Business Card, Remembering Names

Outcome 1	**Learners Understand the basic concepts of Etiquettes**	**K2**

Unit-II	
Objective 2	**To impart understanding about behavioral styles in business environment.**

The well Groomed Man: Hair, Face, Hands, Personal Hygiene, formal dress code, Shirts and Trousers, Business Suits, Ties, Shoes, Belt, Socks, Handkerchief, wallet, Jewellery, Eyeglasses, Fragrance, Business Casuals. The well Groomed Women: Hair, Personal Hygiene, Make up, Hand and Nails, Feet, Shoes, Jewellery, Formal Dress code, Indian Dressing, Western Dressing, Accessories, Business Casuals.

Outcome 2	**Students Examine the methods of behavioral styles and Dressing patterns.**	**K4**

Unit III	
Objective3	**To enhances relationship & impression in the workplace.**

Workplace Etiquette: Behavior, Body Language, Everyday Courtesies, Use of office Machine Etiquette, Using Facilities, Washroom Etiquette, Holding Doors, Elevator Etiquette, Managing Conflict, Visiting Other Offices, Receiving Visitors in Your Offices, Telephone Etiquette, Cell Phone Etiquette, Meeting Etiquette

Outcome 3	**Students could be able to analyze the different body language and managing the conflicts.**	**K4**

Unit IV	
Objective4	**To enhance non-verbal communication**

Environmental issues in Managerial Effectiveness: Organizational Processes – Organizational Climate –Leader – Group Influences – Job Challenge – Competition – Managerial Styles.

Outcome 4	**Learners could be able to illustrate the organizational Process and leadership skills**	**K2**

Unit V	
Objective 5	**To create a professional, mutually respectful atmosphere.**

Developing the Winning Edge: Organizational and Managerial Efforts – Self Development – Negotiation Skills –Development of the Competitive Spirit – Knowledge Management – Fostering Creativity and innovation.

Outcome 5	**Students Determine the self-development and negotiation skills.**	**K5**

Suggested Readings: Pawar, N. B. "Modern Etiquettes for Professionals and Their Importance." *mg § ñWoMo Ì¡ _m {gH$.*

Online Resources: https://www.lcebyhkzz.cn/article/view/2023/4130.pdf

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	M (2)	L (1)	M (2)
CO3	M (2)	S (3)	L (1)	M (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	S (3)	M (2)
W.A V	2.4	2.2	2.0	1.8	2.0	2.4	1.4	1.8	1.6	1.4

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L (3)	M (3)	S (2)	M (1)	L (1)
CO2	M (2)	L (1)	M (2)	L (2)	S (2)
CO3	S (3)	M (2)	L (2)	M (1)	L (1)
CO4	M (2)	S (1)	M (2)	L (3)	M (2)
CO5	S (3)	M (1)	L (1)	S (3)	M (2)
W.A V	2.6	1.6	1.8	2.0	1.6

S Strong (3), M Medium (2), Low (1)

III - Semester					
General	**Course Code: 2BV3G3**	**PC Assembling and Troubleshooting – Lab**	**Practical**	**C**	**H/W**
				3	**3**

Unit -I		
Objective 1	**To impact the knowledge of various hardware components of a computer**	

1. Assemble a PC by fixing motherboard, processor and cooling fan.
2. Fix a Hard drive and DVD and connect the Data, power cables.
3. Connect the power cables with SMPS

Outcome1	**Identify various hardware components of a system**	**K1,K6**

Unit II		
Objective 2	**To provide the skill of assembling the computer**	

4. Install windows Operating System with service pack.
5. Install Linux/ Ubuntu with packages.
6. Install an Audio driver software and check the functionality.

Outcome2	**Assemble the computer.**	**K2**

Unit III		
Objective 3	**To learn the techniques for identifying and troubleshooting issues with Softwareand Hardware.**	

7. General microphone troubleshooting
   - Sound drivers not setup properly
   - Not connected properly
   - Issues with microphone

Outcome 3	**Fix faults that are related to Software and Hardware in a DesktopComputer.**	**K4**

Unit IV		
Objective 4	**To learn the techniques for identifying and troubleshooting issues with Input /OutputDevices**	

8. General Speaker troubleshooting
   - Sound drivers not setup properly and not connected properly
   - Issues with Speakers
   - Aligning the sound mixers

Outcome 4	**Fix faults that are related to Input / Output Device**	**K6**

Unit V	
Objective 5	**To understand the process of different types of ports**

9. Testing a computer CD-ROM / DVD drive for failures.

10. Testing the Keyboard

11. Troubleshooting different types of Monitors.

12. Troubleshooting the Mouse.

13. Testing of serial and parallel ports.

Outcome 5	To install Device Drivers	K1,K5

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

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Alagappa University

Semester III					
Core	**Course Code: 2BS3C1**	**Fundamentals of Operating Systems**	**Theory**	**C**	**H/W**
				4	4
Unit -I					
Objective 1	**To Understanding how Operating System is Important for Computer System**				
Introduction to Operating System: Definition of Operating System- Booting – Kernel History of Operatingsystem - Operating system functions – File system.					
Outcome 1	**Understands the different services provided by Operating System at differentlevel**			**K2,K3**	
Unit II					
Objective 2	**To learn different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system**				
Process Management and Dead lock: Process Management -Inter-process communication- CPU Scheduling: CPU Schedulers -Scheduling Criteria - Scheduling Algorithms - Dead Lock - Dead Lock Prerequisites - Dead Lock Strategies.					
Outcome2	**Understands the use of different process scheduling algorithm and synchronization techniques to avoid deadlock**			**K1,K4**	
Unit III					
Objective 3	**To know and get the knowledge of the Memory Management and File system.**				
Memory Management: Memory Management - Single Contiguous – Fixed Partitioned – Variable-Partitions – Non-Contiguous allocations - Paging – Segmentation - Virtual Memory Management Systems- Demand Paging - Page Replacement Algorithms - Thrashing. **File System**: File Concept -. Access Methods - Directory and Disk Structure - Protection - File System Structures - Allocation Methods..					
Outcome 3	**Design and construct the following OS components: System calls, Schedulers,Memory management systems, Virtual Memory and Paging systems**			**K3,K5**	
Unit IV					
Objective 4	**To demonstrate understanding of the various forms of I/O device interaction with theoperating system.**				
GUI and Security: GUI – Components of GUI – Requirements of Windows based GUI –Security **Protection**: Threats – Attacks – Worms – Virus - Design principles – Authentication – Protection mechanisms – Encryption					
Outcome4	**Analyze the various device and resource management techniques fortimesharing and distributed systems**			**K4**	

Unit V	
Objective 5	**To study and analyse the basic structure of UNIX**
UNIX: Unix-Architecture of Unix-File System of Unix- Basic commands in UNIX.	

Outcome5	**To develop and analyze simple concurrent programs using transactionalmemory and message passing, and to understand the trade-offs and implementation decisions**	**K4,K5**

Suggested Readings:-

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne. (2018). Operating System Concepts. (9th Edn).WileyIndia Pvt. Ltd

William Stallings. (2018). Operation Systems Internal and Design Principles, (9th Edn). Pearson.Andrew S. Tanenbaum. (2014). Modern Operating Systems. (4th Edn). Pearson Pvt., Ltd.

Harvey M. Deitel. (2007). An Introduction to Operating System. (3rd Edn). Pearson Education India.

Online Resource: https://www.worldcat.org/title/operating-system-concepts/oclc/53797180?page=citation
https://www.scribd.com/document/29399825/7-References

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
W.AV	2.6	2.4	1.6	1.4	1.6	3	1.2	1.8	1.2	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	L (1)	M (2)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	S (3)	L (1)	L (1)	S (3)	M (2)
W.A V	2.6	1.6	1.8	2	1.6

S –Strong (3), M-Medium (2), L- Low (1)

Semester III					
		Core- VIII	**Practical**	**C**	**H/W**
Core	**Course Code: 2BS3P1**	**Data Structure &Algorithms in C – Lab**		**5**	**5**
Unit -I					
Objective 1	To describe how arrays are represented in memory used by algorithms.				
1. Sum of Array elements					
2. Search an element in an Array					
Outcome 1	To create arrays based program by using algorithms.				**K6,K2**
Unit II					
Objective 2	To Introduce the concept of data structures through ADT including Stack, Queues				
3. Operation on Stack					
4 Operations on Queue					
5. Operations on Circular Queue					
Outcome 2	Select appropriate data structures as applied to specified problem definition				**K6,K3**
Unit III					
Objective 3	To develop application using data structure algorithms				
6. Operations on Singly linked list					
7. Operations on Doubly linked list					
Outcome 3	Implement appropriate sorting/searching technique for given problem				**K6,K2**
Unit IV					
Objective 4	To design and implement various data structure algorithms.				
8. Binary Tree Creation and Traversals					
9. Analyse Bubble Sort with number of passes, comparisons and data moves					
Outcome 4	Implement operations like searching, insertion, and deletion, traversingmechanism etc. on various data structures.				**K6**
Unit V					
Objective 5	To Compute the complexity of various algorithms.				
10. Sequential search in an array					
11. Binary Search in an array					
12. Convert Infix to Postfix and evaluate Postfix using Stack					
Outcome 5	Implement appropriate sorting/searching technique for given problem. Designadvanced data structure using Non-Linear data structure				**K4,K6**
K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

Semester III					
Core	**Course Code: 2BS3P2**	**RDBMS – Lab**	**Practical**	**C**	**H/W**
				5	**5**
Unit -I					
Objective 1	**To describe how arrays are represented in memory used by algorithms.**				
➢ DDL: Table Creation and description of tables					
Outcome1	**Apply the basic concepts of Database Systems and Applications**.				**K3,K6**
Unit II					
Objective 2	**To demonstrate the use of constraints and relational algebra operations.**				
➢ DML: Data Insertion, Deletion, Updating and Selection. ➢ DML: Operators (Arithmetic, Relational, Logical), ➢ DML: SQL Functions (Single Row Function, Group Functions). ➢ DML: Set operations ➢ DML: Join operations					
Outcome 2	**Use the basics of SQL and construct queries using SQL in database creation and interaction**				**K6,K3**
Unit III					
Objective 3	**To import the queries and to improve the sql skills.**				
➢ Creation of Nested queries ➢ Creation of To improve the programming skills of Creation and manipulation of View.					
Outcome 3	**Analyze and Select storage and recovery techniques of database system**				**K4**
Unit IV					
Objective 4	**To facilitate students in Database design.**				
➢ Working with control structures using PL/SQL block ➢ Creation and manipulation of Cursors					
Outcome 4	**Execute various advance SQL queries related to Transaction Processing &Locking using concept of Concurrency control**				**K5,K6**
Unit V					
Objective 5	**To familiarize issues of concurrency control and transaction management**				
➢ Simple programs using Functions & Procedure ➢ Creation and manipulation of Packages ➢ Creation and manipulation of Triggers					
Outcome5	**Implement appropriate sorting/searching technique for given problem. Design advanced data structure using Non-Linear data structure**				**K4,K6**
K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

Semester III					
Core	**Course Code: 2BS3P3**	**Web Graphics – Lab**	**Practical**	**C**	**H/W**
				4	**4**

Unit -I		
Objective 1	**To understand the basic Photoshop.**	

PHOTOSHOP
- ➢ Design a Student ID card using Photoshop
- ➢ Design an Invitation using Photoshop
- ➢ Design a Webpage Header using Photoshop

Outcome 1	**Design a simple graphic using Photoshop.**	**K6**

UNIT II		
Objective 2	**To apply the images in Photoshop**	

- ➢ Applying masks and filtering on images
- ➢ Developing a commercial brochure with background tints

Outcome 2	**Design a simple brochure.**	**K3,K6**

Unit III		
Objective 3	**To create animation window methods**	

FLASH
- ➢ Design an animation to bounce a ball using Flash.
- ➢ Create Text Animation using motion twining" in Flash.
- ➢ Activate a New Window or Page using buttons" in Flash

Outcome3	**Design a simple animation window by using flash**	**K6**

Unit IV		
Objective 4	**To Create a styles and groups by using flash**	

- ➢ Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects in flash
- ➢ Working with Strokes and Fills in flash

Outcome 4	**Design a animation window**	**K5,K6**

Unit V		
Objective 5	**To understand the Dreamweaver techniques**	

DREAMWEAVER
- ➢ Design a Web Page (Home Page) for a book store using Dreamweaver
- ➢ Design a Web Page to display cars and its details using Dreamweaver
- ➢ Design a Feedback form with spry validation using Dreamweaver

Outcome 5	**To design a web sites by using web graphics**	**K6**

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Alagappa Institute of Skill Development
Alagappa University

B.Voc. Software Development

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
CO3	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO4	S (3)	S (3)	M (2)	S (3)	S (3)	L (1)	L (1)	L (1)	L (1)	S (3)
CO5	S (3)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	M (2)	M (2)	S (3)
W.AV	3	2.6	2.6	3	3	2.4	1.4	1.4	1.4	3

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	S (3)
CO2	S (3)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	S (3)	L (1)	L (1)	S (3)	S (3)
W.AV	3	1.8	1.6	1.6	3

S –Strong (3), M-Medium (2), L- Low (1)

Semester - I V					
General	**Course code: 2BV4G1**	**English for Competitive Examinations**	**Practical**	**C**	**H/W**
				3	**3**

Unit - I	
Objective1	**To learn the basics of English and the usages.**

Basics of English
Errors and how to avoid them Spotting Errors

Outcome 1	**Students will remember the rules and usages of English grammar.**	**K1**

Unit-II	
Objective 2	**To enable students write letters and reports effectively in formal and business modes.**

Sentence Completion Reconstructing
passagesHow to write précis Reading
comprehension

Outcome 2	**The students will be able to understand to speak with phonetics.**	**K2**

Unit III	
Objective 3	**To improve the leaners vocabulary.**

Composition Paragraph writing Letter
writingReport writing

Outcome 3	**Students will apply to improve their writing skill**	**K3**

Unit IV	
Objective 4	**To develop strong conversations.**

Essay writing Story Writing
Dialogue writing
Paraphrasing

Outcome 4	**Students will Analyze their ability to write academic papers, essaysand summaries using the process approach.**	**K4**

Unit V	
Objective 5	**To help the learners to correct sentences.**

Introduction to Phonetics
English Spelling and pronunciation Vowels and consonants Stress and intonation

Outcome 5	**Students will Evaluate the grammatical forms of English and the useof those forms in Specific.**	**K5**

Suggested Readings:
Bhatnagar and Bhargava Rajul , *English for Competitive Examinations* ,Macmillan Publishers pvt.ltd.Iyadurai.P,
English Phonetics for beginners

https://leverageedu.com/blog/english-for-competitive-exams/ https://byjus.com/govt-exams/general-english-competitive-exams/
https://www.examsbook.com/general-english-questions-and-answers-for-competitive-exam

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	M	M	M	M	L
CO2	M	S	S	M	S	M	M	S	S	S
CO3	M	L	S	S	S	M	M	S	S	S
CO4	S	M	M	S	M	S	S	S	L	S
CO5	S	S	S	S	S	S	S	S	S	S
W.AV	2.4	2.4	2.6	2.6	2.8	2.4	2.4	2.8	2.4	2.6

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	M	M
CO2	M	S	M	S	M
CO3	S	M	S	M	S
CO4	S	S	S	S	L
CO5	S	S	L	L	S
W.AV	2.6	2.8	2.4	2.2	2.2

S Strong (3), M Medium (2), Low (1)

Semester - IV					
General	Course code: 2BV4G2	Accounting Skills	Theory	**C**	**H/W**
				4	4

Unit - I	
Objective 1	**To introduce fundamentals of accounting principles and financial Statements**

Introduction to Accounting: Accounting Principles–Accounting Equation –Double Entry System–Characteristics–Classification Of Accounting Principles

Outcome 1	**Learners understand the fundamental concepts of Accounting**	**K2**

Unit-II	
Objective 2	**To analyze the business problem of accounting techniques and to develop competentdecision skills in the areas of accounting**

Books of Accounting: Journal–Accounting Process–Classification of Accounts–Compound Journal Entries– Important Consideration For Recording Transaction Ledger: Difference Between Journal & Ledger–Cashbook And Subsidiary Books– Purchase Books– Invoice, Sales Book, Return Book, Debit And Credit Notes

Outcome 2	**Students discuss the Accounting Process and Recording the Transactions**	**K4**

Unit III	
Objective 3	**To keep Systematic Records**

Trial Balance: Meaning Of Trial Balance, Objective And Importance Of Trial Balance Errors: Meaning AndLocation Of Errors

Outcome 3	**Students analyze the Trial Balance and its errors**	**K4**

Unit IV	
Objective 4	**To Protect the Business Properties**

Financial Accounts: Meaning And Typing Of Financial Statements, Procedure For Preparing Accounts – Profit And Loss Accounts –Balance Sheet– Manufacturing Account–Adjustment And Treatment Of Adjustment

Outcome 4	**Learners acquire knowledge on Types of financial statements and treatmentadjustments**	**K2**

Unit V	
Objective 5	**To protect data format**

Introduction To Accounting Package–Introduction To Tally: Features, Advantages, Defining The Cells, Format The Entering Data, Functional Keys And Simple Calculation–Excel: Features, Advantages, Defining The Cell Range, Functional Keys, Entering The Data, Defining The Functions And Simple Calculations.

Outcome 5	**Students critically evaluate the computerized accounting features**	**K5**

Suggested Readings:-
Douglas Garbutt, (1980) .Accounting Foundation- An Introductory. London: Pitman
Publishing Limited. Mukesh Mahajan, Gills,P.S.,Sharma,V.P.,&Punia,H.S.
(2001) shakla,M.C.,Grawal,T.S.&Gupta,S.C.
(1999).Advanced Accounts. NewDelhi :SChand & CoLtd. Sundeep Sharma,
(2004). Principles of Accounting-A Complete Hand Book. Jaipur: Shree Niwas Publication.

