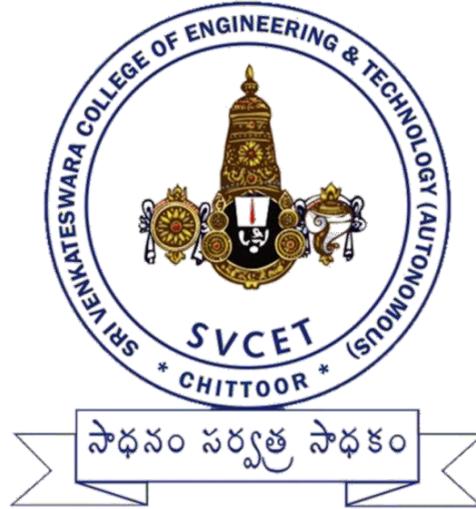


**ACADEMIC REGULATIONS - R25,
COURSE STRUCTURE AND DETAILED SYLLABI**

**B.C.A REGULAR (Full-Time) FOUR YEAR
UNDER GRADUATE DEGREE PROGRAMME
(FOR THE BATCHES ADMITTED FROM THE ACADEMIC YEAR 2025-26)**

BACHELOR OF COMPUTER APPLICATIONS



SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY

(AUTONOMOUS)

Recognized as College with Potential For Excellence by UGC,

Accredited with 'A+' Grade by NAAC & Accredited by NBA ,

Approved by AICTE, New Delhi, Affiliated to JNTUA, Ananthapuramu,

R.V.S. NAGAR, TIRUPATI ROAD, CHITTOOR – 517127 (A.P) – INDIA

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SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)
(AFFILIATED TO JNTUA, ANANTAPURAMU)

ACADEMIC REGULATIONS – R25

BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

REGULAR (Full-Time) FOUR YEAR UNDER GRADUATE DEGREE PROGRAMME

(For the batches admitted from the academic year 2025-2026 onwards)

1. Award of the Degree

(a) Award of the BCA Degree if he/she fulfils the following:

- i) Pursues a course of study for not less than three academic years and not more than six academic years. However, for the students availing Gap year facility this period shall be extended by two years at the most and these two years would in addition to the maximum period permitted for graduation (Six years).
- ii) Registers for 120 credits and secures all 120 credits.

(b) **Award of BCA degree with Honors (4 years)**

If he/she fulfils the following:

- i) Student secures additional 40 credits (in extra 2 semesters) fulfilling all the requisites of a BCA program i.e., 120 credits.
- ii) Registering for Honors is optional.

(c) **Award of BCA degree with Honors with Research (4 Years)**

A student will be declared eligible for the award of the BCA with Honors with Research if he/she fulfils the following:

- i) Student secures additional 40credits (in extra 2 semesters) fulfilling all the requisites of a BCA program i.e. 120 credits.
- ii) Registering for Honors with Research is optional.
- iii) Minimum eligibility criteria for opting the course in the fourth year will be as follows: **Minimum 75% marks or equivalent CGPA in BCA Degree upto Sixth Semester**

2. Students, who fail to fulfil all the academic requirements for the award of the degree within six academic years from the year of their admission, shall forfeit their seat in BCA course and their admission stands cancelled. This clause shall be read along with clause 1 a) i).

3. Admissions

Admission to the BCA Program shall be made subject to the eligibility, qualifications and specialization prescribed by the A.P. State Government/University from time to time. Admissions shall be made either based on the merit rank obtained by the student in the common entrance examination conducted by the A.P. Government/University or any other order of merit approved by the A.P. Government/University, subject to reservations as prescribed by the Government/University from time to time.

4. Program related terms

Credit: A unit by which the course work is measured. It determines the number of hours of instruction required per week. One credit is equivalent to one hour of teaching (Lecture/Tutorial) or two hours of practical work/field work per week.

Credit Definition:

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week	0.5 credit
2 Hrs. Practical (Lab) per week	1 credit

- a) **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
- b) **Choice Based Credit System (CBCS):** The CBCS provides a choice for students to select from the prescribed courses.

5. Semester/Credits:

- A semester comprises 90 working days and an academic year is divided into two semesters.
- The summer term is for eight weeks during summer vacation. Internship/ apprenticeship / work-based vocational education and training can be carried out during the summer term, especially by students who wish to exit after two semesters or four semesters of study.
- Regular courses may also be completed well in advance through MOOCs satisfying prerequisites.

6. Structure of the Undergraduate Programme

All courses offered for the undergraduate program (BCA) are broadly classified as follows:

Semester	Core Courses	Ability Enhancement Courses	Multi-Disciplinary Elective course	Value added Courses	Skill Enhancement courses	Discipline Specific Elective	Total
I	12	4	2	2	-	-	20
II	12	2	2	2	2	-	20
III	12	-	2	2	4	-	20
IV	16	-	-	2	2	-	20
V	8	-	-	-	4	8	20
VI	6	-	-	-	6	8	20
BCA(Honours)							
VII	4		4		4	8	20
VIII					8	12	20
BCA(Honours with Research)							
VII	12					8	20
VIII	20						20

F. Category-wise distribution*

Description	Core Courses	Ability Enhancement Courses	Multi-Disciplinary Elective course	Value added Courses	Skill Enhancement courses	Discipline Specific Elective	Total
BCA	66	6	6	8	18	16	120
BCA(Honours)	70	6	10	8	30	36	160
BCA(Honours with Research)	98	6	6	8	18	24	160

7. Programme Pattern

- i. Total duration of the BCA (Regular) Programme is Three academic years.
- ii. Each academic year of study is divided into two semesters.
- iii. Minimum number of instruction days in each semester is 90 days.
- iv. There shall be mandatory student induction program for fresher's, with a three-week duration before the commencement of first semester. Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations etc., are included as per the guidelines issued by AICTE.
- v. Mandatory Visits/Workshop/Expert Lectures:
 - It is mandatory to arrange one industrial visit every semester for the students of each branch.
 - It is mandatory to conduct a One-week workshop during the winter break after fifth semester on professional/industry/entrepreneurial orientation.
 - It is mandatory to organize at least one expert lecture per semester for each branch by inviting resource persons from domain specific industry.
- vi. A total of 2 ability enhancement courses are to be offered in the first two semesters as optional courses. Indian or Foreign Language is offered as AEC courses with zero credits.
- vii. Additional DSE as an Audit Course (Non-Credit but compulsory) can be opted by the student in both semester V and VI.
- viii. Professional Elective Courses, include the elective courses relevant to the BCA. Proper choice of professional elective courses can lead to students specializing in emerging areas within the chosen field of study.
- viii. A pool of interdisciplinary/job-oriented/domain skill courses which are relevant to the industry are integrated into the curriculum of all disciplines. There shall be 9 skill-oriented courses offered during II to VI semesters. Among the 9 skill courses, six courses shall focus on the basic and advanced skills related to the domain and three interdisciplinary courses

- ix. Students shall undergo mandatory summer internships, for a minimum of eight weeks duration at the end of first and second year of the Programme. The internship at the end of first year shall be community oriented and industry internship at the end of second year. This will be evaluated during the third and fifth semester respectively
- x. The students opted for BCA (honors or Honors with research) has to undergo summer internship after end of the sixth semester.
- xi. For BCA students, the Dissertation work -I shall be initiated in the Fifth semester and evaluation shall be done in the sixth semester.
- xii. For BCA (honors) students, the Dissertation work -II shall be initiated in the seventh semester and evaluation shall be done in the eighth semester
- xiii. Each college shall take measures to implement Virtual Labs (<https://www.vlab.co.in>) which provide remote access to labs in various disciplines of management and will help student in learning basic and advanced concept through remote experimentation. Student shall be made to work on virtual lab experiments during the regular labs.
- xiv. Preferably 25% of course work for the theory courses in every semester shall be conducted in the blended mode of learning.

8. Evaluation Process

The performance of a student in each semester shall be evaluated subject wise with a maximum of 100 marks for theory and 100 marks for practical subject. Summer Internships shall be evaluated for 50 marks, Full Internship & Project work in final semester shall be evaluated for 200 marks, and mandatory courses with no credits shall be evaluated for 30 mid semester marks.