Online Resources: https://www.google.co.in/books/edition/Financial_
Accounting_For_B_Com_Hons_2nd/XDRlDwAAQBAJ?hl=en&gbpv=1&dq=skills+
accounting+books+pdf&printsec=frontcover

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	L (1)	L (1)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO5	L (1)	L (1)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
W.AV	1.8	1.6	1.2	1.2	1.6	3	1.6	2	1.6	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	M (2)	M (2)	M (2)	M (2)
CO3	M (2)	M (2)	M (2)	L (1)	M (2)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	M (2)	L (1)	M (2)	S (3)	M (2)
W.AV	2	1.8	2	2	1.8

S –Strong (3), M-Medium (2), L- Low (1)

		Semester - IV			
NME	Course code: 2BS4N2	Web Designing	Theory	**C**	**H/W**
				5	5

Unit - I

Objective 1	**To remember the fundamentals of networking and its protocols**	

Introduction and Overview: Growth of Computer Networking – Why Networking Seems Complex – The Five Key Aspects of Networking – Public And Private Parts of The Internet – Networks, Interoperability, And Standards – Protocol Suites And Layering Models – How Data Passes Through Layers – Headers And Layers – ISO and the OSI Seven Layer Reference Model – The Inside Scoop – Remainder of The Text **Internet Trends:** Introduction – Resource Sharing – Growth of The Internet – From Resource Sharing to Communication – From Text to Multimedia – Recent Trends

Outcome 1	**Revise the content of networking with OSI layers and its protocol**	K1

Unit-II

Objective 2	**To understand the various steps in designing a creative and dynamic website using HTML, Java Script and Bootstrap.**

Traditional Internet Applications: Introduction – Application-Layer Protocols – Representation and Transfer – Web Protocols – Document Representation with HTML – Uniform Resource Locators and Hyperlinks – Web Document Transfer with HTTP – Caching In Browsers – Browser Architecture – File Transfer Protocol (FTP) – FTP Communication Paradigm – Electronic Mail – The Simple Mail Transfer Protocol (SMTP) – ISPs, Mail Servers, And Mail Access – Mail Access Protocols (POP, IMAP) – Email Representation Standards (RFC2822, MIME) – Domain Name System (DNS) – Domain Names That Begin with www –The DNS Hierarchy And Server Model – Name Resolution

Outcome 2	**Apply the fundamental skills to maintain the services of web serverrequired to host a website**	K3

Unit III

Objective 3	Understand to know the syntax of HTML/XHTML

Introduction to HTML/XHTML: Basic Syntax – Standard HTML Document Structure – Basic Text Markup – Images – Hypertext Links – Lists – Tables – Forms – The audio Element – Thevideo Element – Organization Elements – The time Element

Outcome 3	**Evaluate the Syntax of HTML for manipulating and publish web media**	K5

Unit IV	
Objective 4	To validate the web-page using the java script and event handling methods

The Basics of JavaScript: Overview of JavaScript – Object Orientation and JavaScript – General Syntactic Characteristics – Primitives, Operations, and Expressions – Screen Output and Keyboard Input – Control Statements – Object Creation and Modification – Arrays – Functions – Constructors

JavaScript and HTML Documents: Events and Event Handling – Handling Events from Body Elements – Handling Events from Button Elements – Handling Events from Text Box and PasswordElements

Outcome 4	Evaluate the web-page using the script commands for event successfulevent handling methods	K5

Unit V	
Objective 5	**Analyzing the concept of Boot-strap with using the base CSS**

Getting Started with Bootstrap: Mobile-first design – Why Bootstrap
Installing and Customizing Bootstrap: Including Bootstrap in your HTML file – The Bootstrap CDN – Overriding with custom CSS – Using the Bootstrap customizer – Deep customization of Bootstrap

Using the Bootstrap Grid: Using the Bootstrap Grid classes – Using the Bootstrap variables and mixins –Creating a blog layout with the Bootstrap Grid mixins and variables **Using the Base CSS:** Implementing the Bootstrap Base CSS – Customizing the Base CSS using LESS variables

Outcome 5	Demonstrate the following bootstrap grid with base CSS	K3, K5

Suggested Readings:-

Aravind Shenoy. Ulrich Sossou. (2014). *Learning Bootstrap - Unearth the potential of*

Bootstrap tocreate responsive web pages using modern techniques. Packt Publishing Ltd.

Douglas E. Comer. *Computer Networks and Internets*. (5th ed.). Pearson Education.Robert W. Sebesta. *Programming the World Wide Web*. (8th ed.). Pearson Education.

Online Resource:
www.w3schools.com www.devdocs.io
https://www.freecodecamp.org/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	M (2)	L (1)	M (2)
CO3	M (2)	S (3)	L (1)	M (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	S (3)	M (2)
W.A V	2.4	2.2	2.0	1.8	2.0	2.4	1.4	1.8	1.6	1.4

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L (3)	M (3)	S (2)	M (1)	L (1)
CO2	M (2)	L (1)	M (2)	L (2)	S (2)
CO3	S (3)	M (2)	L (2)	M (1)	L (1)
CO4	M (2)	S (1)	M (2)	L (3)	M (2)
CO5	S (3)	M (1)	L (1)	S (3)	M (2)
W.A V	2.6	1.6	1.8	2.0	1.6

S Strong (3), M Medium (2), Low (1)

Semester - IV					
General	Course code: 2BV4G3	Value Education	Practical	**C**	**H/W**
				3	3

Unit - I	
Objective 1	**To teach and inculcate the importance of value based education in India**

Definition – Need for value Education – How important human values are – humanism and humanistic movement in the world and in India – Literature on the teaching of values under various religions like Hinduism, Buddhism, Christianity, Jainism, Islam, etc. Agencies for teaching value education in India –National Resource Centre for Value Education – NCERT– IITs and IGNOU.

Outcome 1	**Students will remember the importance of value based in India**	K1

Unit-II	
Objective 2	**To give students a deeper understanding about Vedic period**

Vedic Period
Influence of Buddhism and Jainism – Hindu Dynasties – Islam Invasion – Moghulinvasion – British Rule – culture clash – Bhakti cult – social Reformers – Gandhi – Swami Vivekananda – Tagore –their role in value education.

Outcome 2	**Learners will gain deeper understanding about the purpose of vedicperiod and its culture**	K2

Unit III	
Objective 3	To examine the consequences of politics without principle, commerce without ethics,education without character, science without humanism, wealth without work, pleasurewithout conscience

Value Crisis – After Independence
Independence – democracy – Equality – fundamental duties – Fall of standards in all fields – Social, Economic, Political, Religious and Environmental – corruption in society. Politics without principle – Commerce without ethics – Education without Character – Science without humanism – Wealth without work – Pleasure without conscience – Prayer without sacrifice – steps taken by the Governments – Central and State – to remove
Disparities on the basis of class, creed, gender.

Outcome 3	**Identify and analyze the key concepts of independence, democracy, equality, and fundamental duties, and understand their importance in shaping a healthy society.**	K3

Unit IV	
Objective 4	**Learners to emphasize the importance of value education in developing responsible, compassionate, and well-rounded individuals**

Value Education on College Campus
Transition from school to college – problems – Control – free atmosphere – freedom mistaken for license – need for value education – ways of inculcating it – Teaching of etiquettes – Extra- Curricular activities – N.S.S., N.C.C., Club activities – Relevance of Dr.A.P.J.Abdual Kalam''s efforts to teach values – Mother Teresa.

Outcome 4	**Analyze the efforts and contributions of Dr. A.P.J. Abdul Kalam andMother Teresa in promoting values, empathy, and compassion, and Draw inspiration from their life examples.**	**K4**

Unit V	
Objective 5	**Acquire in-depth knowledge about value education by researching and collecting information from newspapers, journals, and magazines in effective manner**

Project Work

1. Collecting details about value education from newspapers, journals and magazines.
2. Writing poems, skits, stories centering on value-erosion in society.
3. Presenting personal experience in teaching values.
4. Suggesting solutions to value – based problems on the campus.

Outcome 5	**Create original poems, skits, and stories that effectively depict theconsequences of value erosion in society, fostering empathy and awareness among their peers.**	**K6**

Suggested Readings: -

Eknath Ranade, (2009). *Swami Vivekananda's Rousing call to Hindu Nation.* Calcutta: SwastikPrakashan.
Mohit Chakraborti, (1997). *Value Education - Changing Perspectives.* New Delhi: KanishkaPublications.
Saraswathi, T.S. (1999). *Culture, Socialisation and Human Development - Theory*. *Research andApplication in India.* New Delhi: SAGE India Publications.

Satchidananda, M.K. (1991). *Ethics, Education, Indian Unity and Culture.* New Delhi:

AjanthaPublications.Venkataiah, N. (1998). *Value Education.* New Delhi: PAH Publishing Corporation.
Vittal, N. (2001). *Value Education – Need of the hour.* Mumbai: Talk delivered in the HTED SeminarGovt. of

Maharashtra.

Online Resources:
https://livingvalues.net/
https://www.valuesbasededucation.com/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M(2)	M(2)	L(1)	L(1)	M(2)	M(2)	M(2)	L(1)
CO2	M(2)	L(1)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	L(1)	S(3)
CO3	S(3)	L(1)	L(1)	M(2)	L(1)	S(3)	S(3)	L(1)	L(1)	M(2)
CO4	S(3)	S(3)	L(1)	L(1)	M(2)	M(2)	M(2)	L(1)	L(1)	L(1)
CO5	S(3)	S(3)	M(2)	M(2)	M(2)	L(1)	L(1)	M(2)	M(2)	L(1)
W.A V	2.8	2.2	1.6	2	1.6	1.8	1.8	1.6	1.4	1.6

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	M(2)	L(1)	M(2)
CO2	M(2)	L(1)	S(3)	S(3)	L(1)
CO3	L(1)	M(2)	M(2)	M(2)	L(1)
CO4	M(2)	M(2)	L(1)	M(2)	M(2)
CO5	S(3)	S(3)	M(2)	S(3)	M(2)
W.A V	2.2	2	2	2.2	1.6

S Strong (3), M Medium (2), Low (1)

Semester - IV					
General	Course code: 2BV4G4	Manavalakalai Yoga	Practical	C	H/W
				3	3

Unit - I		
Objective 1	**To gain knowledge about the importance of Yoga, Physical Health and Physical Structure.**	

Yoga and Physical Health -Physical Structure – Three bodies – Five limitations

Simplified Physical Exercises – Hand Exercises – Leg Exercises – Breathing Exercises –Eye Exercises – Kapalapathi. Maharasanas 1-2 Massages – Acu-puncture – Relaxation. Yogasanas – Padmasana – Vajrasanas – Chakrasanas (Side) – Viruchasanas –Yoga Muthra –Patchimothasanas – Ustrasanas – Vakkarasanas – Salabasanas.

Outcome 1	**Students have knowledge on Physical Health and Physical Structure.**	**K1**

Unit-II		
Objective 2	**Students understand the concepts of art of nurturing and life force.**	

Art of Nurturing the life force and Mind

Maintaining the youthfulness – Postponing their ageing process. Sex & Spirituality – Significance of sexual vital fluid – Married life – Chastity. Ten Stages of Mind. Mental frequency – Methods for concentration.

Outcome 2	**Students exploring art of nurturing and life force.**	**K2**

Unit III		
Objective 3	**To implement the Sublimation of Neutralization Anger**	

Sublimation

Purpose and Philosophy of life. Introspection – Analysis of Thought. Moralization of Desires. Neutralization ofAnger.

Outcome 3	**Students are able to apply the concept of Sublimation of NeutralizationAnger.**	**K3**

Unit IV		
Objective 4	**To compare the human resources development of individual peace and world peace**	

Human Resources Development

Eradication of worries. Benefits of Blessings. Greatness of Friendship.Individual Peace and World Peace.

Outcome 4	**Students are able to analyze the Individual Peace and World Peace.**	**K4**

Unit V		
Objective 5	**Students apprise the law of nature and fivefold culture.**	

Unified force – Cause and Effect system. Purity of Thought and Deed and Genetic Centre. Love and Compassion and Cultural Education – Five Fold Culture.

Outcome 5	**Students learn the skills to know and evaluate the law of nature andfivefold culture**	**K5**

Suggested Readings: -

James Hewitt, (2012). *The Complete Yoga Book - The Yoga of Breathing, Posture and Meditation*. New York:Random House Publisher.

Stephen Sturgess, (2013). *The Yoga book; A practical Guide to Self Realization*. London:

Watkins MediaLimited.

Swami Vishnu Devananda, (2011). *The complete Illustrated Book of Yoga.* USA, Pennsylvania:Potter/Ten Speed/Harmony/Rodale Publisher.

Online Resource:

https://www.hopkinsmedicine.org/health/wellness-and-prevention/9-benefits-of-yoga
https://www.amazon.in/VISION-Dip-Art-Nurturing-Life-Force-Mind-YHE-ebook/dp/B09HV32YL9
https://saispeaks.sathyasai.org/discourse/world-peace-and-individual-peace#:~:text=Similarly%2C%20with%20world%20peace%20(loka,world%20is%20the%20Lord's%20 mansion.

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	S(3)	M(2)	L(1)	L(1)	M(2)	L(1)	L(1)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	L(1)	L(1)	L(1)
CO3	S(3)	S(3)	M(2)	M(2)	L(1)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	M(2)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
CO5	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)
W.AV	2.6	2.4	2.4	2.4	2.2	1.8	2.4	2.4	2	1.9

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M(2)	L(1)	L(1)	M(2)	L(1)
CO2	L(1)	M(2)	L(1)	L(1)	M(2)
CO3	L(1)	L(1)	M(2)	M(2)	L(1)
CO4	M(2)	M(2)	L(1)	L(1)	M(2)
CO5	L(1)	M(2)	M(2)	L(1)	M(2)
W.AV	1.4	1.6	1.4	1.4	1.6

S Strong (3), M Medium (2), Low (1)

Semester - IV					
Core	Course code: 2BV4G5	Introduction to Gender Studies	Practical	**C**	**H/W**
				3	3

Unit - I

Objective 1	To gain knowledge about the importance of Gender identity, Gender roles and Gender Equality.	

Gender Identity: Gender Ideology – Sex Vs Gender – Biological Determinism –Dualism – Reductionism – Objectification – Socialization and Internalization.

Outcome 1	Students have knowledge on Gender identity, Gender ideology and Gender Equality.	K1

Unit-II

Objective 2	Students understand the concepts of gender role

Gender Roles: Division of Labour – Sex Role – Stereotypes – Gender Role – Work –Family and Gender –Motherhood – Production and Reproduction.

Outcome 2	Students exploring gender role in daily life, division of labor and Stereotypes.	K2

Unit III

Objective 3	To implement the Gender Equality and Equity

Gender Equality / Equity: Equality Vs Equity, HDI, GDI and GEM – Gender Inequality in Certain Vital Measures of Development: Sex Ration, Life Expectancy, Literacy Level – Work Participation – Decision Making and Political Participation.

Outcome 3	Students are able to apply the concept of gender equality and equity.	K3

Unit IV

Objective 4	To compare the Physical Differences of Men and Women

Strength of Women: Hormones and Chromosomes – Physical Differences – Record of the Fastest Men and Women in the World – Athelets – Brain and Intelligence – Emotions.

Outcome 4	Students are able to analyze the Physical Differences, Hormones, Chromosomes, Brain and Intelligence.	K4

Unit V

Objective 5	Students appraise the Development Policies Programmes and Women Empowerment

Development Policies and Programmes: WID – WAD – GAD – Approaches: Welfare – AntiPoverty – Efficiency – Equity – Empowerment – Central and State Government Women Development Schemes.

Women Empowerment: Meaning and Concepts, Empowerment Levels – Framework – Empowerment Tools – Capability Approach.

Outcome 5	Students learn the skills to know and evaluate the Women Empowerment, Policies and Programmes.	K5

Suggested Readings: -

Eleanor Leacock. & Leela Dube et al. (1986). *Women, Power and Authority in invisibility and powered.* New Delhi: Oxford University Press India.

Foucault, M. (1981). *The History of Sexuality – an Introduction* (Vol. 1). London: Penguin.

Kapur Promilla, (2001). *Empowering the Indian Women.* New Delhi: Publication Division, Ministry of Information and Broadcasting, Government of India.

Poornima Advani, (2000). *Course Curriculum on Gender Sensitization of Police Officers.* New Delhi: National Commission for Women.

Sahay Sushama, (1998). *Women and Empowerment - Approaches as and Strategies.* New Delhi: Discovery Publishing House.

Selvy Thiruchandran, (2006). *Ideology, Caste, Class and Gender.* Mumbai: Vikas Publishing House. Thilakavathi, G.

& Regina Papa, B. (2003). *Gender Sensitization - Course Material.* Chennai: Tamil Police.

https://www.britannica.com/topic/gender-identity

https://www.plannedparenthood.org/learn/gender-identity/sex-gender-identity/what-are-gender-roles-and- stereotypes

https://www.worldvision.com.au/womens-empowerment

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	S(3)	M(2)	L(1)	L(1)	M(2)	L(1)	L(1)
CO2	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)	M(2)	L(1)	L(1)	L(1)
CO3	S(3)	S(3)	M(2)	M(2)	L(1)	M(2)	S(3)	S(3)	M(2)	M(2)
CO4	M(2)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)
CO5	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)
W.A V	2.6	2.4	2.4	2.4	2.2	1.8	2.4	2.4	2	1.9

S Strong (3, M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO 3	PSO4	PSO5
CO1	M(2)	L(1)	L(1)	M(2)	L(1)
CO2	L(1)	M(2)	L(1)	L(1)	M(2)
CO3	L(1)	L(1)	M(2)	M(2)	L(1)
CO4	M(2)	M(2)	L(1)	L(1)	M(2)
CO5	L(1)	M(2)	M(2)	L(1)	M(2)
W.AV	1.4	1.6	1.4	1.4	1.6

S Strong (3), M Medium (2), Low (1)

Semester – IV					
Core	Course code: 2BS4C1	Introduction to Python Programming Concepts	Theory	**C**	**H/W**
				4	4

Unit - I	
Objective 1	**To remember the problem solving techniques and methods with type of errors**

Planning the Computer Program and Problem solving techniques: Concept of Problem solving, Problem definition, Program design, Debugging, Types of errors in Programming, Documentation. Flow charting, decision table, algorithms, structured, Programming concepts, Programming methodologies viz. Top-down and bottom-up Programming.

Outcome 1	**The Students able to describe the foundation of Problem Solving**	**K1**

Unit-II	
Objective 2	**To understand the structure of python using strings, operators and keywords**

Overview of Programming & Introduction to Python: Structure of a Python Program 1 Elements of Python. Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic Operator, Relation a 1 operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bitwise operator, Increment or Decrement operator).

Outcome 2	**Applying the python program with Strings and Operators with a keyword**	**K3**

Unit III	
Objective 3	**To understand the python program with statements and control statements with looping**

Creating Python Programs: Input and Output Statements, Control Statements (Looping while Loop, for Loop, Loop Control, Conditional Statement-if...else, Difference between break, continue and pass).

Outcome 3	**Designing the python program for control statements using the loop statements**	**K4**

Unit IV	
Objective 4	**Evaluate the structure and function using a arguments**

Structures& Functions: Numbers, Strings, Lists, Tuples, Dictionary, Date & Time, Modules, Defining Functions, Exit function, default arguments

Outcome 4	**Demonstrate the String list and functions with a default arguments**	**K3**

Unit V	
Objective 5	**To Analyze the program concept in object oriented with Exceptions**

Classes, Object-oriented Programming and Exception: Abstract Data Types and Classes, Inheritance, Encapsulation and Information hiding, handling exceptions

Outcome 5	**Computing the object oriented programming with classes and object**	**K4**

Suggested Readings:-(APA Format)

John V Guttag. —Introduction to Computation and Programming Using Python‖,

Prentice Hall of India

T. Budd, Exploring Python, TMH, 1st Ed, 2011 Python Tutorial/Documentation www.python.or2010

Allen Downey, Jeffrey Elkner, Chris Meyers ,How to think like a computer scientist :Learning with Python,Freely available online.2012

Online Resource:

https://www.tutorialspoint.com

https://www.programiz.com

https://www.python.org

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	M (2)	L (1)	L (1)
CO2	M (2)	S (3)	M (2)	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	S (3)
CO3	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	S (3)	M (2)	L (1)
CO4	L (1)	M (2)	S (3)	M (2)	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)
CO5	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)	L (1)	S (3)
W.AV	1.8	2.2	2.4	2.2	1.8	2	1.8	2	1.4	2

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	M (2)	L (1)	M (2)
CO2	M (2)	S (3)	L (1)	S (3)	M (2)
CO3	L (1)	M (2)	S (3)	M (2)	L (1)
CO4	S (3)	M (2)	M (2)	L (1)	S (3)
CO5	M (2)	S (3)	L (1)	S (3)	M (2)
W.AV	2.2	2.4	1.8	2	2

S Strong (3), M Medium (2), Low (1)

Semester - IV					
Core	Course code: 2BS4C2	Computer Networks and Administration	Theory	C 5	H/W 5

Unit - I		
Objective 1	**To remember the careers in computer networking or a related computing field**	
Network hardware - Network software - TCP/IP Reference models – Example Networks: ARPANET -Internet. Physical Layer: Guided Transmission media: twisted pairs - coaxial cable – fibreoptics - Wireless Transmission.		
Outcome 1	**Analyze a complex computing problem and to apply principles ofcomputing**	**K1,K3**

Unit-II		
Objective 2	**To Understand the concepts of the OSI reference model and the TCP/IP reference model**	
OSI Reference Model – The Physical Layer – Data Link Layer – Network Layer – Transport Layer – Session Layer – Presentation Layer – Application Layer. TCP/ IP Protocol Suite: Network Layer – Transport Layer – Application Layer		
Outcome 2	**Learned to work on the OSI models with the use of Internet Protocol**	**K3,K4**

Unit III		
Objective 3	**To analyze the concepts of computer networks, different models and their involvement in each stage of network communication**	
IEEE Standards – The Ethernet – Token Bus – Token Ring – Virtual Circuit Networks – Circuit Switched Networks. Local Area Network: LAN Architecture – LAN Advantages And Services – Characteristics Of A LAN – LAN Topologies. Wireless LANs – Components Of Wireless LANs – Working Of Wireless LANs		
Outcome 3	**Applying the circuit in physical and virtual networks for LAN and WANConnections**	**K2**

Unit IV		
Objective 4	**To Evaluate the network security from various attacks with cryptography functions**	
Network Security: Security Services –Security Requirements and Attacks – Cryptography-Symmetric Key Cryptography- Asymmetric Key Cryptography Confidentiality with Symmetric Encryption – Message Authentication and Hash Functions – Public – key Encryption and Digital Signatures – Basics of IPv4 and IPv6 Security		
Outcome 4	**Demonstrating the cryptographic functions with hash algorithm andencryption key**	**K2, K5**

	Unit V
Objective 5	**To validate the network management for authentication and authorization in the management**
Network Management: The need for network management – Different devices – Different administration – Network Management Stations – Network management protocol. Administrative model – Authentication – Authorization – originating, receiving and listening messages. Network Management Protocol. Configuration - Management- Fault Management - Performance Management – Security Management – Accounting Management-Management Information Base	

Outcome 5	**Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies**	**K3, K1**

Suggested Readings:-

Behrouz A Fourouzan.(2017). Data Communications and Networking. (4ᵗʰEdn). Mcgraw Hill. arshall TRose. AnIntroduction to Networking and Management. (2ⁿᵈEdn). Prentice Hall of India.

William Stallings. (2017). Data and Computer Communications. (10ᵗʰEdn). Pearson Education Pvt., Ltd.

Online Resource:

https://www.mtu.edu/

https://www.coursera.org/

https://www.techopedia.com/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)	M (2)
CO2	M (2)	M (2)	S (3)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)
CO3	S (3)	M (2)	M (2)	S (3)	L (1)	M (2)	M (2)	L (1)	M (2)	S (3)
CO4	M (2)	L (1)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	M (2)	S (3)
CO5	M (2)	M (2)	L (1)	L (1)	S (3)	M (2)	S (3)	M (2)	M (2)	L (1)
W.AV	2.2	2	2.2	1.8	1.6	1.6	2.6	2	1.8	2.2

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	M (2)	S (3)	L (1)
CO2	L (1)	S (3)	S (3)	M (2)	M (2)
CO3	S (3)	M (2)	L (1)	L (1)	S (3)
CO4	M (2)	M (2)	S (3)	S (3)	L (1)
CO5	S (3)	S (3)	M (2)	M (2)	S (3)
W.AV	2.4	24	2.2	2.2	2

S Strong (3), M Medium (2), Low (1)

Semester - IV					
Core	**Course code: 2BS4P1**	**Python Programming Lab**	**Practical**	**C**	**H/W**
				5	**5**

Unit - I	
Objective 1	**To create the python program for arithmetic and string using functions**

- ➢ Write a Program to arithmetic calculation using input functions
- ➢ Write a Program to find leaf or non-leaf year using nested if functions
- ➢ Write a Program using string functions

Outcome 1	**Developing the program for arithmetic and string in the functions**	**K1**

Unit-II	
Objective 2	**To understand the concept of prime number and to find biggest number**

- ➢ Write a Program to find prime number.
- ➢ Write a Program to find biggest number among three numbers.

Outcome 2	**Analyzing the program structure by implementing the prime and biggestnumbers**	**K3,K1**

Unit III	
Objective 3	**To evaluate the concept of program using switch statement and classes**

- ➢ Write a Program to using switch statement to display Monday to Sunday
- ➢ Write a Program using class, method & object

Outcome 3	**Demonstrate the program by using the class and object with switchstatements**	**K2**

Unit IV	
Objective 4	**To create a program for exception handling with using the set and list**

- ➢ Write a Program using Exception handling
- ➢ Write a Program Using set
- ➢ Write a Program Using List

Outcome 4	**Computing the program by using the handling function and set functions**	**K4,K1**

Unit V	
Objective 5	**To validate the concept of array operation and implement with various methods using numpy**

- ➢ Write a program to illustrate array operations using Numpy.
- ➢ Wire a program to implement any 10 methods in Numpy.

Outcome 5	**Analyzing the program by implementing array operation using illustrationmethods**	**K3,K1**

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	M (2)	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	S (3)	L (1)
CO2	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)	M (2)	L (1)	M (2)	M (2)
CO3	L (1)	L (1)	M (2)	S (3)	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)
CO4	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)
CO5	L (1)	M (2)	S (3)	S (3)	M (2)	M (2)	L (1)	M (2)	S (3)	S (3)
W.AV	1.6	2.2	2.4	2.6	1.6	2	1.8	2	2.2	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M (2)	S (3)	S (3)	M (2)	L (1)
CO2	L (1)	M (2)	M (2)	S (3)	S (3)
CO3	M (2)	M (2)	S (3)	S (3)	S (3)
CO4	L (1)	L (1)	M (2)	M (2)	L (1)
CO5	S (3)	S (3)	M (2)	L (1)	M (2)
W.AV	1.8	2.2	2.4	2.2	2

S Strong (3), M Medium (2), Low (1)

Semester - IV					
Core	**Course code: 2BS4J1**	**NSQF Level – 6 Job role Master Trainer for Junior Software Developer(SSC/Q0509) @**	**Practical**	**C**	**H/W**
				4	**4**

Unit - I	
Objective 1	**To remember the concept of software application with designing algorithms and update organization knowledge**

Establish customization requirements for software applications - Identify changes for software applications - Implement changes using standard templates and tools - Unit test cases (UTC) - Execute UTCs and document results –Designing of algorithms – Convert algorithms into code- Access reusable components and tools - Document changes using standard templates and tools – Update Organization''s knowledge base.

Outcome 1	**Revise the application process in algorithm design and organizing the knowledge**	**K2**

Unit-II	
Objective 2	**To understand the problem using flowchart and process the information in organization**

Design solutions to problems using Flow charts - Establish work requirements - Work area clean and tidy - Utilize time effectively - Identify resources - Process confidential information - Adhere to organization's Policies and procedures.

Outcome 2	**To identify the resource using flowchart and organizing policies with procedures**	**K3,K5**

Unit III	
Objective 3	To analyze the basic computer skills by slow learners mechanism and mentor trainees

Formative and summative assessments - Frame mechanism to slow learners – Develop learning strategies - Apply basic computer skills - Schedule corrective sessions - Mentor trainees.

Outcome 3	**Applying the concept of skill based mechanism with learning strategies for slow learner**	**K4**

Unit IV	
Objective 4	**To Evaluate the organization policies and procedures for appropriate people by identifying the problem with colleagues**

Choose resources - Treat confidential information –Organization's policies and procedures - Limits of job role - Obtain guidance from appropriate people - Pass on essential information to colleagues- Explaining the reasons cannot carry out commitments - Identify any problems working with colleagues - Follow the organization's policies and procedures.

Outcome 4	**To validate the confidential information of organization policies and working with colleagues**	**K1, K3**

	Unit V	
Objective 5	**To analyze the emergency procedures in any hazard report with learning development process**	
	Emergency procedures – Any hazards Report to supervisor - Plan learning and development needs - Applyacquired new knowledge and skills	
Outcome 5	**Applying the new knowledge and skills in the emergency procedures**	**K2,K4**

Suggested Readings:-

SSC – NASSCOM – Qualification Pack:https://www.sscnasscom.com/qualification-pack/SSC/Q0509/.
Note – Occupational Standards
SSC/N9001(Manage your work to meetrequirements)
SSC/N9002 (Work effectively withcolleagues)
SSC/N9003 (Maintain a healthy, safe and secure working enviro) SSC/N9004
(Provide data/information in standard formats) SSC/N9005 (Develop your knowledge, skills and competence) SSC/N0506 (Assist in software Construction and Testing) SSC/N0507
(Employ Programming Lab Oriented Pedagogical Skills)SSC/N0508 (Engage PedagogicalSkills as a Master Trainer)

Online Resource:
https://nsdcindia.org/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	L (1)	L (1)	M (2)	M (2)	M (2)	S (3)	S (3)	M (2)	M (2)
CO2	M (2)	L (1)	S (3)	M (2)	S (3)	L (1)	L (1)	M (2)	S (3)	M (2)
CO3	L (1)	M (2)	L (1)	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	L (1)	M (2)	M (2)
CO5	M (2)	M (2)	L (1)	S (3)	S (3)	M (2)	M (2)	L (1)	L (1)	L (1)
W.A V	2	1.6	1.8	2.2	2.2	1.8	2	1.6	2	2

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	M (2)	M (2)	S (3)	M (2)	L (1)
CO2	L (1)	L (1)	S (3)	S (3)	M (2)
CO3	S (3)	S (3)	M (2)	L (1)	L (1)
CO4	L (1)	M (2)	S (3)	M (2)	S (3)
CO5	S (3)	M (2)	L (1)	S (3)	M (2)
W.A V	2	2	2.4	2.2	1.8

S Strong (3), M Medium (2), Low (1)

Semester - V					
General	**Course code: 2BV5G1**	**Entrepreneurship/Start-up Skills**	**Theory**	**C**	**H/W**
				3	3

Unit - I		
Objective 1	**Understand appropriate biz etiquette and biz communication**	
Dynamic Role of Small Business - Starting Small Business - Family Owned Businesses - Forms of SmallBusiness.		
Outcome 1	**Students understand the Professionalism and Various approaches in it.**	**K2**

Unit-II		
Objective 2	**Dress appropriate for different biz occasions**	
Plan and Organize a Business - Becoming the Owner of a Small Business - Planning, Organizing and Managing a Small Business - Right Financing for Business - Market Goods and Services - Developing Marketing Strategies Promoting and Distributing.		
Outcome 2	**Students interpret the different styles of Dressing and eating habits.**	**K4**

Unit III		
Objective 3	**To Making a First Great Impression and personal grooming.**	
Organize and Manage the Business - Manage Human Resources and Diversity in Small Companies - Maintain Good Relationships with Employees and Their Representatives - Operate the Business -Obtaining and Laying Out Operating Facilities - Purchasing, Inventory and Quality Control		
Outcome 3	**Students could be able to distinguish the different styles of leadership and Learn the theories**	**K4**

Unit IV		
Objective 4	**To Business Card Etiquette and conversation techniques.**	
Managing, growing and ending the new venture - Preparing for the new venture launch - early management decisions Managing early growth of the new venture- new venture expansion strategies and issues - Going public - ending the venture		
Outcome 4	**Learners could be able to classify and express the Process of telephoneconversation and could be able to conduct office meeting skills.**	**K2**

Unit V		
Objective 5	**Select a project/product**	
Entrepreneurship Development and Government: Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units- Fiscal and Tax concessions available. Women Entrepreneurs Reasons for low / no women Entrepreneurs their Role, Problems and Prospects		
Outcome 5	**Students critically evaluate the Role of Central Government and StateGovernment in promoting Entrepreneurs**	**K5**

Suggested Readings:-

ISED, (2015). India Start –ups, Skills and Entrepreneurship. India: Institute of Small EnterprisesandDevelopment.

Leon C. Megginson., & Mary Jane Byrd. (2013). Small Business Management - An Entrepreneur'sGuidebook. New York: McGraw-Hill Education.

Nieuwenhuizen (ed), (2010). Basics of Entrepreneurship Series. Cape Town: Juta Limited. Sangaram Keshari Mohanty, (2005). Fundamentals of Entrepreneurship. New Delhi: PHI LearningPvt.Ltd.

Satish Taneja, Entrepreneur Development ", New Venture Creation.

Robert D.Hisrich, Michael P.Peters, " Entrepreneurship Development, Tata McGraw Hill edition

Online Resource: https://easyengineering.net/entrepreneurship-development-senthil/
http://repository.stikesrspadgs.ac.id/56/1/Enterpreneurship%20for%20everyone-257hlm.pdf

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	M (2)	L(1)	L(1)	M (2)	L(1)	M(2)	L(1)	L(1)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)	L(1)	L(1)	M(2)	L(1)	M(2)
CO3	M(2)	S(3)	L(1)	M(1)	M(2)	S(3)	M(2)	L(1)	M(2)	L(1)
CO4	M(2)	M(2)	M(2)	S(3)	M(2)	S (3)	L(1)	M(2)	L(1)	L(1)
CO5	M(2)	L(1)	M (2)	L(1)	M(2)	S (3)	M(2)	M(2)	S(3)	M(2)
W.AV	2.4	2.2	2.0	1.8	2.0	2.4	1.4	1.8	1.6	1.4

S–Strong (3),M-Medium(2),L-Low(1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L(3)	M(3)	S(2)	M(1)	L(1)
CO2	M(2)	L(1)	M(2)	L(2)	S(2)
CO3	S(3)	M(2)	L(2)	M(1)	L(1)
CO4	M(2)	S(1)	M(2)	L(3)	M(2)
CO5	S(3)	M(1)	L(1)	S(3)	M(2)
W.AV	2.6	1.6	1.8	2.0	1.6

S–Strong(3),M-Medium(2),L-Low(1)

Semester - V						
General	Course code: 2BV5G2	Quantitative Aptitude #	Practical	Credit: 2	H/W: 2	

Unit - I

Objective 1	To improve verbal ability skill and communicative skill of the students.	
Numbers, HCF, LCM, Decimal Fractions, Simplification, Square Roots, cube roots, averages, Problems in numbers and ages		
Outcome 1	It will improve verbal ability skill among students.	K1

Unit-II

Objective 2	To enhance the analytical skill and problem solving skill of the students	
Surds, Indices, Percentages, Profit and Loss, Ratio and Proportion, Partnership, ChainRule, Time andWork, Pipes and Distances.		
Outcome 2	Students will communicate effectively & appropriately in real lifesituation	K2

Unit III

Objective 3	Enrich their knowledge and to develop their logical reasoning thinking ability	
Time and distance, Problems on Trains, Boats and Streams, Allegation, Simple Interest, Compound Interest, Logarithms, Area		
Outcome 3	Analyze the Problems logically and approach the problems in a differentmanner.	K4

Unit IV

Objective 4	To prepare and explain the fundamentals related to various possibilities and Probabilities related to quantitative aptitude.	
Volume and Surface Area, Races and Games of Skill, Calendar, Clocks, Stocks and Shares, Permutation and Combination, Probability.		
Outcome 4	Solve questions related to Time and distance and time and work etc.from company specific and other competitive tests.	K1,K3

Unit V

Objective 5	To make them prepare for various public and private sector exams & placement drives	
True discount, Banker''s Discount, Height and Distances, Odd man out and Series, Tabulation, Bar graphs, Pie charts, Line Graphs.		
Outcome 5	Students will be able to prepare for various public and private sectorexams & placement drives.	K5

Suggested Readings:-
Aggarwal, R S. (2021). Quantitative Aptitude for Competitive Examinations. New Delhi:S Chand & Co.Ltd.Barron's, (2016). Guide for GMAT. New Delhi: Galgotia Publications.