A student has to secure not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the mid semester and end examination marks taken together for the theory, practical, etc. In case of a mandatory course, he/she should secure 40% of the total marks.

Theory Courses

Assessment Method	Marks
Continuous Internal Assessment	30
Semester End Examination	70
Total	100

- i) For theory subject, the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End-Examination.
 - ii) For practical subject, the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End- Examination.
- a) Continuous Internal Evaluation**
- i) For theory subjects, during the semester, there shall be two midterm examinations. Each midterm examination shall be evaluated for 30 marks of which 10 marks for objective paper (20 minute's duration), 15 marks for subjective paper (90 minutes

- duration) and 5 marks for assignment.
- ii) Objective paper shall contain maximum of 20 bits for 10 marks. Subjective paper shall contain 3 either or type questions (totally six questions from 1 to 6) of which student has to answer one from each either-or type of questions. Each question carries 10 marks. The marks obtained in the subjective paper are condensed to 15 marks.

Note:

- The objective paper shall be prepared in line with the quality of competitive examinations questions.
 - The subjective paper shall contain 3 either or type questions of equal weight age of 10 marks. Any fraction shall be rounded off to the next higher mark.
 - The objective paper shall be conducted by the respective institution on the day of subjective paper test.
 - Assignments shall be in the form of problems, mini projects, design problems, slip tests, quizzes etc., depending on the course content. It should be continuous assessment throughout the semester and the average marks shall be considered.
- iii) If the student is absent for the mid semester examination, no re-exam shall be conducted and mid semester marks for that examination shall be considered as zero.
- iv) First midterm examination shall be conducted for I, II units of syllabus with one either or type question from each unit and third either or type question from both the units. The second midterm examination shall be conducted for III, IV and V units with one either or type question from each unit.
- v) Final mid semester marks shall be arrived at by considering the marks secured by the student in both the mid examinations with 80% weight age given to the better mid exam and 20% to the other.

For Example:

Marks obtained in first mid: 25

Marks obtained in second mid: 20

Final mid semester Marks: $(25 \times 0.8) + (20 \times 0.2) = 24$

If the student is absent for any one midterm examination, the final mid semester marks shall be arrived at by considering 80% weight age to the marks secured by the student in the appeared examination and zero to the other. For Example:

Marks obtained in first mid: Absent

Marks obtained in second mid: 25

Final mid semester Marks: $(25 \times 0.8) + (0 \times 0.2) = 20$

b) End Examination Evaluation:

End examination of theory subjects shall have the following pattern:

- i) There shall be 6 questions and all questions are compulsory.
- ii) Question I shall contain 10 compulsory short answer questions for a total of 20 marks such that each question carries 2 marks.
- iii) There shall be 2 short answer questions from each unit.
- a) In each of the questions from 2 to 6, there shall be either/or type questions of

10 marks each. Student shall answer any one of them.

- iv) The questions from 2 to 6 shall be set by covering one unit of the syllabus for each question.

Practical Courses

Assessment Method	Marks
Continuous Internal Assessment	30
Semester End Examination	70
Total	100

- a. For practical courses, there shall be a continuous evaluation during the semester for 30 sessional marks and end examination shall be for 70 marks.
- b. Day-to-day work in the laboratory shall be evaluated for 15 marks by the concerned laboratory teacher based on the record/viva and 15 marks for the internal test.
- c. The end examination shall be evaluated for 70 marks, conducted by the concerned laboratory teacher and a senior expert in the subject from the same department.
- Procedure: 20 marks
 - Experimental work & Results: 30 marks
 - Viva voce: 20 marks.
- d. There shall be no external examination for mandatory courses with zero credits. However, attendance shall be considered while calculating aggregate attendance and student shall be declared to have passed the mandatory course only when he/she secures 40% or more in the internal examinations. In case, the student fails, a re-examination shall be conducted for failed candidates for 30 marks satisfying the conditions mentioned in item 1 & 2 of the regulations.
- e. The laboratory records and mid semester test papers shall be preserved for a minimum of 3 years in the respective institutions as per the University norms and shall be produced to the Committees of the University as and when the same are asked for.

9. Skill oriented Courses

- i) There shall be Nine skill-oriented courses offered during II to VI semesters.
- ii) Out of the Nine skill courses six shall be skill-oriented courses from the same domain. Of the remaining three skill courses are Interdisciplinary/Job oriented.
- iii) The course shall carry 100 marks and shall be evaluated through continuous assessments during the semester for 30 sessional marks and end examination shall be for 70 marks. Day-to-day work in the class / laboratory shall be evaluated for 30 marks by the concerned teacher based on the regularity/assignments/viva/mid semester test. The end examination similar to practical examination pattern shall be conducted by the concerned teacher and an expert in the subject nominated by the principal.

- iv) The Head of the Department shall identify a faculty member as coordinator for the course. A committee consisting of the Head of the Department, coordinator and a senior Faculty member nominated by the Head of the Department shall monitor the evaluation process. The marks/grades shall be assigned to the students by the above committee based on their performance.
- v) The student shall be given an option to choose either the skill courses being offered by the college or to choose a certificate course being offered by industries/Professional bodies or any other accredited bodies. If a student chooses to take a Certificate Course offered by external agencies, the credits shall be awarded to the student upon producing the Course Completion Certificate from the agency. A committee shall be formed at the level of the college to evaluate the grades/marks given for a course by external agencies and convert to the equivalent marks/grades.
- vi) The recommended courses offered by external agencies, conversions and appropriate grades/marks are to be approved by the University at the beginning of the semester. The principal of the respective college shall forward such proposals to the University for Approval.
- vii) If a student prefers to take a certificate course offered by external agency, the department shall mark attendance of the student for the remaining courses in that semester excluding the skill course in all the calculations of mandatory attendance requirements upon producing a valid certificate as approved by the University.

10. Massive Open Online Courses (MOOCs):

As per the University Grants Commission (Credit Framework for Online Learning Courses through SWAYAM Regulations, 2021), the University shall allow up to 40% of the total courses being offered in a particular programme in a semester through the online learning courses offered through SWAYAM Platform(www.swayam.gov.in) for credit transfer.

A student can pursue courses other than core through MOOCs and it is mandatory to complete one course successfully through MOOCs forwarding the degree. A student is not permitted to register and pursue core courses through MOOCs.

The University shall notify at the beginning of the semester, the list of the SWAYAM online learning courses eligible for credit transfer. A student shall register for the course (Minimum of either 8 weeks or 12 weeks) offered through MOOCs with the approval of the Head of the Department. The credits will be awarded based on the number of weeks course is pursued i.e., 2 credits for 8 weeks and 3 credits for 12 weeks.

The Head of the Department shall appoint one mentor to monitor the students' progression. The student who has completed courses on SWAYAM is having option to write the end semester examination either conducted by National Testing Agency (NTA) and National Programme on Technology Enhanced Learning (NPTEL) or University examination. The University shall conduct the examinations for SWAYAM courses during the current semester along with the end-term examinations

The student needs to earn a certificate by passing the exam. The student shall be awarded the credits assigned in the curriculum only after submission of successful completion certificate. Examination fee, if there is any, shall be borne by the student. A student has to get pass marks in SWAYAM courses as per the pass marks specified by the JNTUA academic regulations. No relaxation regarding pass marks is permitted for any case. The class/grade, if any, is also awarded as per the University academic regulations only.

. The University will conduct examinations in the subsequent two semesters for the students who could not pass/appear in the end-term SWAYAM Course exams conducted by National Testing Agency (NTA) and National Programme on Technology Enhanced Learning (NPTEL).

A Student shall only be allowed to appear for the end term examination conducted by the University/Institution if he/she completed the entire SWAYAM course and submitted a minimum of 75% of the assignments and quizzes on SWAYAM. The University shall give 70% weightage to end-term examinations and for the assignments and quizzes component conducted by the SWAYAM Course Coordinator, the weightage will be 30%.

In case of delay in results of SWAYAM Course exams conducted by National Testing Agency (NTA) and National Programme on Technology Enhanced Learning (NPTEL) the University will re-issue the marks sheet for such students

The student who earn a certificate by passing the SWAYAM course examination and failed to register during regular examination for credit transfer, such SWAYAM course examination pass certificate can be considered for subsequent supplementary notifications issued by University

Students who have qualified in the proctored examinations conducted through MOOCs platform can apply for credit transfer as specified and are exempted from appearing internal as well as external examination (for the specified equivalent credit course only) conducted by the university.