Online Resource: https://www.geeksforgeeks.org/
https://www.indiabix.com/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	S (3)	M(2)	S (3)	L (1)	M (2)	M (2)	L (1)	M (2)
CO2	S (3)	L (1)	M (2)	S (3)	L (1)	S (3)	M (2)	S (3)	M (2)	L (1)
CO3	L (1)	S (3)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	M (2)	L (1)
CO4	L (1)	M (2)	M (2)	M (2)	L (1)	S (3)	L (1)	S (3)	S (3)	M (2)
CO5	M (2)	L (1)	L (1)	S (3)	M (2)	M (2)	S (3)	S (3)	S (3)	S (3)
W.AV	2	1.8	2.2	2.4	1.6	2	2.2	2.6	2.2	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L (1)	M (2)	S (3)	M (2)	S (3)
CO2	M (2)	M (2)	S (3)	L (1)	S (3)
CO3	S (3)	L (1)	L (1)	M (2)	M (2)
CO4	M (2)	S (3)	M (2)	S (3)	L (1)
CO5	L (1)	S (3)	M (2)	L (1)	M (2)
W.AV	1.8	2.2	2.2	1.8	2.2

S Strong (3), M Medium (2), Low (1)

Semester - V					
General	Course code: 2BV5G3	**Fundamentals of Digital Privacy**	Theory	C:2	H/W: 2

Unit - I

Objective 1	To impart fundamental understanding about the threads in the Digital World

Introduction to Digital Safety: Basics of Cyber Safety – Importance of cyber safety – Internet environments – Not all information is valid – Think before click – Reading URLs – Faking sites with URLs – Privacy – Encryption – Monitoring online activity – Identifying the devices use – Mobile devices – Physical Security. **Software problems and solutions:** Malware and Viruses – Antivirus – Antimalware - Staying Up-To-Date -Disaster Recovery.

Outcome 1	Get the knowledge to analyze and understand the threads in the digitalplatforms	K2

Unit-II

Objective 2	To understand various techniques to protect the privacy in digital platforms and social media

Before connecting to the Internet: Securing Web Browser - Wi-Fi Security and Safety – Passwords: Strong Passwords - Changing Passwords - Password Policies - Setting Up Security Questions - Remembering Passwords – Tools – Firewalls. **Email safety and security:** Email Protection: Choosing an Email Client – Important to Block Remote Content - Dangers of an Attachment - Security Settings on Email Sites – Gmail Security - Encryption

Outcome 2	Protect the data, identity and privacy across the various digital platformsand social media	K4

Unit III

Objective 3	To understand availability of robust, strong cryptography

Cybercrime: Cybercriminal - Identity Theft - Social Engineering – Hacking: Hijacking/Hacked Accounts - Defaced Sites - Common Methods – Tools - Botnets and Rootkits - Protecting Yourself – Scams. **Protecting on social media**: Securing Social Media - Securing Facebook - Securing Twitter - Securing YouTube

Outcome 3	Knowledge for kids protection and technology beyond the people concer	K3

Unit IV		
Objective 4	**To Analyze for online jobs and protecting the reputations from security breach**	
Finding a job online: Looking for Work Online: Fraudulent Job Posts - Research the Company – Recruiters - Background and Credit Checks - Interviews - Online Resumes: Online Applications - Clean Up Your Digital Presence - Work-at-Home Scams - Securing LinkedIn. **Protecting your reputation**: Finding Yourself - Maintaining Privacy - Think Twice, Post Once - The Real World and Cyberspace - What to Do After a Security Breach - Digital Legacies.		
Outcome 4	**Computing the jobs in online and learn to secure the security breach**	**K1**
Unit V		
Objective 5	**To Evaluate the technology by protecting from persons and kids by cyber bullying**	
Beyond technology-dealing with people: Netiquette – Anonymity - Annoying and Abusive People - Online Chat - Meeting People in Person - Protecting Yourself. **Protecting your kids**: Passwords for Kids - Search Engines - Parental Controls – Location - Talking About What''s Inappropriate – Cyberbullying - Online Predators – Privacy.		
Outcome 5	**Revising the protected technology for kids in online predators by cyber bullying**	**K3**
Suggested Readings:- John Sammons, Michael Cross. (2017). *The Basics of Cyber Safety Computer and Mobile Device Safety MadeEasy.* (1st Edn.). Syngress - Elsevier. Rohit srivastwa (2020) BPB publications – My Data My Privacy My Choice HarperCollins; 1st edition (21 June 2018) - Privacy 3.0: Unlocking Our Data- Driven Future Denny Cherry. (2014). *The Basics of Digital Privacy: Simple Tools to Protect Your Personal Information andYour Identity Online*. (1st Edn). Syngress - Elsevier.		
Online Resource: https://www.scribd.com/ https://www.kobo.com/		
K1-Remember | **K2 - Understand** | **K3 - Apply** | **K4- Analyze** | **K5 - Evaluate** | **K6 – Create**		

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	M (2)	L (1)	M (2)	S (3)	M (2)	L (1)	M (2)
CO2	L (1)	M (2)	M (2)	S (3)	S (3)	L (1)	M (2)	S (3)	M (2)	L (1)
CO3	M (2)	S (3)	S (3)	L (1)	M (2)	S (3)	L (1)	S (3)	S (3)	S (3)
CO4	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)	S (3)	M (2)	L (1)	S (3)
CO5	M (2)	L (1)	L (1)	S (3)	S (3)	L (1)	M (3)	L (1)	M (2)	L (1)
W.AV	2.2	2.2	1.8	2.2	2.2	2	2.4	2.2	1.8	2

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	M (2)	L (1)	S (3)
CO2	M (2)	M (2)	L (1)	S (3)	S (3)
CO3	S (3)	S (3)	S (3)	L (1)	L (1)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	L (1)	L (1)	M (2)	S (3)	S (3)
W.AV	2.2	1.8	2	2.2	2.4

S Strong (3), M Medium (2), Low (1)

		Semester - V			
General	**Course code: 2BV5G4**	**Network Configuration - Lab**	**Practical**	**C:3**	**H/W: 3**

Unit - I		
Objective 1	**To construct networks cabling and configuring the IP addresses**	
➢ Networks Cabling (Practical) ➢ IP Address Configuration		
Outcome 1	**Implementing the cable in the system and ip addresses was configured in the same time**	**K2**
Unit-II		
Objective 2	**To construct a simple network topology on Packet Tracer**	
➢ Building a LAN with HUPs and Switches ➢ Router Configuration		
Outcome 2	**Designing the HUP and switches with the configuration of Router**	**K4**
Unit III		
Objective 3	**To create the Route Configuration with the router and wireless connection on the same Route**	
➢ Static Route Configuration on Router ➢ Wireless connection using packet tracer		
Outcome 3	**Designing the wireless connection with the static Route of the packet tracer**	**K3**
Unit IV		
Objective 4	**To analyze the concept of testing two hosts with the ping option**	
➢ Test the connectivity between two hosts. ➢ Test all options of ping.		
Outcome 4	**Applying the connectivity option with the testing features with the help ofping operation**	**K5,K2**
Unit V		
Objective 5	**To Evaluate and Configure LAN and FTP.**	
➢ Transfer files between systems in LAN using FTP Configuration ➢ Sharing printer using LAN.		
Outcome 5	**Demonstrate the LAN and FTP configuration using the file transfers**	**K3**

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	M (2)	S (3)	S (3)	M (2)	L (1)	M (2)	M (2)	L (1)	S (3)
CO2	L (1)	L (1)	M (2)	M (2)	S (3)	S (3)	M (2)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	S (3)	M (2)	M (2)
CO4	S (3)	M (2)	M (2)	S (3)	L (1)	L (1)	M (2)	S (3)	L (1)	M (2)
CO5	L (1)	L (1)	M (2)	S (3)	S (3)	M (2)	L (1)	M (2)	M (2)	L (1)
W.A V										

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	S (3)	S (3)	S (3)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)
CO3	S (3)	S (3)	M (2)	M (2)	L (1)
CO4	S (3)	M (2)	L (1)	L (1)	S (3)
CO5	L (1)	L (1)	M (2)	M (2)	L (1)
W.A V	2.4	1.8	2.2	2.2	2

S Strong (3), M Medium (2), Low (1)

Semester - V					
Core	**Course code: 2BS5C1**	**Programming with Java**	T	**C**	**H/W**
				4	**4**

Unit - I	
Objective 1	**To remember how to implement object-oriented designs with Java.**

Introduction to Java - Features of java - JDK Environment & tools like (java, javac, applet viewer, java doc, jdb) - OOPs Concepts – Class Abstraction, Encapsulation, Inheritance, Polymorphism -Difference between C++ and JAVA -Structure of java program -Data types ,Variables ,Operators ,Keywords ,Naming Convention- Decision Making (if, switch)-Looping(for, while) -Type Casting -Array-Types -String - Arrays ,Methods. –String Buffer class.

Outcome 1	**Acquire knowledge themselves in the area of java with JDKEnvironment and OOPS Concept**	**K2**

Unit-II	
Objective 2	**To understand the fundamental concepts of Object-Oriented programming with Java language**

Classes, Objects and Methods: Classes and Objects- Constructors- `Method Overloading- Static Members- Inheritance- Overriding Methods- Final Variables, Final Methods and Final Classes-Finalizer Method- Abstract Methods and Abstract Classes- Visibility Control- Arrays- Strings.

Outcome 2	**Designing the classes and objects for constructor class and inheritancemethods**	**K3**

Unit III	
Objective 3	**To analyze the concept of Applet with its development and execution of the graphics methods**

Applets: The Life Cycle of an Applet – The Applet Class – Development and Execution of a Simple Applet – Syntax of Applet Tag – Methods in the Graphics Class. Abstract Windowing Toolkit: Events – Listeners – EventHandling Methods.

Outcome 3	**Demonstrate the concept of Applet in its environment with simple executionof applet tag and windows toolkit**	**K1,K4**

Unit IV	
Objective 4	**To understand the facilities of Java language such as Exception handling**

Exception Handling: Default Exception Handling – Exception and Error Classes – Catch Block Searching Pattern – „Throw" Statement – „Throws" Statement – Custom Exceptions. Threads: Life Cycle of a Thread – Creating and Running Threads – Methods in the Thread Class – Setting the priority of a thread – Synchronization – Dead Lock – Inter Thread Communication

Outcome 4	**Preparing the concept of exception handling for a throw statement andmethods with the thread class.**	**K4**

	Unit V

Objective 5	**To Analyze about the input and output stream with database connectivity**

I/O Streams: Input Stream and Output Stream classes – Reader and Writer classes – Data Output Stream andData Input Stream Classes. Database Connectivity: JDBC-DBC Connection.

Outcome 5	**Using the database connectivity from the given input and output stream which includes the class data**	**K5**

Suggested Readings:-

UNIT I, II) E.Balagurusamy. *Programming with JAVA*, (6th Edn)(2019). New Delhi: Tata McGraw Hill.

(UNIT III, IV, V)C.Muthu. (2011). *Programming with JAVA*. (2nd Edn).Vijay Nicole .Imprints Private Limited, Chennai. Herbert Schildt. (2020). *Java the complete reference*. (11thEdn.) Tata McGraw-Hill. Publishing CompanyLimited.

Online Resource:
https://www.javatpoint.com/
https://www.javatpoint.com/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	L (1)	S (3)	M (2)	S (3)	L (1)	M (2)	M (2)	L (1)
CO2	M (2)	M (2)	L (1)	S (3)	M (2)	S (3)	M (2)	S (3)	L (1)	S (3)
CO3	L (1)	L (1)	M (2)	S (3)	M (2)	S (3)	S (3)	M (2)	S (3)	M (2)
CO4	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	L (1)
CO5	S (3)	L (1)	S (3)	L (1)	S (3)	M (2)	L (1)	L (1)	L (1)	S (3)
W.A V	2.2	1.8	1.6	2.4	2	2.4	1.8	2.2	1.8	2

S Strong (3), M Medium (2), Low (1)

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Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	M (2)	S (3)	L (1)	L (1)	M (2)
CO2	S (3)	M (2)	S (3)	S (3)	L (1)
CO3	S (3)	M (2)	M (2)	M (2)	S (3)
CO4	L (1)	S (3)	L (1)	S (3)	M (2)
CO5	M (2)	L (1)	S (3)	L (1)	S (3)
W.A V	**2.2**	**2.2**	**2**	**2**	**2.2**

S Strong (3), M Medium (2), Low (1)

Semester - V					
Core	Course code: 2BS5E1	Optimization Techniques	Theory	C	H/W
				4	4

Unit - I	
Objective 1	To remember the application of optimization techniques with the linear programming problems

Optimization Techniques: Introduction - Definition – Advantages – Limitations – Applications. **Linear Programming:** Definition - Central Problem of linear Programming various definitions included Statements of basic theorem and also their properties, simplex methods, primal and dual simplex method: Definition – rules
Involved in solving by simplex method - Algorithm – Problem solving.

Outcome 1	Revising the techniques with its advantages of linear programming and its Basic theorem	K3

Unit-II	
Objective 2	To understand about the various problems such as Transport problem , Tic-Tac problem and Assignment problem

Transport Problem: Definition – Algorithm – Problem solving, **Tic-Tac Problem:** Definition – Algorithm – Problem solving and its solution. **Assignment Problem:** Definition – Algorithm – Problem solving and its solution.

Outcome 2	Applying the solution for the following problems such as transport and assignment problems	K2

Unit III	
Objective 3	To apply the graphical method formulation using the linear programming problem step by step

Graphical Method Formulation: Definition – steps involved in Graphical Method Formulation – problem solving. Linear Programming Problem - steps involved in solving Linear Programming Problem – Problem solving.

Outcome 3	Demonstrating the graphical methods with the linear programming problem concepts	K4

Unit IV	
Objective 4	To Analyze the difference between PERT and CPM with the Arrow networks and various floating activities

PERT & CPM: Basic differences between PERT and CPM.-Arrow Networks, time estimates, Earliest expected time -Latest – allowable occurrences time -Forward Pass Computation Backward Pass Computation- Representation in Tabular Form - Critical Path - Probability of meeting scheduled date of completion, Calculation on CPM network- Various floats for activities

Outcome 4	Comparing the differences between PERT and CPM with the calculation on CPM networks and computations	K1,K3

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Unit V		
Objective 5	**To Evaluate the Concept of Job sequencing with the Johnson algorithm with sequencing problem**	
Job Sequencing: Introduction, solution of sequencing problem Johnson''s algorithm for „n'' jobs through machines		
Outcome 5	**Using the job sequencing problem for the following solutions with thehelp of Johnsons algorithms**	**K3, K5**
Suggested Readings:-		
J.K. Sharma. (2012). *Operations Research: Theory and Applications*, (5th Edn). Mac Millan.		
P.K. Gupta and D.S. Hira. (2015). *Operations Research*. S.Chand & Co.		
A.K.Malik / S.K.Yadav (2020) Dreamtech Press, Viley - *Optimization Techniques* Laxmi Publications		
S.S. Rao . *Optimization Theory and Application*. Wesley Eastern.		
Online Resource: **https://www.britannica.com/** **https://www.pre-scient.com/**		
K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	L (1)	M (2)	L (1)	S (3)	S (3)	L (1)	M (2)	M (2)
CO2	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)	M (2)	S (3)	S (3)	L (1)
CO3	M (2)	L (1)	S (3)	S (3)	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)
CO4	M (2)	S (3)	M (2)	L (1)	S (3)	S (3)	S (3)	S (3)	M (2)	L (1)
CO5	M (2)	L (1)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	S (3)	M (2)
W.A V	2	1.8	2	2.4	2.2	2.4	2.2	2	2.2	1.6

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	L (1)	M (2)	M (2)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)
CO3	L (1)	S (3)	M (2)	L (1)	S (3)
CO4	M (2)	M (2)	S (3)	L (1)	M (2)
CO5	L (1)	S (3)	M (2)	M (2)	L (1)
W.A V	1.8	2.2	2.2	1.8	2

S Strong (3), M Medium (2), Low (1)

Semester - V					
Core	Course code: 9BS5E2	Discrete Mathematics	Practical	**C**	**H/W**
				5	5

Unit - I

Objective 1	To remember the set theory and set operation for the fundamental products with Inclusion and Exclusion	
Set theory-Introduction-Set & its Elements-Set Description-Types of sets- Venn-Euler Diagrams- Setoperations & Laws of set theory-Fundamental products-partitions of sets- minsets- Algebra of sets and Duality-Inclusion and Exclusion principle		
Outcome 1	Revised the basics of Algebra and set theory fundamentals with inclusion and exclusion	K1

Unit-II

Objective 2	To understand the concept of mathematical logic with the argument function for prediction	
Mathematical logic – Introduction- prepositional calculus –Basic logical operations- Tautologies-Contradiction-Argument-Method of proof- Predicate calculus.		
Outcome 2	Compute the method of mathematical logic for prediction using a argumentfunction	K2

Unit III

Objective 3	To understand the following relations for the invertible functions and composition function	
Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.		
Outcome 3	Analyzed the both invertible and composition function with set operation relation	K1, K4

Unit IV

Objective 4	To analyze the regular expression with finite state machine of grammar types	
Languages – Operations on languages – Regular Expressions and regular languages – Grammar – Types ofgrammars – Finite state machine – Finite – State automata		
Outcome 4	Compared the languages with other operations and expression with typesof grammars	K1, K3

	Unit V
Objective 5	**To evaluate the graph theory for sub graphs in binary trees in representing general trees**
	Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs – Representation of graphs in compute memory - Trees – Properties of trees – Binary trees – traversing Binarytrees – Computer Representation of general trees.

Outcome 5	**Demonstrate the graph theory and represent the binary trees in generalway**	**K2, K4**

Suggested Readings:-
Dr M. K. Venketaramen, Dr N.Sridharan & N.Chandarasekaran *Discrete Mathematics*. Chennai: TheNational publishing Company.

J.K. Sharma. (2015). *Discrete Mathematics. (*4th Edn). – Laxmi Publications,

J. P Tremblay, R Manohar. (2001). *Discrete Mathematics Structures with Applications to computer science.* (1[st]Edn). Mc Graw Hill International.

Online Resource:
https://dokumen.tips/documents/discrete-mathematics-venkataramanpdf.html?page=1 https://brilliant.org/wiki/discrete-mathematics/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)	S (3)	M (2)	M (2)
CO2	M (2)	M (2)	S (3)	S (3)	M (2)	L (1)	S (3)	L (1)	L (1)	L (1)
CO3	L (1)	S (3)	M (2)	M (2)	L (1)	M (2)	S (3)	S (3)	L (1)	M (2)
CO4	M (2)	L (1)	M (2)	L (1)	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)
CO5	L (1)	L (1)	S (3)	S (3)	M (2)	S (3)	M (2)	L (1)	S (3)	L (1)
W.A V	1.8	1.8	2.2	2.2	2	2.2	2.2	2	1.8	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO 2	PSO3	PSO 4	PSO 5
CO1	S (3)	M (2)	S (3)	M (2)	L (1)
CO2	L (1)	M (2)	S (3)	S (3)	M (2)
CO3	M (2)	S (3)	L (1)	L (1)	M (2)
CO4	L (1)	M (2)	S (3)	L (1)	S (3)
CO5	M (2)	L (1)	L (1)	M (2)	M (2)
W.AV	1.8	2	2.2	1.8	2

S Strong (3), M Medium (2), Low (1)

Semester - V					
Core	Course code: 2BS5P1	Programming with Java – Lab	Practical	C 5	H/W 5

Unit - I	
Objective 1	**To create the program with class and object for both constructor and destructor**

- Creating simple Classes and Objects.
- Creating Constructor and Destructor.

Outcome 1	**Revising the concept of class and object with constructor and destructor**	**K3**

Unit-II	
Objective 2	**To understand the illustration of the structures and inheritance with array functions**

- Program to illustrate control structures (if-then, while, switch).
- Program to illustrate the concept of arrays (creation, initialization and processing).
- Program to illustrate Constructor and its overloading.
- Program to illustrate Inheritance and Packages.
- Program to illustrate Interface and static methods.

Outcome 2	**Computing the constructor overloading with the interface and also withinheritance concepts**	**K1, K2**

Unit III	
Objective 3	**To analyze about the creation and implementation of packages with a copy constructor**

- Working with Copy Constructor.
- Creation and implementation of Packages.

Outcome 3	**Applying the program concept for copy constructor and implement with itspackage**	**K4**

Unit IV	
Objective 4	**To evaluate the illustration program for exception handling and file handling**

- Program to illustrate Exception Handling Technique.
- Program to illustrate to input/output streams.
- Program to illustrate File handling technique.

Outcome 4	**Demonstrating the technique for exception handling and input/ outputstreams**	**K5**

Unit V	
Objective 5	**To create a program for java applets and drawing a image with applet**
	➤ Drawing images using Applet. ➤ Program to illustrate simple Java applets.

Outcome 5	**Using the concept of applet and illustrating the java applets**	**K3, K5**

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	M (2)	L (1)	S (3)	S (3)	L (1)	S (3)	M (2)	S (3)	L (1)
CO2	S (3)	L (1)	M (2)	M (2)	M (2)	S (3)	L (1)	S (3)	M (2)	M (2)
CO3	M (2)	S (3)	L (1)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	S (3)
CO4	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)	M (2)	L (1)	S (3)	M (2)
CO5	M (2)	M (2)	L (1)	S (3)	S (3)	M (2)	M (2)	L (1)	S (3)	M (2)
W.AV	**2.4**	**2**	**1.4**	**2.4**	**2.2**	**1.8**	**1.8**	**2**	**2.6**	**2**

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M (2)	S (3)	M (2)	L (1)	M (2)
CO2	S (3)	S (3)	L (1)	M (2)	S (3)
CO3	L (1)	M (2)	S (3)	S (3)	M (2)
CO4	M (2)	S (3)	L (1)	L (1)	S (3)
CO5	M (2)	L (1)	S (3)	S (3)	M (2)
W.AV	**2**	**2.4**	**2**	**2**	**2.4**

S Strong (3), M Medium (2), Low (1)

Semester - V						
Core	**Course code: 2BS5P2**	**Mobile Application Development (Android)**		**Practical**	**C**	**H/W**
					5	**5**

Unit - I	

Objective 1	**To remember the installation of android studio and developing the application**

- Installation of Android studio
- Development of Hello World Application

Outcome 1	**Revising the application for developing and installing the android studio**	**K3**

Unit-II	

Objective 2	**To create the application for android using intent**

- Create an application that takes the name from a text box and shows hello message along with thename entered in text box, when the user clicks the OK button
- Design an android application Send SMS using Intent

Outcome 2	**Computing the following application for creating a text box in androidapplication**	**K2**

Unit III	

Objective 3	**Analyze and create a form for particular data and develop a android application using fragments**

- Create a screen that has input boxes for User Name, Password, Address, Gender (radio buttons for male and female), Age (numeric), Date of Birth (Date Picket), State (Spinner) and a Submit button. On clicking the submit button, print all the data below the Submit Button (use any layout)
- Create an android application using Fragments

Outcome 3	**Demonstrate the application in android for the following form creation**	**K1, K4**

Unit IV	

Objective 4	**To apply the design in android for creating a webpage using the radio buttons**

- Design an android application to create page using Intent and one Button and pass the Values from oneActivity to second Activity
- Design an android application Using Radio buttons

Outcome 4	**Computing the given design and manipulate the web page with usingvarious button**	**K2**

Unit V	
Objective 5	**To Evaluate the registration application with following data base and develop a android application with menu function**
	➢ Design an android application with menu ➢ Create a user registration application that stores the user details in a database table.

Outcome 5	**Predicted the design and demonstrated the web page with following menu buttons**	**K1, K3**

Suggested Readings: Holla, Suhas, and Mahima M. Katti. "Android based mobile application development and its security." *International Journal of Computer Trends and Technology* 3.3 (2012): 486-490.

Online Resources:
https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=7ccdfdd3138014400a854954325d54dbb7447ead

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	M (2)	L (1)	S (3)	M (2)	L (1)	M (2)	M (2)	L (1)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)
CO3	L (1)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	S (3)	M (2)	M (2)
CO4	S (3)	S (3)	M (2)	L (1)	S (3)	M (2)	S (3)	M (2)	S (3)	L (1)
CO5	M (2)	L (1)	S (3)	L (1)	M (2)	S (3)	L (1)	M (2)	S (3)	M (2)
W.A V	2.2	1.8	2.6	1.8	2.6	2	1.8	2.2	2.6	1.6

S Strong (3), M Medium (2), Low (1)

Alagappa Institute of Skill Development   B.Voc. Software Development
Alagappa University

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	M (2)
CO2	M (2)	L (1)	S (3)	S (3)	L (1)
CO3	L (1)	M (2)	S (3)	M (2)	M (2)
CO4	M (2)	L (1)	M (2)	S (3)	S (3)
CO5	S (3)	M (2)	M (2)	S (3)	L (1)
W.A V	2.2	1. 8	2.4	2.4	1.8

S Strong (3), M Medium (2), Low (1)

Semester - V					
Core	Course code: 2BS5P3	Domain Study @	Practical	C	H/W
				2	2

Course Objectives	➢ To enable the students to apply their theoretical knowledge ➢ enable the students to apply their with specific domain ➢ To analyses the domain to identify the problem ➢ To make the students to understand and analyze the problems find out in therespectivedomains ➢ To make the students to understand various domains to

Unit - I

Each student will be assigned to an Internal guide by the Director, Alagappa Institute of Skill Development at the starting of IV semester. The students have to choose a particular domain / application area which is practiced in their respective Industries in consultation with the Internal guide. The students have to study their domain extensively in consultation of the Internal guide at the outside of the class hours throughoutthe semester. This study would covers, characteristics and functionalities of the domain / area, analysis, problem identification, design of solution and etc. At the end of the semester, the student should prepare a domain study report (not less than 30 pages, A4 size) and submit the same to the Internal guide for evaluation. The Internal guide will evaluate the domain study report for 25 marks and this will be treated as Internal marks. The external evaluation for the domain study will be done by conducting viva-voce for 75 marks by the Department with two examiners and the cumulative 100 marks will be given by the Department.

Course Outcomes	After Completing this course, the students are able to: 1. Students should be able to classify & demonstrate proficiency in softwaredevelopment, including programming languages, frameworks, and tools relevant to the project. – K2 2. Students should be able to analyze software requirements, design solutions,and create appropriate architecture and design documentation.- K1 3. Students should determine effective collaboration and communicationskills within the project team and with stakeholders.- K2 4. Students should explain critical thinking abilities while resolving technicalchallenges and making decisions related to the project. – K3 5. Students should create comprehensive project documentation, including user manuals and technical guides, to aid in the understanding and maintenance of the developed software. – K4

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	M(2)	L(1)	S(3)	S(3)	L(1)	M(2)	S(3)	S(3)	L(1)
CO2	L(1)	M(2)	S(3)	L(1)	S(3)	M(2)	M(2)	L(1)	S(3)	S(3)
CO3	M(2)	L(1)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	L(1)	S(3)
CO4	S(3)	M(2)	M(2)	L(1)	S(3)	S(3)	S(3)	M(2)	M(2)	L(1)
CO5	S(3)	S(3)	M(2)	M(2)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)
W.A V	2.2	2	2.2	1.8	2.8	1.8	2.4	1.8	2.4	2

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	L(1)	M(2)	S(3)	S(3)
CO2	S(3)	M(2)	M(2)	S(3)	S(3)
CO3	M(2)	L(1)	S(3)	M(2)	M(2)
CO4	S(3)	S(3)	S(3)	M(2)	M(2)
CO5	S(3)	M(2)	M(2)	L(1)	S(3)
W.A V	2.8	1.8	2.4	2.2	2.6

S –Strong (3), M-Medium (2), L- Low (1)

Semester - VI					
General	Course code: 2BV6G1	Corporate Grooming and Finishing skills @	Practical	**C** 4	**H/W** 4

Unit - I

Objective 1	Understand appropriate biz etiquette and biz communication

Professionalism: Professional approach & behavior – rational vs. emotional decisions – analysis of self- competence and self- confidence – qualities of an effective executive

Outcome 1	Students understand the Professionalism and Various approaches in it.	K2

Unit-II

Objective 2	Dress appropriate for different biz occasions

Corporate Etiquette: Dressing occasions – formal – semi formal and informal – Eating habits– Tablemanners – Body language: Kinesics and proximity

Outcome 2	Students interpret the different styles of Dressing and eating habits.	K4

Unit III

Objective 3	To Making a First Great Impression and personal grooming.

Leadership and Power: Meaning – Importance – Leadership styles – Theories – LeadersVs Managers – Sourcesof power – Power centers – Power and Politics.

Outcome 3	Students could be able to distinguish the different styles of leadership andLearn the theories.	K4

Unit IV

Objective 4	To Business Card Etiquette and conversation techniques.

Front Office Skills: Reception and Greeting – Telephone manners – effective visitor appointments management –Preparation to attend office meetings – preparation to hold office meetings

Outcome 4	Learners could be able to classify and express the Process of telephoneconversation and could be able to conduct office meeting skills.	K2

Unit V

Objective 5	To develop body language and networking.

Documentation: Objectives, Reportmethods, and Report for media? writing, How to write minutes, Preparation

Outcome 5	Students could be able to Evaluate the report writing methods and tointeract to media.	K5

Suggested Readings: Samsudin, Aidarohani. *Effectiveness of Finishing School Programme in Enhancing Graduates Employability*. Diss. Universiti Utara Malaysia, 2009.

Online Resources: https://etd.uum.edu.my/3740/1/s800024.pdf

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	L (1)	L (1)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO5	L (1)	L (1)	-	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
W.A V	1.8	1.6	1.2	1.2	1.6	3	1.6	2	1.6	1

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	M (2)	M (2)	M (2)	M (2)
CO3	M (2)	M (2)	M (2)	L (1)	M (2)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	M (2)	L (1)	M (2)	S (3)	M (2)
W.A V	2	1.8	2	2	1.8

S Strong (3), M Medium (2), Low (1)

Semester - VI					
General	Course code: 2BV6G2	**Fundamentals of Digital Marketing**	**Theory**	**C**	**H/W**
				4	4

Unit - I	

Objective 1	**To remember the digital evolution of marketing with its business strategy**

Digital evolution of marketing - The changing face of advertising- The Technology behind Digital Marketing - Strategic thinking- Digital Marketing Strategy- business and digital marketing – Understanding the digital consumer.

Outcome 1	**Revise the digital evolution by changing the face of advertising in modern technology**	**K2**

Unit-II	

Objective 2	**To understand the concept of the digital world website for hosting and developing the web pages with cost estimate and budget**

Digital World-website-the hub of digital marketing world- Building an effective website- Choosing domain name-Hosting websites home on the internet- How to choose a web designer/developer-Arranging information writing effective web content -website intelligence - Way to digital marketing success - Information measured – Digital Marketing Budgeting - resource planning - cost estimating - cost budgeting - cost control

Outcome 2	**Discussing the website hosting and web content from designer for the digital marketing purpose**	**K1**

Unit III	

Objective 3	**To apply the knowledge in sending the mail with the measurement and using the dash board all in one place**

E-Mail Marketing - The new direct mail- Planning campaign - Measuring success-vital component of e- mail marketing - Social media and online consumer engagement – social media - Different forms of social media - Social media dashboard - All update in one place- Rules of engagement - Adding social media to own site.

Outcome 3	**Analyzing the dashboard information in e-mail marketing with online consumer engagement**	**K3**

Unit IV	

Objective 4	**To evaluate the online channels and monitoring the conversation with online image with affiliated marketing**

Online PR and Reputation management - Fostering a positive online Image - Promoting business through online channels - Monitoring the conversation - Reputation management - Affiliate marketing and strategic partnerships - Recognizing opportunities for strategic partnerships - Affiliate marketing.

Outcome 4	**Demonstrate the conversation of marketing in recognizing opportunities in partnerships**	**K4**

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	Unit V	
Objective 5	**To evaluate the payment systems in social media with cyber wallets and processing the legal issues with intellectual property rights**	
	Payment Systems and web customers, Social, ethical and legal aspects- cyber wallets, mobile payment, NFC, payment service providers – PayPal, PayTM etc.- payment gateways- standards, integration, banking and legal issues - Access, adaptation and attitudes. Customer satisfaction and loyalty - Privacy, Intellectual Property Rights, trademarks, copyrights, network innovations and patents.	
Outcome 5	**Using the payment gateway for the banking and social aspects with customer satisfaction and loyalt**	**K2,K5**

Suggested Readings:-

Anmarie Hanlon, (2019). Digital Marketing - Strategic planning and Integration. New Delhi:SAGEIndia Publication.

Damian Ryan, Kogan (2020) *Understanding Digital Marketing A Complete Guide to EngagingCustomersand Implementing Successful Digital Campaigns.*

Ian Dodson, (2016). The Art of Digital Marketing - The Definitive Guide to Creating StrategiesTargetedand Measurable Online Campaigns. New Delhi: Wiley India Publications.

E-Commerce: An Indian Perspective Paperback – Import, 30 Oct 2019-by P. T. Joseph.

E-Commerce: An Indian Perspective Paperback – Import, 10 Oct 2019 -by S. J.P. T. Joseph.