Necessary amendments in rules and regulations regarding adoption of MOOC courses would be proposed from time to time.

11. Credit Transfer Policy

Adoption of MOOCs is mandatory, to enable Blended model of teaching-learning as also envisaged in the NEP 2020. As per University Grants Commission (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2021, the University shall allow up to a maximum of 20% of the total courses being offered in a particular Programme i.e., maximum of 24 credits through MOOCs platform.

- i) The University shall offer credit mobility for MOOCs and give the equivalent credit weight age to the students for the credits earned through online learning

courses.

- ii) Student registration for the MOOCs shall be only through the respective department of the institution, it is mandatory for the student to share necessary information with the department.
- iii) Credit transfer policy will be applicable to the Professional & Open Elective courses only.
- iv) The concerned department shall identify the courses permitted for credit transfer.
- v) The University/institution shall notify at the beginning of semester the list of the online learning courses eligible for credit transfer.
- vi) The institution shall designate a faculty member as a Mentor for each course to guide the students from registration till completion of the credit course.
- vii) The university shall ensure no overlap of MOOC exams with that of the university examination schedule. In case of delay in results, the university will re-issue the marks sheet for such students.
- viii) Student pursuing courses under MOOCs shall acquire the required credits only after successful completion of the course and submitting a certificate issued by the competent authority along with the percentage of marks and grades.
- ix) The institution shall submit the following to the examination section of the university:
 - a) List of students who have passed MOOC courses in the current semester along with the certificate of completion.
 - b) Undertaking form filled by the students for credit transfer.
- x) The universities shall resolve any issues that may arise in the implementation of this policy from time to time and shall review its credit transfer policy in the light of periodic changes brought by UGC, SWAYAM, NPTEL and state government.

Note: Students shall be permitted to register for MOOCs offered through online platforms approved by the University from time to time.

12. Academic Bank of Credits (ABC)

The University has implemented Academic Bank of Credits (ABC) to promote flexibility in curriculum as per NEP 2020 to

- i. provide option of mobility for learners across the universities of their choice
- ii. Provide option to gain the credits through MOOCs from approved digital platforms.
- iii. facilitate award of certificate/diploma/degree in line with the accumulated credits in ABC
- iv. Execute Multiple Entry and Exit system with credit count, credit transfer and credit acceptance from students' account.

13. Mandatory Internships

Summer Internships: Two summer internships either onsite or virtual each with a minimum of 08 weeks duration, done at the end of first and second years, respectively are mandatory. It shall be completed in collaboration with local industries, Govt.

Organizations, construction agencies, Power projects, software MNCs or any industries in the areas of concerned specialization of the Undergraduate program. One of the two summer internships at the end of first year (Community Service Project) shall be society oriented and shall be completed in collaboration with government organizations/NGOs & others. The other internship at the end of second year is Industry Internship and shall be completed in collaboration with Industries. The student shall register for the internship as per course structure after commencement of academic year. The guidelines issued by the APSCHE / University shall be followed for carrying out and evaluation of Community Service Project and Industry Internship.

Evaluation of the summer internships shall be through the departmental committee. A student will be required to submit a summer internship report to the concerned department and appear for an oral presentation before the departmental committee comprising of Head of the Department, supervisor of the internship and a senior faculty member of the department. A certificate of successful completion from industry shall be included in the report. The report and the oral presentation shall carry 50% weightage each. It shall be evaluated for 50 external marks. There shall be no internal marks for Summer Internship. A student shall secure minimum 40% of marks for successful completion. In case, if a student fails, he/she shall reappear as and when semester supplementary examinations are conducted by the University.

Project work: In the final semester, the student should mandatorily register and should work on a project with well-defined objectives. At the end of the semester the candidate shall submit a project report.

The project report shall be evaluated with an external examiner. The total marks for project work 100 marks and distribution shall be 30 marks for internal and 70 marks for external evaluation. The supervisor assesses the student for 15 marks At the end of the semester, all projects shall be showcased at the department for the benefit of all students and staff and the same is to be evaluated by the departmental Project Review Committee consisting of supervisor, a senior faculty and HOD for 15 marks. The external evaluation of Project Work is a Viva-Voce Examination conducted in the presence of internal examiner and external examiner appointed by the University and is evaluated for 70 marks. The project work will be initiated in V semester with zero credits.

1. GUIDELINES FOR OFFERING HONORS / HONORS WITH RESEARCH

Enrolment in to Honors:

- i) Students of a Department /Discipline are eligible to opt for Honors program offered by the same Department / Discipline, if he/she has completed 3-year BCA program successfully.
- ii) If a student is detained due to lack of attendance in Honors, registration shall be cancelled.
- iii) Transfer of credits from Honors to regular BCA and vice-versa shall not be permitted.

Enrolment in to Honors with Research:

- i) Students of a Department/ Discipline are eligible to opt for Honors with

- Research program offered by the same Department / Discipline.
- ii) Minimum 75% marks or equivalent CGPA in BCA Degree up to Sixth Semester is mandatory.
 - iii) If a student is detained due to lack of attendance in Honors with Research, registration shall be cancelled.
 - iv) Transfer of credits from Honors with Research to regular BCA and vice-versa shall not be permitted.

Registration for Honors / Honors with Research:

- i) The eligible and interested students shall apply through the HOD of his/her parent department. The whole process should be completed within one week before the start of every semester. Selected students shall be permitted to register the courses under Honors.
- ii) The selected students shall submit their willingness to the principal through his/her parent department offerring Honors. The parent department shall maintain the record of student pursuing the Honors.
- iii) The students enrolled in the Honors courses will be monitored continuously. An advisor /mentor from parent department shall be assigned to a group of students to monitor the progress.

14. Attendance Requirements:

- i) A student shall be eligible to appear for the University external examinations if he/she acquires a minimum of 40% attendance in each subject and 75% of attendance in aggregate of all the subjects. b) Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted by the College Academic Committee.
- ii) Shortage of Attendance below 65% in aggregate shall in NO CASE be condoned.
- iii) A stipulated fee shall be payable towards condonation of shortage of attendance to the University.
- iv) Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examination of that class and their registration shall stand cancelled.
- v) A student will not be promoted to the next semester unless he satisfies the attendance requirements of the present semester. They may seek readmission for that semester from the date of commencement of class work.
- vi) If any candidate fulfils the attendance requirement in the present semester, he shall not be eligible for readmission into the same class.
- vii) If the learning is carried out in blended mode (both offline & online), then the total attendance of the student shall be calculated considering the offline and online attendance of the student.
- viii) For induction Programme attendance shall be maintained as per AICTE norms.

15. Promotion Rules:

The following academic requirements must be satisfied in addition to the attendance requirements mentioned in section 15.

- i) A student shall be promoted from first year to second year if he/she fulfils the minimum attendance requirement as per university norms.
- ii) A student will be promoted from II to III year if he/she fulfils the academic requirement of securing 40% of the credits (any *decimal* fraction should be

rounded off to lower digit) up to in the subjects that have been studied up to III semester.

iii) When a student is detained due to lack of credits/shortage of attendance he/she may be re-admitted when the semester is offered after fulfilment of academic regulations. In such case, he/she shall be in the academic regulations into which he/she is readmitted.

16.Results Committee

- i. Results Committee comprising of Principal, Controller of Examinations, Additional Controller of Examinations (Confidential) and one Senior Professor nominated by the Principal and the University Nominee will oversee the details of marks, grades and pass percentages of all the subjects and branch- wise pass percentages.
- ii. Office of the Controller of Examinations will generate student-wise result sheets and the same will be published through college website.
- iii. Student-wise Grade Sheets are generated and issued to the students.

17.Personal Verification / Recounting / Revaluation / Final Valuation:

i) Personal Verification of Answer Scripts:

Candidates appear in a particular semester end examinations may appeal for verification of their answer script(s) for arithmetic correction in totaling of marks and any omission / deletion in evaluation within 7 days from the date of declaration of results at the office of the Controller of Examinations on the prescribed proforma and by paying the prescribed fee per answer script.