Online Resource:
https://www.mygreatlearning.com/
https://www.classcentral.com/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	M (2)	L (1)	S (3)	M (2)	S (3)	L (1)	L (1)	M (2)
CO2	M (2)	M (2)	L (1)	M (2)	L (1)	S (3)	S (3)	M (2)	M (2)	L (1)
CO3	L (1)	S (3)	M (2)	S (3)	S (3)	L (1)	M (2)	S (3)	S (3)	L (1)
CO4	L (1)	L (1)	S (3)	M (2)	L (1)	S (3)	M (2)	M (2)	M (2)	S (3)
CO5	M (2)	M (2)	S (3)	L (1)	S (3)	S (3)	L (1)	M (2)	S (3)	M (2)
W.AV	1.8	2	2.2	1.8	2.2	2.4	2.2	2	2.2	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S (3)	M (2)	L (1)	S (3)	M (2)
CO2	S (3)	L (1)	S (3)	M (2)	S (3)
CO3	L (1)	M (2)	M (2)	S (3)	M (2)
CO4	M (2)	S (3)	M (2)	L (1)	M (2)
CO5	S (3)	M (2)	L (1)	S (3)	L (1)
W.A V	2.4	2	1.8	2.4	2

S Strong (3), M Medium (2), Low (1)

Semester - VI					
General	Course code: 2BV6G3	Interview skills	Theory	C	H/W
				2	2

Unit - I		
Objective 1	**To improve the skills of the students to prepare and face the interview process.**	

Basic of Interview: Important aspects of interview-Maintaining interview files-Important of backgroundinformation about the job, the organization and the interviewer-Things to do before interview-preparing for the
interview- Facing panel interview-Handling appropriate questions-Standard Interview formats- SampleQuestions

Outcome 1	**Learners comprehend the importance of interview and handling importantThings in the interview.**	**K2, K4**

Unit-II		
Objective 2	**To help the students to know about the maintaining files.**	

Preparation for interview: Curriculum Vitae / Resume Preparation - Information consideration before the interview- Grooming for interview-Checklist for interview-Three essential interview Skills-Ten sticky interviewsituations and handling them-Avoiding ten interview blunders

Outcome 2	**Students classify the various methods of Grooming for interview andGenerate Information consideration before the interview.**	**K4**

Unit III		
Objective 3	**To help the students to make the awareness of the dressing codes**	

Interview Behaviors: Entering into the interview room-Giving answers to the questions-Recapturing the interviewer's attention-questions to ask towards the end of the interview-Things to do after interview –Second interview

Outcome 3	**Students could be able to Simplify the Things to do after interview and Givenanswers to the questions.**	**K4**

Unit IV		
Objective 4	**To help the students to learn and practice about the interview behaviors**	

Interview Do's and Don'ts: Job interviews do's and Don'ts-Informal interviews Do's and Don'ts-Ready for unexpected interview-Strengths and weakness-Interview body language-interview etiquette - Basics
of group discussion

Outcome 4	**Learners could be able to classify and express the Interview body language ancould be able to Ready for unexpected interview**	**K2**

Unit V		
Objective 5	**To learn about social skills, conflict skills and interpersonal skills.**	

1**Body Language:** Basic concepts, cues, signals, symbols and secrets of body language - Significance of body language in communication and assertiveness training

Outcome 5	**Students could be able to** Justify **the secrets of body language and assertivetraining.**	**K5**

Suggested Readings:-
Abdul hashen, (2012). *Interview Manual.* New Delhi: Ramesh Publishing House. Ananda murugan, S. (2011). *PlaceInterviews.* New Delhi: Tata McGraw Hill.Hurlock, E.B. (2006). *Personality Development.*
New Delhi: Tata McGraw Hill.

Online Resources: https://www.researchgate.net/profile/Dave-Walsh-2/publication/227698887_What_really_is_effective_in_interviews_with_suspects_A_study_comparing_interview_skills_against_interviewing_outcomes/links/5bf7e4f292851ced67d257d5/What-really-is-effective-in-interviews-with-suspects-A-study-comparing-interview-skills-against-interviewing-outcomes.pdf

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	L (1)	M (2)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO2	L (1)	L (1)	M (2)	L (1)	L (1)	S (3)	L (1)	M (2)	L (1)	L (1)
CO3	M (2)	M (2)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
CO5	L (1)	L (1)	L (1)	L (1)	M (2)	S (3)	M (2)	M (2)	M (2)	L (1)
W.AV	1.8	1.6	1.2	1.2	1.6	3	1.6	2	1.6	1

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	L (1)
CO2	M (2)	M (2)	M (2)	M (2)	M (2)
CO3	M (2)	M (2)	M (2)	L (1)	M (2)
CO4	M (2)	L (1)	M (2)	S (3)	M (2)
CO5	M (2)	L (1)	M (2)	S (3)	M (2)
W.AV	2	1.8	2	2	1.8

S –Strong (3), M-Medium (2), L- Low (1)

Semester - VI					
General	**Course code: 2BS6G4**	**Comprehensive Study #**	**Practical**	**C**	**H/W**
				2	2

Unit - I	

Objective 1	**To remember the concept of operating system**	
Operating system concepts		
Outcome 1	**Revised the topic about operating system**	**K2**

Unit-II	

Objective 2	**To apply the knowledge on programming concept like C,C++, Java**	
Programming concepts in C, C++, JAVA		
Outcome 2	**Computed the program for C,C++,Java in the programming**	**K3**

Unit III	

Objective 3	**To analyze the concept of database system**	
Concepts of Database Systems		
Outcome 3	**Designing the database using the MySQL**	**K3,K4**

Unit IV	

Objective 4	**To evaluate the Computer Networks and security for the cryptography**	
Computer Networks & Security systems (Cryptography)		
Outcome 4	**Demonstrate the security system in the cryptography in the computer neworks**	**K1,K5**

Unit V	

Objective 5	**To evaluate the Implementation and Testing for the project management**	
Software Engineering: Analysis, Design, Implementation and Testing &Software Project Management concepts		
Outcome 5	**Demonstrated the testing for the project management using analysis and design**	**K3**

Suggested Readings:

Andrew S. Tanenbaum. (2014*). Modern Operating Systems. (4th Edn). Pearson Pvt., Ltd.*

Balagursamy E. (2020). *Object Oriented Programming with C++. (8th Edn). Tata McGraw Hill Publications.*

Behrouz A Fourouzan. (2017). *Data Communications And Networking. (5th Edn). Mcgraw Hill Publications.*

Byron S.Gottfried. (2018). *Programming with C. (4th Edn). Schaum's Outline Series. McGraw Hill Education.*

Herbert Schildt. (2017). *Complete Reference Java 2. (5th Edn). Tata MeGraw- Hill Publishing Company Limited.*

Rajib Mall. (2018). *Fundamentals of Software Engineering. (5th Edn). New Delhi: PHI Learning Private Limited. Third Edition.*

Online Resource:
https://www.zdnet.com/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	M (2)	L (1)	S (3)	M (2)	L (1)	M (2)	M (2)	L (1)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)
CO3	L (1)	M (2)	S (3)	S (3)	S (3)	M (2)	M (2)	S (3)	M (2)	M (2)
CO4	S (3)	S (3)	M (2)	L (1)	S (3)	M (2)	S (3)	M (2)	S (3)	L (1)
CO5	M (2)	L (1)	S (3)	L (1)	M (2)	S (3)	L (1)	M (2)	S (3)	M (2)
W.AV	2.2	1.8	2.6	1.8	2.6	2	1.8	2.2	2.6	1.6

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	S (3)	M (2)	L (1)	M (2)
CO2	M (2)	L (1)	S (3)	S (3)	L (1)
CO3	L (1)	M (2)	S (3)	M (2)	M (2)
CO4	M (2)	L (1)	M (2)	S (3)	S (3)
CO5	S (3)	M (2)	M (2)	S (3)	L (1)
W.AV	2.2	1.8	2.4	2.4	1.8

S Strong (3), M Medium (2), Low (1)

Core	Course code: 2BV6G3	Semester - VI	Theory	C	H/W
		Software Engineering		4	4

Unit - I

Objective 1	To remember the life cycle models of the software development with its prototyping models	

Introduction: The Software Engineering Discipline - Software Development Projects - Emergence of Software
Engineering - Software Life Cycle Models: Classical Waterfall Model - Iterative Waterfall Model - PrototypingModel - Spiral Model.

Outcome 1	Acquire knowledge in the software development with various life cyclemodels in emerging software technology	K4

Unit-II

Objective 2	To understand the requirement analysis with the system scope and refine the allocation with consistency	

Requirements Analysis: Statement of system scope - Isolation of top level processes and entities and their allocation to physical elements- Refinement and review - Creating a software specification document -Review for correctness- Consistency and completeness -SRS.

Outcome 2	Identifying the system scope from the top level process and allocating theirposition in the software with specific document	K1

Unit III

Objective 3	To apply the concept in the software design and structuring the models with the user interface design	

Designing Software Solutions: Cohesion and Coupling - Function-Oriented Software Design: Structured Analysis - DFDs - Structured Design - Object Modeling: Overview of Basic Object-Orientation Concepts - UML Diagrams - Activity Diagram - State Chart Diagram - User Interface Design: Characteristics of a Good User Interface – Basic Concepts.

Outcome 3	Getting knowledge in the designing a software by uml diagram and activitydiagram with the good user interface	K2

Unit IV

Objective 4	To analyze the coding and testing with many types for debugging the given code withsoftware reliability in the management system	

Coding and Testing: Coding - Software Documentation - Testing - Unit Testing - Black-Box Testing - White-Box Testing - Debugging - Integration Testing - System Testing - Software Reliability and Quality Management: Software Reliability - Software Quality and Management System.

Outcome 4	Computing the code with its testing process in the management systemsuch as black box testing and white box testing	K3

	Unit V	
Objective 5	**To evaluate the case environment with its characteristics and estimating its costs**	

Computer Aided Software Engineering: Case Environment - Characteristics of CASE Tools - Maintenance: Characteristics of a Software Maintenance - Software Reverse Engineering - Estimation of Maintenance Cost - Software Reuse: A Reuse Approach.

Outcome 5	**Demonstrate the cost effective in the software engineering with its maintenance and reusing its environment**	**K1,K5**

Suggested Readings:-

Ian sommervIlle. (2017). Software Engineering. (9th ed.) New Age International Publishers. Rajib mall Software Engineering. phi 2013 Roger S. Pressman. (2017). *Software Engineering – A Practitioner's Approach*. (7th ed.). McGraw.Hill International.

Online Resource:
https://www.techtarget.com/
https://www.tutorialspoint.com/

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	L (1)	M (2)	L (1)	L (1)
CO2	S (3)	M (2)	S (3)	S (3)	S (3)	L (1)	L (1)	M (2)	L (1)	M (2)
CO3	M (2)	S (3)	L (1)	M (1)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)
CO4	M (2)	M (2)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	L (1)	L (1)
CO5	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	M (2)	M (2)	S (3)	M (2)
W.AV	2.4	2.2	2.0	1.8	2.0	2.4	1.4	1.8	1.6	1.4

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	L (3)	M (3)	S (2)	M (1)	L (1)
CO2	M (2)	L (1)	M (2)	L (2)	S (2)
CO3	S (3)	M (2)	L (2)	M (1)	L (1)
CO4	M (2)	S (1)	M (2)	L (3)	M (2)
CO5	S (3)	M (1)	L (1)	S (3)	M (2)
W.A V	2.6	1.6	1.8	2.0	1.6

S Strong (3), M Medium (2), Low (1)

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		Semester - VI		C	H/W
Core	Course code: 9BS6E2	**Software Project Management**	Theory	4	4

Unit - I		
Objective1	**To remember the characteristics of the software process and its activities which is related to the project management**	
Software Characteristics, Software process, Software Engineering, Characteristics of Software Project, Activities covered by Software Project Management, Problems involved, Management function related to ProjectManagement, Feasibility Analysis		
Outcome1	**Revising the activities of the software project management with thefeasibility analysis in software engineering**	**K2**

Unit-II		
Objective 2	**To understand the scope of the project with infrastructure and analyzing the characteristic of each project goals**	
Project Planning: Overview, Finalizing Project Scope, Infrastructure, Analyzing Project Characteristics,Identifying Project goals and activities, Estimating time & effort, allocating resources, Review plan		
Outcome2	**Designing the project scope with the estimating time and cost with thereview plan by finalizing**	**K1**

Unit III		
Objective3	**To apply the various types of models in the software project management with the appropriate technologies**	
Project Execution Approach: Choosing Technologies, Structure Vs Speed of Delivery Waterfall Model, V- Process Model, Evolutionary model, Spiral Model, Software Prototyping, Incremental Delivery., Controlling changes during project execution		
Outcome 3	**Computing the models in various aspects by controlling the changes duringproject execution**	**K1, K3**

Unit IV		
Objective 4	**To analyze the requirement of the software with its estimation techniques and object points**	
Software requirement study and Analysis, Software Requirement Specifications, **Software Estimation :** Need for Software Estimation, Problems with Over and Under Estimation, Software Estimation techniques, Expert Judgement, Estimating by Analogy, Function Point Analysis, Object points, LOC based COCOMO model.		
Outcome 4	**Discussing the requirement specification with its techniques on the LOCbased COCOMO models**	**K5**

	Unit V
Objective 5	**To evaluate the risk management with various containment and to avoid the risk factors in allocation**

Risk Management: Risk and its implication, types of risk, Identifying risks, analyzing risks, prioritizing risks, Risk avoidance, Risk containment, Resource identification, Resource planning Resource allocation, monitoring critical resources.

Outcome 5	**Using the techniques for the avoiding the risk management with the planning of resource allocation**	**K1,K4**

Suggested Readings:-

Ince, Dorrel. Helen Sharp & Mark Woodma. *Introduction to Software Project Management & Quality Assurance*. Tata McGraw Hill.

Roger S Pressman. (2017). *Software Engineering a Practitioner's approach* . (7th ed.) Tata McGraw Hill.

Online Resource:
https://www.wrike.com/
https://www.tutorialspoint.com/

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	L (1)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)	S (3)	M (2)
CO2	M (2)	M (2)	S (3)	M (2)	L (1)	S (3)	L (1)	M (2)	S (3)	L (1)
CO3	L (1)	L (1)	M (2)	S (3)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)
CO4	S (3)	M (2)	L (1)	M (2)	S (3)	M (2)	L (1)	L (1)	M (2)	S (3)
CO5	L (1)	S (3)	M (2)	S (3)	L (1)	L (1)	M (2)	M (2)	S (3)	L (1)
W.AV	2	1.8	2	2.2	1.8	2.2	1.8	2	2.4	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	S (3)	M (2)	S (3)	L (1)	M (2)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)
CO3	M (2)	S (3)	L (1)	L (1)	L (1)
CO4	S (3)	L (1)	M (2)	M (2)	S (3)
CO5	M (2)	M (2)	L (1)	S (3)	L (1)
W.A V	**2.4**	**1. 8**	**2**	**2**	**1.8**

S Strong (3), M Medium (2), Low (1)

Semester - VI					
Core	**Course code: 2BS6E3**	**PHP Programming – Lab**	**Practical**	**C**	**H/W**
				4	**4**
Unit - I					
Objective 1	**To create the program for the control flow statements and working with functions**				
	➢ Simple programs using PHP				
	➢ write a PHP program to use loops, control flow statements				
	➢ write a PHP program to working with functions				
Outcome 1	**Computed the simple program using a loop concept and revised a functions methods**			**K2**	
Unit-II					
Objective 2	**To understand the manipulation in arrays for checking the palindrome with the form structure**				
	➢ write a PHP program to manipulate arrays				
	➢ Write a PHP program to check whether the given string is Palindrome or not				
	➢ HTML forms and PHP				
Outcome 2	**Demonstrated the program for palindrome or not with the array function**			**K1**	
Unit III					
Objective 3	**To analyze the data base connection with MySQL for creating a form using php in the user login system**				
	➢ Create a PHP page for login using MySQL connection.				
	➢ Write a user login system using sessions.				
	➢ Passing Variables to PHP from HTML forms				
Outcome 3	**Evaluated the data base connection using the session page in the HTML forms**			**K1,K4**	
Unit IV					
Objective 4	**To acquire a knowledge in the webpage for student data and developing a college application**				
	➢ Create a PHP page which includes images for any application.				
	➢ Display Student Information using PHP and MySQL.				
	➢ Develop a College Application Form using PHP and MySQL				
Outcome 4	**Used the form structure for the web page creation in PHP and MySQL for college application**			**K5**	

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Unit V	
Objective 5	**To create the php page for curriculum vita using the cookies and another for finding largest values in the given two numbers**
➢Create a PHP page for displaying your curriculum vita. ➢Write a hit counter using cookies. ➢Write a PHP program to find largest value of two numbers using the nesting of member functions	
Outcome 5	Usage of the cookies and page created as curriculum vita along the program for finding largest numbers **K1, K2**
K1-Remember	**K2 - Understand** **K3 - Apply** **K4- Analyze** **K5 - Evaluate** **K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M (2)	M (2)	S (3)	S (3)	M (2)	L (1)	L (1)	M (2)	S (3)	L (1)
CO2	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)	M (2)	L (1)	M (2)	M (2)
CO3	L (1)	L (1)	M (2)	S (3)	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)
CO4	M (2)	S (3)	M (2)	M (2)	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)
CO5	L (1)	M (2)	S (3)	S (3)	M (2)	M (2)	L (1)	M (2)	S (3)	S (3)
W.A V	1.6	2.2	2.4	2.6	1.6	2	1.8	2	2.2	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO 3	PSO 4	PSO 5
CO1	M (2)	S (3)	S (3)	M (2)	L (1)
CO2	L (1)	M (2)	M (2)	S (3)	S (3)
CO3	M (2)	M (2)	S (3)	S (3)	S (3)
CO4	L (1)	L (1)	M (2)	M (2)	L (1)
CO5	S (3)	S (3)	M (2)	L (1)	M (2)
W.A V	1.8	2.2	2.4	2.2	2

S Strong (3), M Medium (2), Low (1)

Semester - VI					
Core	Course code: 9BS6E4	Distributed Programming – Lab	Practical	**C** 4	**H/W** 4

Unit - I

Objective 1	To create the form design with the validation controls and Adrotator

- Form Design using Various Web Controls
- Ad Rotator and Calendar Control, Login Control (Page Should Expire after 3 wrong attempts)
- Working with Validation Controls

Outcome 1	Revised the form design with validation controls and web controls with thelogin form	K1

Unit-II

Objective 2	To understand the cookie manipulation using the session and application in the distributed programming

- Illustrating Cookie Manipulation
- State Management (using Session and Application)

Outcome 2	Computing the program for session and application with the statemanagement in cookie manipulation	K3

Unit III

Objective 3	To analyze the procedure for data retrieval and updating using ADO NET in addition to planner preparation

- Data Retrieval, Updating using ADO.NET (using Stored Procedure)
- Day Planner Preparation using XML and ADO.NET

Outcome 3	Prepared the program for the planner preparation with data updating usingXML and ADO NET	K5

Unit IV

Objective 4	To create the template for data list and data grid with the sorting and paging usage

- Template Creation using Data List and Data Grid
- Sorting and Paging using Data Grid

Outcome 4	Evaluate the grid in the following program with the sorting and pagingusing the same data grid	K3

Unit V

Objective 5	To understand the illustration method by data caching and creating a web page with the help of AJAX

- Illustrating Data Caching
- Partial Page Refresh using AJAX
- Creating and Testing a Simple Web Service

Outcome 5	Usage of the web page by testing the data in the AJAX software using atesting process	K4

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

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Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	M (2)	L (1)	S (3)	M (2)	M (2)	S (3)	L (1)	M (2)
CO2	M (2)	L (1)	L (1)	M (2)	M (2)	S (3)	L (1)	M (2)	S (3)	L (1)
CO3	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)
CO4	S (3)	M (2)	L (1)	M (2)	L (1)	M (2)	S (3)	M (2)	L (1)	L (1)
CO5	M (2)	S (3)	M (2)	S (3)	M (2)	L (1)	L (1)	S (3)	M (2)	M (2)
W.AV	2.2	2	1.6	2.2	2	1.8	1.8	2.2	1.8	1.8

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	L (1)	S (3)	M (2)
CO2	M (2)	M (2)	S (3)	L (1)	L (1)
CO3	S (3)	L (1)	M (2)	M (2)	S (3)
CO4	L (1)	S (3)	M (2)	L (1)	M (2)
CO5	M (2)	L (1)	L (1)	M (2)	S (3)
W.AV	2.2	1.8	1.8	1.8	2.2

S Strong (3), M Medium (2), Low (1)

Core	Course code: 2BS6I1	Semester - VI Industrial Internship with Project		C	H/W
				7	7

Unit - I

Objective 1	The objective of B.Voc Software Development Programme is to produce Software Professionals and they are able: ➢ To get employment in industry, government entrepreneurial endeavors. ➢ To demonstrate professional advancements through significant theoretical. ➢ Practical knowledge and expanded leadership responsibilities. ➢ Industrial Internship Training will handled ➢ To know about industry standards

The student has to attach himself / herself with an organization related to his / her specialization approved by the (Alagappa Institute of Skill Development) Department for a period of 2 weeks for Industrial Internship Training with Project. One personnel of that industry and a faculty of the Department will be external and internal guides of the project respectively. The project theme, work flow and other related guidelines can be had from the Industry. The development of the project may be done in the Department by utilizing 7 lab hours per week and the monitoring of the progress and project evaluation for 50 marks can be collectively done by both internal and external guides. At the end of the internship, the student should prepare a project documentation report (not less than 50 pages, A4 size). Student should also produce a certificate of internship from the organization. The final project viva-voce for 50 marks should be conducted by the Department with two examiners and the cumulative 100 marks will be given by the Department.

	After completing this course, the students are able to:
Outcome 1	1. **Practical Experience: Students will have gained practical experience by working on real industry projects, enhancing their understanding of how theoretical concepts are applied in real-world scenarios. –K3** 2. **Industry Knowledge: Learners will have a deeper insight into the workings of the specific industry they interned in, including its processes, challenges, and best practices. –K1** 3. **Project Execution: Students will have successfully completed an industry project, showcasing their ability to plan, execute, and deliver results within the given timeframe.K4** 4. **Enhanced Skills: students will have interpret their technical skills and soft skills, such as communication, problem-solving, teamwork, and time management.- K2** 5. **Professional Network: learners will have expanded their professional network through interactions with industry professionals, potentially leading to job opportunities or referrals.-K3**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	M(2)	M(2)	L(1)	S(3)	S(3)	S(3)	M(2)	M(2)	L(1)
CO2	M(2)	S(3)	M(2)	M(2)	S(3)	L(1)	M(2)	L(1)	S(3)	M(2)
CO3	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	S(3)	M(2)	M(2)	L(1)
CO4	S(3)	M(2)	L(1)	S(3)	M(2)	M(2)	L(1)	S(3)	M(2)	S(3)
CO5	M(2)	M(2)	S(3)	L(1)	M(2)	L(1)	S(3)	M(2)	M(2)	M(2)
W.AV	2.6	2.2	2	1.6	2.6	1.8	2.4	2	2.2	1.8

S –Strong (3), M-Medium (2), L- Low (1)

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Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	L(1)	M(2)	L(1)
CO2	L(1)	S(3)	M(2)	S(3)	M(2)
CO3	S(3)	M(2)	M(2)	L(1)	S(3)
CO4	S(3)	M(2)	S(3)	S(3)	M(2)
CO5	M(2)	S(3)	M(2)	M(2)	L(1)
W.A V	**2.4**	**2.6**	**2**	**2.2**	**1.8**

S –Strong (3), M-Medium (2), L- Low (1)

Core	Course code: 2BS6J1	Semester - VI			
		NSQF Level – 7Job Role Software Developer (SSC/Q6702) @	Practical	C	H/W
				3	3

Unit - I	

Objective 1	To remember the components for code generation using a testing tools and organize policies

Access reusable components, code generation tools and unit testing tools -Convert technical specifications into code - Understanding of the BRS,SRS,HLD,LLD - Convert technical specifications into code- Unit test cases - Review codes and UTCs - Execute UTCs and document results – Fix identified defects in code and UTCs - Analyse future design inputs – Record corrective actions - Submit tested code - Update organizations knowledge - Organization policies, procedures and guidelines

Outcome 1	Revising the technical specification with the following codes and execute thedefects in the code	K3

Unit-II	

Objective 2	To understand the concept in organization for work area clean and utilize the time effectively to get the result and communicate with the colleagues

Establish work requirements - Work area clean and tidy - Utilize time effectively - Use resources correctly and efficiently - Treat confidential information correctly - Organization's policies and procedures - Limits of job role - Ensure work meets the agreedrequirements - Analysis on the performed data

- Data analysis outside their area ofcompetence - Review the results - Undertake modifications based on inputs - Communicate with colleagues - Work with colleagues - Pass on essential information to colleagues - Respect for colleagues - Carry out commitments to colleagues - Explaining the reasons of cannot carry out commitments- Identify any problems and solve these problems - Organization's policies and Procedures

Outcome 2	Understand the workflow of treat confidential information correctly	K1

Unit III	

Objective 3	To analyze the organization health and safety with the procedures by creating the report for following breaches in the emergency procedures

Organization's health, safety and security policies and procedures - Report any breaches in policies and procedures to the designated person - Identify and correct any hazards - Report any hazards that warn other people who may be affected - Follow organization's Emergency Procedures - Identify and recommend opportunities - Complete any health and safety records.

Outcome 3	Discussed the organization health and safety in the organized manner withprocedural policies	K2,K4

Unit IV		
Objective 4	**To understand the information in the correct format and by appropriate sources for analyzing the data and produce the report**	
Obtain the data/information from reliable sources - Check that the data/information - Advice or guidance from appropriate people where there are problems with thedata/information - Carry out rule based analysis - Insert the data/information into the agreed Formats - Check the accuracy of work, involving colleagues where required - Report any unresolved anomalies in the data/information to appropriate people – Provide Complete, accurate and up-to-date data/information to the appropriate people in the required formats on time.		
Outcome 4	**Analyzed the information give in the organization in appropriate people inthe required format**	**K1, K3**
Unit V		
Objective 5	**To evaluate the knowledge, skill and competence for learning the development activities and get a feedback from appropriate people**	
Develop knowledge, skills and competence –Identify knowledge and skills - Identify current level of knowledge, skills and development needs - Plan of learning and development activities - Undertake learning and development activities - Apply new knowledge and skills in the workplace - Feedback from appropriate people - Review knowledge, skills and competence.		
Outcome 5	**Acquire the knowledge by planning to learn the development activities andidentify the level of the knowledge**	**K2, K5**
Suggested Readings:- SC – NASSCOM – Qualification Pack : https://www.sscnasscom.com/qualificationpack/SSC/Q6702/		
Online Resource: https://nsdcindia.org/		

K1-Remember	**K2 - Understand**	**K3 - Apply**	**K4- Analyze**	**K5 - Evaluate**	**K6 – Create**

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S (3)	M (2)	L (1)	M (2)	L (1)	S (3)	S (3)	L (1)	M (2)	M (2)
CO2	L (1)	M (2)	M (2)	S (3)	M (2)	L (1)	M (2)	S (3)	S (3)	L (1)
CO3	M (2)	L (1)	S (3)	S (3)	S (3)	M (2)	M (2)	L (1)	L (1)	M (2)
CO4	M (2)	S (3)	M (2)	L (1)	S (3)	S (3)	S (3)	S (3)	M (2)	L (1)
CO5	M (2)	L (1)	M (2)	S (3)	M (2)	S (3)	L (1)	M (2)	S (3)	M (2)
W.AV	2	1.8	2	2.4	2.2	2.4	2.2	2	2.2	1.6

S Strong (3), M Medium (2), Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S (3)	M (2)	L (1)	M (2)	M (2)
CO2	M (2)	L (1)	S (3)	S (3)	M (2)
CO3	L (1)	S (3)	M (2)	L (1)	S (3)
CO4	M (2)	M (2)	S (3)	L (1)	M (2)
CO5	L (1)	S (3)	M (2)	M (2)	L (1)
W.AV	1.8	2.2	2.2	1.8	2

S Strong (3), M Medium (2), Low (1)

General	Course code: 91BPEP	Professional English for Physical Sciences - I	Theory	C	H/W
				4	4

Unit I					

Objective 1	To develop the language skills of students by offering adequate practice in professional contexts.

Communication

Listening: Listening to audio text and answering questions - Listening to Instructions Speaking: Pair work and small group work - Reading: Comprehension passages – Differentiate between facts and opinion Writing: Developing a story with pictures Vocabulary: Register specific - Incorporated into the LSRW tasks

Outcome 1	Remember their own ability to improve their own competence in using the Language	K1

Unit II		

Objective 2	To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciences students

Description

Listening: Listening to process description.-Drawing a flow chart - Speaking: Role play (formal context) Reading: Skimming/Scanning- Reading passages on products, equipment and gadgets - Writing: Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition-Free Writing -Vocabulary: Register specific - Incorporated into the LSRW tasks.

Outcome 2	Use language to understand for speaking with confidence in an intelligible and acceptable manner	K3

Unit III		

Objective 3	To focus on developing students'' knowledge of domain specific registers and the required language skills.

Negotiation Strategies

Listening: Listening to interviews of specialists / Inventors in fields (Subject specific)
Speaking: Brainstorming. (Mind mapping). Small group discussions (Subject- Specific)
Reading: Longer Reading text - Writing: Essay Writing (250 words)
Vocabulary: Register specific - Incorporated into the LSRW tasks

Outcome 3	Apply to Understand the importance of reading for life	K3

Unit IV		

Objective 4	To develop strategic competence that will help in efficient communication

Presentation Skills

Listening: Listening to lectures - Speaking: Short talks - Reading: Reading Comprehension passages-Writing: Writing Recommendations Interpreting Visuals inputs - Vocabulary: Register specific - Incorporated into the LSRW tasks.

Outcome 4	Read independently to analyze unfamiliar texts with comprehension	K1,K4

	Unit V
Objective 5	To sharpen students" critical thinking skills and make students culturally aware of thetarget situation.

Critical Thinking Skills

Listening: Listening comprehension- Listening for information - Speaking: Making presentations (with PPT- practice) - Reading: Comprehension passages –Note making - Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills) - Writing: Problem and Solution essay– Creative writing –Summary writing - Vocabulary: Register specific - Incorporated into the LSRW tasks

Outcome 5	Evaluate the importance of writing in academic life	K5

Suggested Readings: Naidoo, Prem, and Keith M. Lewin. "Policy and planning of physical science education in South Africa: Myths and realities." *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching* 35.7 (1998): 729-744.

Online Resources: https://ucrel.lancs.ac.uk/publications/CL2007/paper/47_Paper.pdf

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M(2)	S(3)	S(3)	S(3)	L(1)	L(1)	M(2)	M(2)	S(3)	S(3)
CO2	S(3)	L(1)	S(3)	M(2)	S(3)	S(3)	M(2)	S(3)	S(3)	L(1)
CO3	M(2)	S(3)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)	S(3)	S(3)
CO4	S(3)	M(2)	M(2)	S(3)	M(2)	S(3)	S(3)	S(3)	S(3)	S(3)
CO5	S(3)	S(3)	M(2)	L(1)	M(2)	S(3)	S(3)	M(2)	M(2)	S(3)
W.AV	2.6	2.4	2.4	2.4	2.2	2.4	2.4	2.6	2.8	2.6

S –Strong (3), M-Medium (2), L- Low (1)

Course Outcome VS Programme Specific Outcomes

CO	PSO 1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	S(3)	S(3)	M(2)	M(2)
CO2	M(2)	S(3)	S(3)	L(1)	L(1)
CO3	S(3)	S(3)	S(3)	M(2)	S(3)
CO4	S(3)	M(2)	L(1)	S(3)	S(3)
CO5	L(1)	L(1)	L(1)	S(3)	S(3)
W.A V	2.4	2.4	2.2	2.2	2.4

S –Strong (3), M-Medium (2), L- Low (1)

		Semester–II			
General	Coursecode: 92BPEP	Professional English for Physical Sciences - II	Theory	C	H/W
				4	4

Unit I

Objective 1	To develop their competence in the use of English with particular reference to thework place situation.	

Communicative Competence
Listening – Listening to two talks/lectures by specialists on selected subject specific topics - (TED Talks) and answering comprehension exercises (inferential questions) Speaking:Small group discussions (the discussions could be based on the listening and reading passages- open ended questions Reading: Two subject-based reading texts followed by comprehension activities/exercises Writing: Summary writing based on the reading passages.

Outcome 1	Remember their own ability to improve their own competence in using theLanguage.	K1

Unit II

Objective 2	To Enhance the creativity of the students, which will enable them to think ofinnovative ways to solve issues in the work place.	

Persuasive Communication
Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication
Speaking: debates – Just-A Minute Activities
Reading: reading texts on advertisements (on products relevant to the subject areas) and answeringinferential questions
Writing: dialogue writing- writing an argumentative /persuasive essay.

Outcome 2	Understand language for speaking with confidence in an intelligible andacceptable	K2

Unit III

Objective 3	To develop their competence and competitiveness and thereby improve theiremployability skills	

Digital Competence
Listening to interviews (subject related) Speaking: Interviews with subject specialists (using video conferencing skills) Creating Vlogs (How to become a vlogger and use vlogging to nurture interests –subject related)
Reading: Selected sample of Web Page (subject area) Writing: Creating Web Pages Reading Comprehension: Essay on Digital Competence for Academic and Professional Life. The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work inthe subject area.

Outcome 3	Apply the importance of reading for life.	K3

Unit IV		
Objective 4	To help students with the research bent of mind develop their skills in writing reports and research proposals.	
Creativity and Imagination: Speaking: Making oral presentations through short films – subject based Reading: Essay on Creativity and Imagination (subject based) Writing – Basic Script Writing for short films (subject based) - Creating blogs, flyers and brochures (subject based) - Poster making – writing Slogans/captions (subject based).		
Outcome 4	Analyze to read independently unfamiliar texts with comprehension.	K4
Unit V		
Objective 5	To develop their writing skills	
Workplace Communication; Basics of Academic Writing Speaking: Short academic presentation using PowerPoint Reading &amp; Writing: Product Profiles, Circulars, Minutes of Meeting. Writing an introduction, paraphrasing Punctuation (period, question mark, exclamation, point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis) Capitalization (use of upper case)		
Outcome 5	Evaluate the importance of writing in academic life.	K5
Suggested Readings: Rustemova, A. I., and S. B. Gumarova. "Teaching «professional-oriented foreign language» for students of physics departments." *Вестник КазНУ. Серия филологическая* 171.3 (2018): 202-209.		
Online Resources: https://files.eric.ed.gov/fulltext/EJ1097405.pdf		

K1-Remember	K2 - Understand	K3 - Apply	K4- Analyze	K5 - Evaluate	K6 – Create

Course Outcome VS Programme Outcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S(3)	S(3)	L(1)	S(3)	M(2)	S(3)	L(1)	S(3)	M(2)	S(3)
CO2	S(3)	M(2)	S(3)	S(3)	S(3)	M(2)	S(3)	M(2)	S(3)	M(2)
CO3	S(3)	S(3)	S(3)	S(3)	S(3)	S(3)	M(2)	S(3)	S(3)	M(2)
CO4	M(2)	S(3)	S(3)	M(2)	S(3)	M(2)	S(3)	M(2)	M(2)	S(3)
CO5	S(3)	L(1)	S(3)	S(3)	L(1)	S(3)	S(3)	S(3)	L(1)	S(3)
W.AV	2.8	2.4	2.6	2.8	2.4	2.6	2.4	2.6	2.2	2.6

S –Strong (3), M-Medium (2), L- Low(1)

**Course Outcome VS Programme
Specific Outcomes**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S(3)	M(2)	S(3)	M(2)	M(2)
CO2	M(2)	S(3)	M(2)	S(3)	S(3)
CO3	S(3)	S(3)	S(3)	S(3)	S(3)
CO4	S(3)	L(1)	L(1)	L(1)	S(3)
CO5	S(3)	S(3)	S(3)	S(3)	M(2)
W.AV	**2.8**	**2.4**	**2.4**	**2.4**	**2.6**

S –Strong (3), M-Medium (2), L- Low(1)

CURRICULUM VITAE

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Professional Experience: 27 Years

Honours and Awards:
- UGC- Research Award (2015-2017)
- Best Paper Award – All India Accounting Conference, School of Commerce,University of Rajasthan, Jaipur, Rajasthan (2011)
- Best paper Presentation Award – International Conference, Dept. of Administration,Annamalai University (2010)
- Alagappa Excellence Award for Research – 2018
- MTC Global- Distinguished Management Teachers Award – 2018
- Bharat Jyoti Award – 2018
- Best Doctoral Researcher- 2018
- Best Researcher Award – 2019
- Global Lifetime Achievement Award- 2020- Sidhartha Educational and ResearchFederation
- Best Social Scientist Award- 2022- GRABS Awards-2022-Tamilnadu Association ofIntellectuals and Faculty (TAIF), and GRABS Educational Charitable Trust, Chennai
- The Best Teacher Award- 2022- Global Management Council, Ahmedabad
- Adarsh Vidya Saraswati Tashtriya Puraskar (National Award of Excellence)- 2022-Global Management Council, Ahmedabad

Recent publications:

- ❖ **"Mandatory corporate accounting disclosure practices- An investors view",** Indian Journal of Accounting (IJA), Volume 50, Issue 2, pp. 57-66, December 2018.