It is clarified that personal verification of answer script shall not tantamount to revaluation of answer script. This is only a process of re-verification by the candidate. Any mistake / deficiency with regard to arithmetic correction in totaling of marks and any omission / deletion in evaluation if found, the institution will correct the same.

ii) Recounting / Revaluation:

Students shall be permitted for request for recounting/revaluation of the Semester-End examination answer scripts within a stipulated period after payment of prescribed fee. After recounting or revaluation, records are updated with changes if any and the student will be issued a revised grade sheet. If there are no changes, the same will be intimated to the students.

iii) Final Valuation:

Students shall be permitted for request for final valuation of the Semester-End Examination answer scripts within a stipulated period after the publication of the revaluation results by paying the necessary fee. The final valuation shall be carried out by an expert not less than Associate Professor as per the scheme of valuation supplied by the examination branch in the presence of the student, Controller of Examinations and Principal. However students are not permitted to discuss / argue with the examiner. If the increase in marks after final valuation is equal to or more than 15% of the previous valuation marks, the marks obtained after final valuation shall be treated as final. If the variation of marks after final valuation is less than 15% of the previous valuation marks, then the earlier valuation marks shall be treated as the final marks

18. Grading:

As a measure of the student's performance, a 10-point Absolute Grading System using the following Letter Grades and corresponding percentage of marks shall be followed:

After each course is evaluated for 100 marks, the marks obtained in each course will be converted to a corresponding letter grade as given below, depending on the range in which the marks obtained by the student fall.

Structure of Grading of Academic Performance

Range in which the marks in the subject fall	Grade	Grade points
		Assigned
90 & above	Superior	10
80 - 89	A(Excellent)	9
70 - 79	B(Very Good)	8
60 - 69	C (Good)	7
50 - 59	D (Average)	6
40 - 49	E (Pass)	5
< 40	F (Fail)	0
Absent	Ab (Absent)	0

- i) A student obtaining Grade „F“ or Grade „Ab“ in a subject shall be considered failed and will be required to reappear for that subject when it is offered the next supplementary examination.
- ii) For non-credit audit courses, “Satisfactory” or “Unsatisfactory” shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA/Percentage.

Computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

The Semester Grade Point Average (SGPA) is the ratio of sum of the product of the number of credits with the grade point scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.,

$$SGPA = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

Where, C_i is the number of credits of the i^{th} subject and G_i is the grade point scored by the student in the i^{th} course.

The Cumulative Grade Point Average (CGPA) will be computed in the same manner considering all the courses undergone by a student over all the semesters of a program, i.e.,

$$CGPA = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

Where “ S_i ” is the SGPA of the i^{th} semester and C_i is the total number of credits up to that semester.

Both SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts. While computing the SGPA the subjects in which the student is awarded Zero grade points will also be included.

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale. Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by the letters S, A, B, C, D and F.

Award of Class:

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B. Tech. Degree, he/she shall be placed in one of the following four classes:

Class Awarded	CGPA Secured
First Class with Distinction	≥ 7.5
First Class	$\geq 6.5 < 7.5$
Second Class	$\geq 5.5 < 6.5$
Pass Class	$\geq 5.0 < 5.5$

CGPA to Percentage conversion Formula – $(CGPA - 0.5) \times 10$

19. With-holding of Results

If the candidate has any dues not paid to the university or if any case of indiscipline or malpractice is pending against him/her, the result of the candidate shall be withheld in such cases.

20. Multiple Entry / Exit Option

a. Exit Policy:

The students can choose to exit the three-year Programme at the end of first/second year.

- i) **UG Certificate in (Field of study/discipline)** - Programme duration: First year (first two semesters) of the undergraduate Programme, 40 credits followed by an additional exit 4-credit bridge course(s) lasting two months, either in a skill based subject or work based on vocational course would help the candidates acquire job-ready competencies required to enter the workforce.
- ii) **UG Diploma (in Field of study/discipline)** - Programme duration: First two years (first four semesters) of the undergraduate Programme, 80 credits followed by an additional exit 04-credit bridge course(s) lasting two months, either in a skill based subject or work based on vocational course/ job-specific internship/ apprenticeship that would help the candidates acquire job-ready competencies required to enter the workforce.

b. Entry Policy:

Re-entry Criteria into Fourth Year (Seventh Semester)

The student who takes an exit after third year with an award of BCA may be allowed to re-enter in to Seventh Semester for completion of the BCA (Honors) or BCA (Honors with Research) Program as per the respective University / Admitting Body schedule after earning requisite credits in the Third year

Note: The Universities shall resolve any issues that may arise in the implementation of Multiple Entry and Exit policies from time to time and shall review the Policies in the light of periodic changes brought by UGC, AICTE and State government.

21. Gap Year Concept:

Gap year concept for Student Entrepreneur in Residence is introduced and outstanding students who wish to pursue entrepreneurship / become entrepreneur are allowed to take a break of one year at any time after 1 year to pursue full-time entrepreneurship Programme/to establish start-ups. This period may be extended to two years at the most and these two years would not be counted for the time for the maximum time for graduation. The principal of the respective college shall forward such proposals submitted by the students to the University. An evaluation committee constituted by the University shall evaluate the proposal submitted by the student and the committee shall decide whether to permit the student(s) to avail the Gap Year or not

22. Transitory Regulations

Discontinued, detained, or failed candidates are eligible for readmission as and when the semester is offered after fulfilment of academic regulations. Candidates who have been detained for want of attendance or not fulfilled academic requirements or who have failed after having undergone the course in earlier regulations or have discontinued and wish to continue the course are eligible for admission into the unfinished semester from the date of commencement of class work with the same or equivalent subjects as and when subjects are offered, subject to Section 2 and they will follow the academic regulations into which they are readmitted.

Candidates who are permitted to avail Gap Year shall be eligible for re-joining into the succeeding year of their BCA from the date of commencement of class work, subject to Section 2 and they will follow the academic regulations into which they are readmitted.

23. Minimum Instruction Days for a Semester:

The minimum instruction days including exams for each semester shall be 90 days.

24. Medium of Instruction:

The medium of instruction of the entire BCA undergraduate Programme (including examinations and project reports) will be in English only.

25. Student Transfers:

Student transfers shall be as per the guidelines issued by the Government of Andhra Pradesh and the Universities from time to time.

26. General Instructions:

- i. The academic regulations should be read as a whole for purpose of any interpretation.
- ii. Malpractices rules-nature and punishments are appended.

- iii. Where the words “he”, “him”, “his”, occur in the regulations, they also include “she”, “her”, “hers”, respectively.
- iv. In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.
- v. The Universities may change or amend the academic regulations or syllabi at any time and the changes or amendments shall be made applicable to all the students on rolls with effect from the dates notified by the Universities.
- vi. In the case of any doubt or ambiguity in the interpretation of the guidelines given, the decision of the Vice-Chancellor / Head of the institution is final.

**SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

Identification of Courses

Bachelor of Computer Applications

Each course shall be uniquely identified by an alphanumeric code of width 7 characters as given below.

No. of digits	Description
First two digits	Year of regulations Ex:25
Next one letter	Type of program: A: B. Tech B: M. Tech C: M.B.A D: M.C.A E:BBA F:BCA
Next two letters	Code of program: ST: Structural Engineering, P.E: Power Electronics & Electric Drives, CM: CAD/CAM, VL: VLSI, CS: Computer Science and Engineering, DS: Data Science MC : MCA , MB : MBA, HS : Humanities and Science
Last two digits	Indicate serial numbers: ≥ 01

Ex: BCA

25FCA01

25FHS01

RULES FOR

DISCIPLINARY ACTION FOR MALPRACTICES / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	<i>If the candidate:</i>	
1.(a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in Respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered Against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred for four consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practical's and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for four consecutive semesters from class work and all University examinations, if his involvement is established. Otherwise, the candidate is debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations

		of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject only.
6.	Refuses to obey the orders of the Chief Superintendent /Assistant - Superintendent /any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. If the candidate physically assaults the invigilator/ officer-in-charge of the Examinations, then the candidate is also debarred and forfeits his/her seat. In case of outsiders, they will be handed over to the police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the college's expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person (s) who do not belong to the College will be handed over to police and, a police case will be registered against them.