- ❖ **"Impact of CSR Activities of Corporate Companies on Different Areas of Inclusive Growth–An Empirical Analysis",** International Journal of Management (IJM), ISSN Print: 0976-6502, ISSN Online: 0976-6510, Volume 11, Issue 10, October 2020.

- ❖ **"Goods and Services Tax on Construction Business"**, International Journal of Management (IJM), ISSN Print: 0976-6502 and ISSN Online: 0976-6510, Scopus Indexed Journal, Volume 11, Issue 11, pp. 1300-1307, November 2020.

- ❖ **"A Study on Perception of Households Towards Environmental Pollution Control Measures With Special Reference To Chennai City",** AC : A Journal Of Composition Theory –UGC CARE Listed Journal, Volume XIV, Issue I, ISSN : 0731-6755, January 2021

- ❖ **"A Study on Perception of Religious Tourists on Service Quality of Hotels in South Tamil Nadu",** Effulgence-A Management Journal, A Peer Reviewed Journal, Vol. 19 issue 1, pp 8-22.

- ❖ **"Innovative Entrepreneur Ideas and Practices in India",** International Journal of Multidisciplinary Research and Technology, pp 86, April 2021.

- ❖ **"Role of CSR on Rural Development in India",** International Journal of Multidisciplinary Research and Technology, pp 153, April 2021.

- ❖ **"Impact of Environmental Pollution on Health with Reference To Chennai Industrial Town, Tamil Nadu",** International Journal of Research and Analytical Reviews (IJRAR), UGC Approved –Listed Journal, Volume 8, Issue 2, May 2021.

- ❖ **"Environmental Upgradation Through CSR of Select Manufacturing Companies in Chennai City",** International Research Journal of Modernization in Engineering Technology and Science (IRJETS), Peer Reviewed Journal, Volume 3, Issue 5, May 202.

- ❖ **"Role of CSR and Sustainable Inclusive Growth in India- Theoretical View",** International Journal of Multidisciplinary Research and Technology (IJRAR) Peer Reviewed Journal, Volume 8, Issue 2, July 2021.

- ❖ **"Evaluation of Board of Directors through Corporate Governance in listed companies – Indian Perceptive",** Strad Research ISSN: 0039-2049, UGC Approved
  – Listed Journal, Volume 9, Issue 3, pp. 90-101, March 2022.

- ❖ **"Corporate Governance for Board of Structure and the Role of Independent Directors of Listed Companies in Tamil Nadu",** International Journal of Multidisciplinary Research and Technology (IJRAR), Peer Reviewed Journal, ISSN (E) 2348-1269, ISSN (P) 2349-5138, Volume 9, Issue 2, pp. 133-149, April 2022.

- ❖ **"Technological Changes of Electronic Human Resource Management Practices in Information Technology Industry",** Shodha Prabha, UGC CARE Journal, ISSN: 0974-8946, Volume 47, Issue 3, pp.107-119, May 2022.

- ❖ **"The Impact of E-Learning Technology for Future Generation in Educational Sector",** Asian Journal of Electrical Sciences ISSN: 2249-6297, Vol.11 No.1, 2022, pp.29-32, Jan- June 2022.

- ❖ **"Corporate Governance and Corporate Social Responsibility Practices of Listed Companies In Tamil Nadu",** Kanpur Philosophers, UGC CARE Journal, ISSN 2348-8301, Volume-11, Issue-1, No.10, pp.168 -179, 2022.

Cumulative Impact factor: - 40.55
Total Citation: 88
h- index: 5
i10- index: 2

CURRICULUM VITAE

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Educational qualification:

- B.S. Technology
- M.S. Technology
- Ph.D Materials, Textiles and Fibre Science

Professional experience:
- 40 Years

Honours and Awards:
- Award received form Indian Textile Association for research and academic
- Fellow of the oldest charted association in the field, The Textile Institute, United Kingdom
- Mark Hollingworth Prize," Division Leadership Award for nonwovens works byTechnical Association of Pulp and Paper Industry, USA.
- International newsletter called "TexSnips,

Recent publications:

- National –
- International-

Cumulative Impact factor:

- Total Citation: 1472

- h- index: 14

- i10- index: 21

CURRICULUM VITAE

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Educational qualification:

- B.Tech.,
- M.Tech.,
- Ph.D

Professional experience:

- 35 Years

Honours and Awards: -----

Recent publications:

- National – 86
- International-30

Cumulative Impact factor:

- Total Citation: 453

- h- index: 10

- i10- index: 10

CURRICULUM VITAE

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Educational qualification:

- M.C.A.,
- M.E.,
- Ph.D

Professional experience:

- 30 Years

Honours and Awards:---Recent publications:

National Conference

- P.Asokan, S.Nickolas, "CAD/CAM solutions for CNC machining/turning center", Eighth ISME conference on mechanical engineering New Delhi, 1993.
- P.Ramaraj, S.Nickolas, "A descriptive study on data mining and Algorithm for multi-dimensional association", All India seminar on IT for 21st century, IE(India), 1997.
- N.Gayatri, S.Nickolas, A.V.Reddy, "Comparative Study of Software Quality Metrics Feature Set Using Data mining Techniques", National Conference on Advanced Pattern Mining and Multimedia Computing(APMMC 10) , NIT, Tiruchirappalli, February 2010.

International Conference

- K. Shobha, S. Nickolas, "Imputation of multivariate attribute values in big data", International Conference on Smart Intelligent Computing and Applications, Springer, Singapore, 2019, pp. 53-60.
- K. Shobha, S. Nickolas, "Integration and Rule-based Pre-Processing of Scientific Publication Records from Multiple Data Sources", International

Conference on Smart Intelligent Computing and Applications(SCI 2018), Springer, Bhubaneswar.

- Silambarasan E, Nickolas S, Mary Saira Bhanu S, "Attribute based Convergent Encryption Key Management for Secure Deduplication in Cloud", 3rd International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2018), Springer, Bhubaneswar.

- Sareena Rose, Nickolas, S., Sangeetha, S., "Machine Learning and Statistical Approaches used in Estimating parameters that affect the soil fertility status : A Survey", Second International Conference on Green Computing and Internet of Things (ICGCIoT 2018), IEEE, Bangalore.
- Pitchai, A. V. Reddy, N. Savarimuthu, "Quantum walk based genetic algorithm for 01 quadratic knapsack problem", 2015 International Conference on Computing and Network Communications (CoCoNet) (2015) 283-287.
- T. Subramanian, N. Savarimuthu, "Effective tariff selection on cloud services: A consumer perspective", 2014 International Conference on Contemporary Computing and Informatics (IC3I) (2014) 326-330

International Journals

- M.Chandrasekaran,P.Asokan,S.Kumanan,T.Balamurugan,S.Nickolas,"Solving job shop scheduling problems using Artificial Immune System", International Journal of Advanced Manufacturing Technology, UK,(2006) 31:580-593
- S.Nickolas , C.S.P.Rao , A.V.Reddy and P Asokan," Performance Enhancement of Flow Shop Scheduling using Data Mining", Journal of Advanced Manufacturing Technology, CMTI, Vol.6,No.8, pp.17-23,August 2007
- Ilango Paramasivam, Hemalatha Thiagarajan, Nickolas Savarimuthu ,"Imputation of Missing Data Using Weight Based Clustering in type II diabetes Databases", Journal of Advanced Research in Computer Engineering, Vol 3, No. 1,pp99-104 January-June 2009.ISSN:0974-4320
- Sarojini BalaKrishnan, Ramaraj NarayanaSwamy, Nickolas Savarimuthu, "Feature Selection Using F- Score on Classification of TYPE II Diabetes Databases", Journal of Advanced Research in Computer Engineering,Vol 3, No. 1,pp.1-6,January-June 2009.ISSN:0974-4320
- Ilango Paramasivam, Hemalatha Thiagarajan, Nickolas Savarimuthu, "A Semi Supervised Clustering by λ_cut for Imputation of missing Data in TYPE II Diabetes Databases", Indian Journal of Medical Informatics, Vol 4,No. 1 ,2009
- Ilango Paramasivam, Hemalatha Thiagarajan, Poonkuntran Shanmugam, Nickolas Savarimuthu
  ,"Imputation of Missing Data :A Semi Supervised Clustering Methodology", Journal of information Science and Technology, 6(3) pp 38-55,Washington,DC,USA 2009.

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- Sarojini BalaKrishnan, Ramaraj NarayanaSwamy, Nickolas Savarimuthu , " Feature Subset Selection using Nomogram in TYPE II Diabetes Databases", Indian Journal Of Medical Informatics, 4(1):5, 2009.
- N.Gayatri, S.Nickolas, A.V.Reddy, "Performance Analysis and Enhancement of Software Quality Metrics using Decision Tree based Feature Extraction", International journal of Recent Trends in Engineering, Vol 2,No. 4, pp.54-56, November 2009.

- R.Chithra, S.Nickolas, "A Novel Algorithm for Mining Hybrid-Dimensional Association Rules", International journal of Computer Applications(0975-8887), Vol1-No.16, pp.62-69, 2010.
- R.Chithra, S.Nickolas, "Partition Based High Utility Itemset Mining", Intl. J. of Decision Making in Supply Chain and Logistics, Vol.1, No.2,pp.153-165, July-Dec. 2010.
- R.Eswari, S.Nickolas, "A Level-wise Priority Based Task Scheduling for Heterogeneous Systems", Intl. J. of Information and Education Technology, Vol.1, No.5, pp.371-376, Dec.2011.
- R.Chithra, S.Nickolas, " HUPT-Mine : An efficient algorithm for high utility pattern mining", Intl. J. of Business and Systems Research, Vol.6, No.3, pp.279-275, 2012.
- R.Eswari, S.Nickolas, "Efficient Task Scheduling for Heterogeneous Distributed Systems using Firefly Algorithm", Intl. J. of Computer Science and Engineering (Accepted).
- S.Karthikeyan, P.Asokan, S.Nickolas, T.Page, "Solving Flexible Job Shop Scheduling Problems with a hybrid PSO Algorithm and Data Mining-An Attribute oriented approach", Intl. J.of Manufacturing Technology and Management.(Accepted).
- R.Chithra, S.Nickolas, "VB-HU-Mine : An Efficient High Utility Itemset Mining Algorithm using Vertical Data Representation", Intl. J. of Information Technology and Management.
- Anandkumar P,S.Nickolas, "Significance of One-Class Classification in Outlier Detection",IJCIIS,June2013,Vol 4,No. 6.
- S.Karthikeyan, P.Asokan, S.Nickolas,"A hybrid discrete firefly algorithm for multi-objective flexible job shop scheduling problem with limited resource constraints",Int J Adv Manuf Technol,2014.
- N.Gayatri, S.Nickolas, A.V.Reddy,"A Frame Work for Business Defect Predictions in Mobiles", IJCA,Vol 81,No.1,November 2013.
- R.Eswari, S.Nickolas, Michael Arock "A path priority-based task scheduling algorithm for herterogenous distributed systems", Int.J.Communication Networks and Distributed Systems,Vol 12,No.2,2014
- R.Eswari and S.Nickolas "Effective task scheduling for herterogenous distributed systems using firefly algorithm", Int.J.Computational Science and Engineering,Vol 11,No. 2,2015
- T. Subramanian, N. Savarimuthu, "Application based brokering algorithm

for optimal resource provisioning in multiple heterogeneous clouds", Vietnam Journal of Computer Science 3 (2015) 57-70.

- A. Prakasam, N. Savarimuthu, "Metaheuristic algorithms and probabilistic behaviour: a comprehensive analysis of ant colony optimization and its variants", Artificial Intelligence Review 45 (2015) 97-130.
- T. Subramanian, N. Savarimuthu, "Cloud service evaluation and selection using fuzzy hybrid MCDM approach in marketplace", IJFSA 5 (2016) 118-153.
- A. Pitchai, A. V. Reddy, N. Savarimuthu, "Fuzzy based quantum genetic algorithm for project team formation", IJIIT 12 (2016) 31-46.
- A. Prakasam, N. Savarimuthu, "Novel local restart strategies with hyper populated ant colonies for dynamic optimization problems", Neural Computing and Applications (2018) 1-14.
- K. Shobha, S. Nickolas, "Analysis of importance of pre-processing in prediction of hypertension", CSI Transactions on ICT 6 (2) (2018) 209-214.

Cumulative Impact factor:

Total Citation: 347

h- index: 09, i10- index: 07

CURRICULUM VITAE

Name: **Ms.Neethu Deepak**

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Educational qualification:

- Graduated from NIFT Chennai

Professional experience:
20 Years

- GM, Design and Product Development at Opus Fashions Pvt Ltd (maybellindia.com)April 2020 -ongoing
- Visiting Faculty. Jury Mentor- at Dots school of Fashion Chennai June 2019- ongoingVisiting Faculty Jury Mentor- at NIFT Chennai - 2010- ongoing
- Head Of Design Department at Opus Fashions Pvt Ltd (maybellindia.com)Oct 2016- April 2019
- Designer at www.eshakti.com - 2007- 2009

Entrepreneur
- Trendepartment Design Studio,
- Partner 2002-2014 Mantiz Atelier Design Studio,
- Partner 2015-Present Omaya Women's wear, Boutique

OwnerHonours and Awards: -----

Recent publications:

Cumulative Impact factor:

- Total Citation:
- h- index:
- i10- index:

CURRICULUM VITAE

Name: **Mr. A. Arockia Arulnathan**

Designation: Senior Automation
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Fax: ....
Email: arockia.arulnathan@live.in

Educational qualification:

- B.Sc.,
- M.C.A.

Professional experience:

- 07 Years

Honours and
Awards:

Recent publications:

National

International

Cumulative Impact factor:

Total Citation:

h- index:

i10- index:

CURRICULUM VITAE

Name: **Dr. B.Senthil Kumar**

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and Management
    Gandhigram Rural Institute – Deemed University, Gandhigram
    Tamil Nadu, India

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Email: **b.senthikumar@ruraluniv.ac.in**

Educational qualification:

* B.Tech.,
* M.Tech.,
* Ph.D

Professional experience:
* 16 Years

Honours and Awards: -----

Recent publications:

* National – 43
* International-20

Cumulative Impact factor:

* Total Citation: 212

* h- index: 10

* i10- index: 10

CURRICULUM VITAE

Name: **Mr.Dinesh Paranthagan**

Designation: Founder & CEO

Address: Hackup TechnologyEthical Hacker | Pen

TesterMobile : +91 9362012339 ,
E Mail – dinesh@hackuptechnology.com

Educational qualification:

- B Sc Computer Science
- Master of Computer Application

Professional experience:

- **7 Years** in the Field of **Cyber Security & Ethical Hacking.**

Honours and Awards:

- Organized 20+ **Hackathon & CTF Challange** Events,
- **Educationalist in Ethical Hacking** at **Delhi,**
- **Entrepreneurs of the Year** in 2017-18 From **NICA** at Chennai,
- **Best Young speaker** in 2015 speakers meet held at **Bangalore**,
- **Best Speaker** in 2016 **Entrepreneurship** meet,
- **HR** for MNC Companies.

CURRENT STATUS :

- Evaluation Member in 2020 **Smart India Hackathon** (Software).
- Associate Member in **National Cyber Safety and Security Standards (NCDRC)**.
- Developing Customized **Linux Tools,**
- Providing C**onsultancy project Center of excellence** for universities,
- Product Development using AI & Cyber Security Technology,
- **Technical Support** for **Coimbatore Crime,**

- **Penetration Tester** for Government & Corporate,
- **Corporate Training** for Cyber security ,
- Active Member " **GDG (Google Developer Group)**"
- **Security Audit** for Network and Web portal.

PAPER PRESENTED:

- Ethical Hacking and Cyber Security - KGCAS (2012,
- Cyber Security and Pen testing - KLN-(2013),
- Cyber Security - Sankar college -(2013),
- Data Network and Cyber Security (2015),
- Malware Detection and Web Vulnerability (2016),
- Website Hacking and URL Scanner Bot Technology (2017).
- Automated AI Based Firewall with Reverse Engineering (2019)

PATENTS (Filed):

- AI Based Firewall for Corporate Security
- Pen testing & Reverse Engineering Open source Tool

CURRICULUM VITAE

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Honours and Awards:

- Dr Ratha Krishnan Award
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- Kural Aaivu Semmal Award
- Tamil Sudar Award
- Sathanayalar Award

Recent publications:

- National – 10
- International-03

Cumulative Impact factor:

- Total Citation:
- h- index:
- i10- index:

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- Member of Board of Studies in English (DDE)
- Member of Chairmen (B.A English for DDE)
- DEEP Club Member , May2012

Recent publications:

- National –20
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Cumulative Impact factor:
- Total Citation:

- h- index:

- i10- index:

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Professional experience:
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Honours and Awards: -----

Recent publications:

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- International

Cumulative Impact factor:

- Total Citation:
- h- index:
- i10- index:

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