10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject only or in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester / year examinations, depending on the recommendation of the committee.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.
2. Punishment for institutions: (if the squad reports that the college is also involved in encouraging malpractices)
3. A show cause notice shall be issued to the college.
4. Impose a suitable fine on the college.
5. Shifting the examination center from the college to another college for a specific period of not less than one year.

Note: -

Whenever the performance of a student is cancelled in any subject/subjects due to Malpractice, he has to register for End Examinations in that subject/subjects consequently and has to fulfil all the norms required for the award of Degree.

Sri Venkateswara College of Engineering & Technology [Autonomous]
RVS Nagar, Chittoor – 517127.A.P
Department of Computer Applications

Course Structure and Scheme of Examination for Bachelor of Computer Applications

I-YEAR

BCA I-Semester

R25 Regulations

S. No	Course Code	Course Name	Hours Per week			Credits	Scheme of Examination (Max. Marks)		
			L	T	P		CIE	SEE	TOT
1	25FCA01	Computer Fundamentals and Organization	3	0	0	3	30	70	100
2	25FCA02	Programming Using “C”	3	0	0	3	30	70	100
3	25FCA03	Operating System	3	0	0	3	30	70	100
4	25FHS01	English	2	0	0	2	30	70	100
5	25FHS02	Discrete Mathematics	3	1	0	4	30	70	100
6	25FHS03	Introduction to Social Work	2	0	0	2	30	70	100
7	25FCA04	Office tools Laboratory	0	0	3	1.5	30	70	100
8	25FCA05	Programming Using “C” Laboratory	0	0	3	1.5	30	70	100
Total						20	240	560	800

BCA II-Semester

R25 Regulations

S. No	Course Code	Course Name	Hours Per week			Credits	Scheme of Examination (Max. Marks)		
			L	T	P		CIE	SEE	TOT
1	25FCA06	Data Structures using C	3	0	0	3	30	70	100
2	25FCA07	Oops through JAVA	3	0	0	3	30	70	100
3	25FCA08	Software Engineering	3	0	0	3	30	70	100
4	25FHS04	Probability & Statistics	3	1	0	4	30	70	100
5	25FHS05	Analytical Skills	1	1	0	2	30	70	100
6	25FHS06	Communication Skills	1	1	0	2	30	70	100
7	25FCA09	Data Structures using C Laboratory	0	0	3	1.5	30	70	100
8	25FCA10	Oops through JAVA Laboratory	0	0	3	1.5	30	70	100
Total						20	240	560	800

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	COMPUTER FUNDAMENTALS AND ORGANIZATION	L	T	P	C
25FCA01		3	0	0	3
		SEMESTER - I			

COURSE OUTCOMES:

At the end of the course, the Student will be able to:

1. Understand the concepts of computer organization for several engineering applications.
2. The ability and confidence to use the fundamentals of computer organization as a tool in the Engineering of digital systems.
3. To identify, formulate, and solve hardware and software computer engineering problems using sound computer engineering principle
4. To impart the knowledge on micro programming
5. Comprehend the concepts of advanced pipelining techniques

Unit-I

Functional Units of Computer System: CPU, registers, system bus, main memory unit, cache memory, Inside a computer, SMPS, Motherboard, Ports and Interfaces, expansion cards, ribbon cables, memory chips, processors.

Devices: Input and output devices (with connections and practical demo), keyboard, mouse, joystick, scanner, OCR,MR, bar code reader, web camera, monitor, printer, plotter.

Unit-II

Data Representation: Bit, Byte, Binary, Decimal, Hexadecimal, and Octal Systems, Conversions and Binary Arithmetic (Addition/ Subtraction/ Multiplication) Applications of IT.

Processor Organization: Fundamental Concepts, Execution of a Complete Instruction, Multiple-Bus Organization, Hardwired Control and Multi programmed Control

Unit-III

Computer Arithmetic : Addition and Subtraction of Signed Numbers, Design of Fast Adders, Multiplication of Positive Numbers, Signed-operand Multiplication, Fast Multiplication, Integer Division, Floating-Point Numbers and Operations.

Unit-IV

Basic Computer Organization and Design: Arithmetic Operations, Logic Micro operation Shift, Micro operation, Computer Registers, Computer instructions, Instruction cycle. Instruction codes, Timing and Control, Types of Instructions: Memory Reference Instructions, Input – Output and Interrupt. Machine Language, Assembly Language, Program Loops.

Unit-V

The Memory Organization: Basic Concepts, Semiconductor RAM Memories, Read-Only Memories, Speed, Size and Cost, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements, Secondary Storage.

TEXT BOOKS:

1. Computer Organization – Carl Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
2. Computer Systems Architecture – M.Moris Mano, 5th Edition, Pearson/PHI

REFERENCE BOOKS:

1. “Computer Architecture and Organization”, 3rd Edition by John P. Hayes,WCB/McGraw-Hill
2. “Computer Organization and Architecture: Designing for Performance”, 10th Edition by William Stallings, Pearson Education.
3. “Computer System Design and Architecture”, 2nd Edition by Vincent P. Heuring and Harry F. Jordan, Pearson Education.

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)

Course Code	OPERATING SYSTEMS	L	T	P	C
25FCA03		3	0	0	3
		SEMESTER - I			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Realize how applications interact with the operating systems.
2. Analyze the functioning of a kernel in an Operating systems.
3. Summarize resource management in operating systems.
4. Analyze various scheduling algorithms.
5. Examine concurrency mechanism in Operating Systems.

UNIT - I

Operating Systems Overview: Introduction, Operating system functions, Operating systems operations, Computing environments, Open-Source Operating Systems.

System Structures: Operating System Services, User and Operating-System Interface, systems

UNIT - II

Process Concept: Process scheduling, Operations on processes, Inter-process communication, Communication in client server systems.

Multithreaded Programming: Multithreading models, Thread libraries, Threading issues, Examples. Process Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms, Multiple processor scheduling, Thread scheduling, Examples.

UNIT - III

Inter-process Communication: Race conditions, Critical Regions, Mutual exclusion with busy waiting, Sleep and wakeup, Semaphores, Mutexes, Monitors, Message passing, Dining philosophers problem, Readers and writers problem. Inter-process Communication: Race conditions, Critical Regions, Mutual exclusion with busy waiting, Sleep and wakeup, Semaphores, Mutexes, Monitors, Message passing, Barriers, Classical IPC Problems - Dining philosophers problem, Readers and writers problem.

Deadlocks: Resources, Conditions for resource deadlocks, Ostrich algorithm, Deadlock detection And recovery, Deadlock avoidance, Deadlock prevention.

UNIT - IV

Memory-Management Strategies: Introduction, Swapping, Contiguous memory allocation, Paging, Segmentation, Examples. **Virtual Memory Management:** Introduction, Demand paging, Copy on-write, Page replacement, Frame allocation, Thrashing, Memory-mapped files, Kernel memory allocation, Examples.

UNIT - V

System Protection: Goals of protection, Principles and domain of protection, Access matrix, Access control, Revocation of access rights. **System Security:** Introduction, Program threats, System and Network threats, Cryptography as a

Text Books:

1. Silberschatz A, Galvin P B, and Gagne G, Operating System Concepts, 9th edition, Wiley, 2016.
2. Tanenbaum A S, Modern Operating Systems, 3rd edition, Pearson Education, 2008. (Topics: Inter-process Communication and File systems.)

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)

Course Code	ENGLISH	L	T	P	C
25FHS01		2	0	0	2
		SEMESTER - I			

COURSE OUTCOMES:

At the end of the course, the Student will be able to:

1. Understand the importance of listening and practice effective listening.
2. Use grammar effectively for accuracy in writing and speaking.
3. Use relevant vocabulary in everyday communication.
4. Acquire ability to use Soft Skills in professional and daily life.
5. Confidently use the skills of communication.

Unit – I Listening Skills

Listening Skills: Importance of Listening, Types of Listening, Barriers to Listening, Effective Listening

Unit – II Speaking Skills

Speaking Skills: Greetings & Introduction, Asking and Giving Information Yes, We Can - Barack Obama, Agreeing/Disagreeing, A Leader Should Know How to Manage Failure- Dr.A.P.J. Abdul Kalam

Unit – III Reading Skills

Reading Skills: Importance of Reading, Types of Reading, SQ3R Method, Comprehension,

Unit – IV Writing Skills

Writing Skills: Letter writing, Types of Letter writing,

Grammar: Concord, Articles, Prepositions, Tenses, Question tags

Unit – V Soft Skills

Soft Skills: SWOC, Attitude, Emotional Intelligence, Netiquette, Interpersonal Skills

References:

1. Soft Skills, Dr. Alex (New Delhi: S. Chand & Company Ltd) 2009.
2. Interpersonal Skills Training, Philip Burnard (New Delhi: VivaBooks Private Ltd)
3. Soft Skills for Everyone, Jeff Butterfield (New Delhi: Cengage Learning India Pvt Ltd) 2012
4. Emotional Intelligence, Daniel Goleman (London: Bloomsbury Publishing) 1996
5. A Text Book of English Phonetics for Indian Students, Balasubramanian
6. A Hand book for English Language Labor, E. Suresh Kumar, P. Sreehari
7. Communication Skills (2nd Edition), Sanjay Kumar & Pushpa Lata, Oxford University Press, 2016.

Activities:

Make the students listen to news concepts Watch interviews and speeches on YouTube
Role plays on formal and informal conversations

(AUTONOMOUS)

Course Code	DISCRETE MATHEMATICS	L	T	P	C
25FHS02		3	1	0	4
		SEMESTER - I			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Demonstrate the ability to understand and construct precise mathematical proofs
2. Demonstrate the ability to use logic and set theory to formulate precise statements
3. Acquire the knowledge to analyze and solve counting problems on finite and discrete structures
4. Demonstrate the ability to describe and manipulate sequences

UNIT – I

The Foundations Logic and Proofs: Propositional Logic, Applications of Propositional Logic, Propositional equivalence, Predicates and Quantifiers, Nested Quantifiers.

UNIT – II

Basic Structures, Sets, Functions, Sequences, Sums, Matrices and Relations: Sets, Functions, Sequences & Summations, Cardinality of Sets and Matrices Relations, Relations and Their Properties, n-ary Relations and Their Applications, Representing Relations, Closures of Relations, Equivalence

UNIT - III

Algorithms, Induction and Recursion: Algorithms, the Growth of Functions, Complexity of Algorithms. Induction and Recursion: Mathematical Induction, Strong Induction and Well-Ordering,

UNIT – IV

Discrete Probability and Advanced Counting Techniques: An Introduction to Discrete Probability, Probability Theory, Bayes' Theorem, Expected Value and Variance.

Advanced Counting Techniques: Recurrence Relations, Solving Linear Recurrence Relations, Divide-and-Conquer Algorithms and Recurrence Relations.

UNIT – V

Graphs: Graphs and Graph Models, Graph Terminology and Special Types of Graphs, Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths, Shortest-Path

TEXTBOOKS

1. Discrete Mathematics and Its Applications with Combinations and Graph Theory- Kenneth H Rosen, 7th Edition, TMH.

REFERENCES

1. Discrete Mathematical Structures with Applications to Computer Science-J.P. Tremblay and R. Manohar, TMH,
2. Discrete Mathematics for Computer Scientists & Mathematicians: Joe L. Mott, Abraham Kandel, Theodore P. Baker, 2nd ed., Pearson Education.
3. Discrete Mathematics- Richard Johnsonbaugh, 7th ed., Pearson Education.
4. Discrete Mathematics with Graph Theory- Edgar G. Goodaire, Michael M. Parmenter.
5. Discrete and Combinatorial Mathematics - an applied introduction: Ralph.P. Grimald, 5th edition, Pearson Education.

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	INTRODUCTION TO SOCIAL WORK	L	T	P	C
25FHS03		2	0	0	2
		SEMESTER - I			

Course Outcomes:

At the end of the course, the Student will be able to:

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

Unit – I:

Introduction to social work and concepts related to social work

Introduction to Social Work- Definition and Scope
Objectives and Functions of social work
Social welfare services, Social Reforms,
Major social problems in India;

Unit – II

Methods of Working with Individuals and Groups

Definition-scope and importance of social case work
Principles and process of social case work
Tools and techniques in social case work
Counselling skills.

Unit – III

Working with Communities and Field Work in social work

Community - definition, characteristics and types
Community organization as a method of social work
Definition-objectives, principles and phases of community organization
Concepts of community development

Unit – IV

Philosophy and Principles

Basic values, Philosophy and Principles of social work

Unit – V

Problems faced by social work profession

Problems faced by social work profession in India:, Misconceptions about professional social work

Suggested Co-curricular Activities: (6 hours)

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

Text books:

1. Chowdhary, Paul. D. (1992). Introduction to Social Work. New Delhi: Atma Ram and Sons.
2. Friedlander W.A. (1955). Introduction to social welfare, New York, Prentice Hall.

Reference books:

3. Government of India, (1987). Encyclopedia of Social Work in India (Set of 4 Volumes). New Delhi, Publications Division, Ministry of Information and Broadcasting.
4. Lal Das, D.K. (2017): Practice of Social Research - Social Work Perspective, Jaipur, Rawat Publications.
5. Madan, G.R. (2009). Indian Social Problems (Volume 1 & 2). New Delhi: Allied publishers Private Limited.

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	OFFICE TOOLS LABORATORY	L	T	P	C
25FCA04		0	0	3	1.5
		SEMESTER - I			

Course Outcomes:

At the end of the course, the Student will be able to:

- 1: Perform Hardware troubleshooting.
- 2: Understand Hardware components and inter dependencies.
- 3: Safeguard computer systems from viruses/worms.
- 4: Document/ Presentation preparation.
- 5: Perform calculations using spreadsheets.

PC Hardware & Software Installation

Task 1: Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

Task 2: Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Task 3: Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Internet & World Wide Web

Task 1: Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

Task 2: Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.

WORD

Task 1: Table Practice Document.

In this practice project for Word, students create a document with a title and table. The table has two columns that have different font alignment and includes various fonts.

Task 2: Create a document exactly like the one shown here and save a copy of it in your folder.

Task 3: i. Make the word “MS-WORD” as the watermark of the document.
ii. Set the background color of the document as RED using page color option.

- iii. Change the border of the Change the border of the page using page border option.
- iv. Choose the indents tab.
- v. Change the spacing between paragraphs by adding space above the paragraph

EXCEL

Task 1: Creating a Scheduler - Features to be covered: Gridlines, Format Cells, Summation, auto fill, Formatting Text

Task 2: Calculating GPA -. Features to be covered:- Cell Referencing, Formulae in excel – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function,

LOOKUP/VLOOKUP

Task 3: Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting

POWER POINT

Task 1: Students will be working on basic power point utilities and tools which help them create basic power point presentations. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in PowerPoint.

Task 2: Interactive presentations - Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts.

Task 3: Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), and Inserting – Background, textures, Design Templates, Hidden slides.

AI TOOLS – ChatGPT

Task 1: Prompt Engineering: Experiment with different types of prompts to see how the model responds. Try asking questions, starting conversations, or even providing incomplete sentences to see how the model completes them.

- Ex: Prompt: "You are a knowledgeable AI. Please answer the following question: What is the capital of France?"

Task 2: Creative Writing: Use the model as a writing assistant. Provide the beginning of a story or a description of a scene, and let the model generate the rest of the content. This can be a fun way to brainstorm creative ideas

- Ex: Prompt: "In a world where gravity suddenly stopped working, people started floating upwards. Write a story about how society adapted to this new reality."

Reference Books:

1. Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dream tech, 2003
2. The Complete Computer upgrade and repair book, Cheryl A Schmidt, WILEY Dream tech, 2013, 3rd edition
3. Introduction to Information Technology, IITL Education Solutions limited, Pearson Education, 2012, 2nd edition
4. PC Hardware - A Handbook, Kate J. Chase, PHI (Microsoft)
5. LaTeX Companion, Leslie Lamport, PHI/Pearson.
6. IT Essentials PC Hardware and Software Companion Guide, David Anfins on and Ken Quamme. – CISCO Press, Pearson Education, 3rd edition
IT Essentials PC Hardware and Software Labs
and Study Guide, Patrick Regan– CISCO
Press, Pearson Education, 3rd edition

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	Programming Using “C” Laboratory	L	T	P	C
25FCA05		0	0	3	1.5
		SEMESTER - I			

Course Outcomes:

At the end of the course, the Student will be able to:

1. After Completion of this course the student would be able to
2. Read, understand and trace the execution of programs written in C language.
3. Write the C code for a given algorithm.
4. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.

Exercise 1: Basics

1. Write a program to print sample strings like “hello world”, “Welcome to C Programming” with different formats using escape sequences.
2. Write a Program to print different data types in ‘C’ and their ranges.
3. Write a Program to initialize, assignment & printing variables of different data types.

Exercise 2: Operators

1. Write a Program to demonstrate arithmetic operators. (+,-,*,/,%)
2. Write a Program to demonstrate logical operators.(logical AND, logical OR)
3. Write a Program to read radius value from the keyboard and calculate the area of circle and print the result in both floating and exponential notation.
4. Write a Program to calculate simple interest.
5. Write a Program to convert temperature. (Fahrenheit –Centigrade and vice-versa)

Exercise 3: Decision Statements

1. Write a Program to read marks of a student in six subjects and print whether pass or fail (using if-else).
2. Write a Program to calculate roots of quadratic equation (using if-else).
3. Write a Program to calculate electricity bill. Read starting and ending meter reading.

The charges are as follows.

No. of Units Consumed	Rate in(Rs)
1-100	1.50 per unit
101-300	2.00 per unit for excess of 100 units
301-500	2.50 per unit for excess of 300 units
501-above	3.25 per unit for excess of 500 units

Exercise 4: Switch operations

1. Write a Program to perform arithmetic operations using switch case.
2. Write a Program to display colors using switch case (VIBGYOR).

Exercise5: Basic Loop operations

1. Write a program to calculate sum of individual digits of a given number.
2. Write a program to check whether given number is palindrome or not.
3. Write a program to print prime numbers in the given range.
4. Write a program to display multiplication tables from 1 to 10 except 3 and 5.
5. Write a program to print the Fibonacci series for given 'N' value.
4. Write a program to print the following formats.

```
1          *
1 2        * *
1 2 3      * * *
1 2 3 4    * * * *
```

Exercise 6: Arrays

1. Write a program to store 10 elements in the 1-D array and print sum of the array.
2. Write a program to print minimum and maximum elements in the 1-D array.
3. Write a program to perform matrix addition and matrix subtraction.
4. Write a program to perform matrix multiplication by checking the compatibility.

Exercise 7: Functions

1. Write a program to find sum of two numbers using functions.
2. Write a program to find product of two numbers using functions without arguments, without return type.
3. Write a program to swap two numbers using
a) Call By Value B) Call By Reference.
4. Write a program to calculate factorial, gcd using recursion and non-recursion functions.

Exercise 8: Structures

1. Write a program to create structure for an account holder in a bank with following Fields: name, account number, address, and balance and display the details of five account holders.
2. Write a program to find total marks of individual student and average marks for 10 Students using structures.

Exercise 9: File operations using command line arguments

1. Write a program which copies the contents of one file to another file using command line arguments.

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
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Course Code	DATA STRUCTURES USING C	L	T	P	C
25FCA06		3	0	0	3
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Understand the concepts of Data Structures to develop solutions for particular problems.
2. Apply the algorithms such as Queues and types of Queues.
3. Design and implement abstract data types such as linked list by using the programming language for dynamic implementations.
4. Implement the concepts of Trees and Graphs to handle the real time problems.
5. Demonstrate the ability to plan, design, execute and document sophisticated technical Programs to handle various sorts and searching of data structures.

Unit – I Introduction to Data Structures, Stack

Introduction to Data Structures: Introduction to Data Structure, Classification of Data Structure: Linear, Non-Linear, Operations on Data Structure, Algorithms Analysis, Approach to solve algorithm design Problems, Types of Case Analysis, Big-O Notation, Abstract Data Type. **Stack:** Introduction, Implementation of Stack, Operations on Stacks: Empty, Full, Push & Pop, Applications of stack, Conversion from Infix, Prefix to Postfix Expressions, Evaluation of postfix expression using stack.

Unit - II Queue

Queue: Introduction, Implementation of Queues, Operations on Queue: Create, Add, Delete, Full and Empty Queue, Circular Queue: Introduction, Implementation of Circular Queues, Operations on Circular Queues, Deques: Introduction, Implementation, Operations on Deques and Priority Queue: Introduction, Implementation of Priority Queues, Operations.

Unit – III Link Lists

Link Lists: Linear List concept, Linked List Terminology, Representation of Linked List in Memory, Types of Linked List, Single Linked List, Doubly Linked List, Single Circular Linked list, Circular Doubly Linked List, Operations on Linked List: Creation, Traversing, Insert a node (empty list, beginning, middle, end), Delete a node (first, Last, at any position), Traversing node, Searching node, Print list, Count Nodes, Sort Lists, Linked list based polynomial addition.

Unit – IV Trees

9 Lectures

Trees: Introduction to Tree & its Terminology, Binary trees, Types of Binary trees, Representation of Binary Tree, Traversals (Inorder, Preorder, Post order), Expression Tree, Binary Search Tree, Insertion and Deletion in BST, Heap: Min Heap, Max Heap. **Graph:** Terminology, Representation of Graph: Adjacency Matrix, Traversals (BFS, DFS).

Unit – V Sorting & Searching Techniques

Sorting & Searching Techniques: Bubble Sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort, Sequential/Linear Search, Binary Search.

TEXTBOOKS

1. Fundamentals of Data Structures in C, Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, Computer Science Press.
2. Data Structures: A Pseudocode Approach with C”, Richard F. Gilberg & Behrouz A Forouzan, Second Edition

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	OOPS THROUGH JAVA	L	T	P	C
25FCA07		3	0	0	3
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Understand the concept of object oriented programming and implement it in Java.
2. Comprehend building blocks of OOPs language, class, objects and method etc.
3. Implement the inheritance, package and interfaces.
4. Analyze the exceptions and multithreading in object oriented programs.
5. Design GUI using Applets understanding about events.

Unit – I

Object Oriented Programming Concepts –Abstraction, Encapsulation, Inheritance and Polymorphism, Introduction to Java: Evolution of Java, Features of Java, Byte Code and Java virtual machine, JDK, Structure of Simple Java Program, Compiling and Interpreting Applications, Java Tokens: Java Character set, Keyword and Identifiers. Data Types, Operators and Expression, Control Statements, Looping. Array and String: Single and Multidimensional Arrays, String Class, String Buffer Class, Operations on String, Command Line Argument.

Unit - II

Classes, Objects & Methods: Class, Object, Object Reference, Methods in Java, Method Overloading, Constructor, Constructor Overloading, Passing and Returning Object from method, new Operator, this & Static Keyword, finalize()method, Visibility modifiers, Nested Class, Inner Class.

Unit – III

Inheritance and Polymorphism: Inheritance in Java, Types of Inheritance, Member Access Rule, Use of this and Super Keyword, Abstract class, Dynamic Method Dispatch, Use of final Keyword Package & Interface: Defining and Importing Packages, Defining and Implementing Interfaces, Extending Interfaces.

Unit – IV

I/O STREAM: Concept of Streams, Streams Classes: Byte and Character Stream, Reading Console input & Writing Console output.

Exception Handling: Exception Type, Usage of try, catch, throw, throws and finally Keywords, Creating Own Exception Classes.

Multi-Threading: Concept of Thread, Thread Life Cycle, Creating Thread Using Thread Class and Runnable Interface, Thread Priority, synchronization, Inter thread communication.

Unit – V

Java Utilities: Type wrappers: Number, Double, Float, Byte, Short, Integer and Long, Character, Boolean, Math class. Collections: Collection interfaces, collection classes, legacy classes and Interfaces: Enumeration interface. Applets: Applet basics, Applet architecture, an applet skeleton, Applet display method, Repainting, Using Status window, HTML APPLET tag, passing

parameters to applet.

TEXTBOOKS

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill Education (India) Pvt. Ltd.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education.

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	SOFTWARE ENGINEERING	L	T	P	C
25FCA08		3	0	0	3
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Obtain basic software life cycle activity skills.
2. Design software requirements specifications for given problems.
3. Implement structure, object oriented analysis and design for given problems.
4. Design test cases for given problems.
5. Apply quality management concepts at the application level.

Unit – I

Basic concepts: abstraction versus decomposition, evolution of software engineering techniques, Software development life cycle (SDLC) models: Iterative waterfall model, Prototype model, Evolutionary model, Spiral model, RAD model, Agile models, software project management: project planning, project estimation, COCOMO, Halstead’s Software Science, project scheduling, staffing, Organization and team structure, risk management, configuration management.

Unit - II

The nature of software, The Unique nature of Webapps, Software Myths, Requirements gathering and analysis, software requirements specification, Traceability, Characteristics of a Good SRS Document, IEEE guidelines, representing complex requirements using decision tables and decision trees.

Unit – III

Good Software Design, Cohesion and coupling, Control Hierarchy: Layering, Control Abstraction, Depth and width, Fan-out, Fan-in, Software design approaches, object oriented vs. function oriented design. Overview of SA/SD methodology, structured analysis, Data flow diagram, Extending DFD technique to real life systems, Basic Object oriented concepts, UML Diagrams, Structured design, Detailed design, Design review, User Guidance and Online Help, Mode-based vs Mode-less Interface.

Unit – IV

Coding standards and guidelines, code review, software documentation, Testing, Black Box Testing, White Box Testing, debugging, integration testing, Program Analysis Tools, system testing, performance testing, regression testing, Testing Object Oriented Programs.

Unit – V

Software reliability, Statistical testing, Software quality and management, ISO 9000, SEI capability maturity model (CMM), Personal software process (PSP), Six sigma, Software quality metrics, CASE and its scope, CASE environment, CASE support in software life cycle, Characteristics of software maintenance, Software reverse engineering, Software maintenance processes model, Estimation maintenance cost.

Textbooks:

1. Rajib Mall, “Fundamentals of Software Engineering”, 5th Edition, PHI, 2018.
2. Pressman R, “Software Engineering- Practioner Approach”, McGraw Hill.

Reference Books:

1. Somerville, “Software Engineering”, Pearson 2.
2. Richard Fairley, “Software Engineering Concepts”, Tata McGraw Hill.
3. Jalote Pankaj, “An integrated approach to Software Engineering”, Narosa

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)

Course Code	PROBABILITY & STATISTICS	L	T	P	C
25FHS04		3	1	0	4
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Acquire knowledge in finding the analysis of the data quantitatively or categorically and various statistical elementary tools.
2. Develop skills in designing mathematical models involving probability, random variables and the critical thinking in the theory of probability and its applications in real life problems.
3. Apply the regression and correlation analysis in the relevant application areas.
4. Analyze to test various hypotheses included in theory and types of errors for large samples.
5. Apply the different testing tools like t-test, F-test, chi-square test to analyze the relevant real life problems.

Unit – I

Data Science and Probability: Data Science: Statistics introduction, Population vs Sample, collection of data, primary and secondary data, types of variable: dependent and independent Categorical and Continuous variables, data visualization, Measures of central tendency, Measures of dispersion (variance). Probability: Probability axioms, addition law and multiplicative law of probability, conditional probability, Baye’s theorem (without proof).

Unit - II

Random Variable and Probability Distributions: Random variables (discrete and continuous), probability density functions, probability distribution - Binomial, Poisson and normal distribution- their properties (mathematical expectation and variance).

Unit – III

Correlation, Regression and Estimation: Correlation, correlation coefficient, rank correlation, regression, lines of regression, regression coefficients, principle of least squares and curve fitting (straight Line, parabola and exponential curves). Estimation: Parameter, statistic, sampling distribution, point estimation, properties of estimators, interval estimation.

Unit – IV

Testing of Hypothesis and Large Sample Tests: Formulation of null hypothesis, alternative hypothesis, the critical region, two types of errors, level of significance, and power of the test. Large Sample Tests: Test for single proportion, difference of proportions, test for single mean and difference of means. Confidence interval for parameters in one sample and two sample problems

Unit – V

Small Sample Tests: Student t-distribution (test for single mean, two means and paired t-test), testing of equality of variances (F-test), χ^2 - test for goodness of fit, χ^2 - test for independence of attributes

Text Books

1. Miller and Freunds, Probability and Statistics for Engineers, 7/e, Pearson, 2008.
2. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 11/e, Sultan Chand & Sons Publications, 2012

Reference Books

- 1 S. Ross, A First Course in Probability, Pearson Education India, 2002.
- 2.W. Feller, An Introduction to Probability Theory and its Applications, 1/e, Wiley, 1968

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	ANALYTICAL SKILLS	L	T	P	C
25FHS05		1	1	0	2
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

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

Unit – I

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

Unit - II

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

Business computations: Percentages, Profit & loss, Simple compound interest

Unit – III

Quantitative aptitude: Averages, Ratio and proportion, Time-distance, Time and Work.

Data Interpretation: Tabulation, Bar Graphs, Pie Charts.

Unit – IV

Analytical Reasoning -I: Seating Arrangement, Puzzles Syllogisms, Analogies, Coded Inequalities

Unit – V

Analytical Reasoning – II : Venn Diagrams, Logical Diagrams, Statements & Assumptions, Statements & Conclusions, Dices & Cubes

Textbooks:

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

Reference Books:

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

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	COMMUNICATION SKILLS	L	T	P	C
25FHS06		1	1	0	2
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Develop interview skills.
2. Acquire presentation skills.
3. Effectively play their roles in group discussions.
4. Enhance the skills of public speaking.

Unit – I BASICS OF COMMUNICATION

1. Nature and importance of communication
2. Process of Communication
3. Principles of communication
4. Barriers to effective communication

Unit – II PRESENTATION SKILLS

1. Preparation of a good presentation
2. Verbal communication in presentation
3. Non-verbal communication in presentation

Unit – III INTERVIEWS AND GROUP DISCUSSIONS

1. Interview and its types
2. Before, during and after an interview
3. Do's and Don'ts in an interview
4. Basic Interview questions

Recommended Activities: (6 hours)

1. Presenting seminar papers.
2. Mock interviews.
3. Using Power point presentations in seminars.

References:

1. Working in English, Jones, Cambridge
2. Business Communication, Raman -Prakash, Oxford
3. Speaking Personally, Porter-Ladousse, Cambridge
4. Speaking Effectively, Jermy Comfort, et.al, Cambridge
5. Anjanee Sethi & Bhavana Adhikari, Business Communication, Tata McGraw Hill
6. Jermy Comfort, Speaking Effectively, et.al, Cambridge

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
(AUTONOMOUS)**

Course Code	DATA STRUCTURES USING C LABORATORY	L	T	P	C
25FCA09		0	0	3	1.5
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Develop C programs for computing and real life applications using basic elements data Structures like stacks, queues, linked lists, trees and graphs.
2. Implement searching and sorting algorithms

List of exercises able to do the students:

1. Write a program in 'C' to perform various operations on Stacks using Arrays.
2. Write a program in 'C' to perform to evaluate the Postfix Expression using Stacks.
3. Write a program in 'C' to perform various operations on Queues using Arrays.
4. Write a program in 'C' to perform various operations on Singly linked list.
5. Write a program in 'C' to perform various operations on doubly linked list.
6. Write a program in 'C' on Binary Tree creation and Traversals.
7. Write a program in 'C' on Graph Traversals using
 - a) Breadth-First-Search Traversal
 - b) Depth-First-Search Traversal
8. Write a program in 'C' to sort 'N' numbers in ascending order using Insertion Sort.
9. Write a program in 'C' to sort 'N' numbers in ascending order using Selection Sort.
10. Write a program in 'C' to sort 'N' numbers in ascending order using Bubble Sort
11. Write a program in 'C' to search for a given item using Linear Search.
12. Write a program in 'C' to search for a given item using Binary Search.

**SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY, CHITTOOR
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Course Code	OOPS THROUGH JAVA LABORATORY	L	T	P	C
25FCA10		0	0	3	1.5
		SEMESTER - II			

Course Outcomes:

At the end of the course, the Student will be able to:

1. Develop efficient programs using multithreading.
2. Design reliable programs using Java exception handling features.
3. Apply appropriate programming constructs to solve a problem.

Week 1:

- a) Write a java program to find the Fibonacci series using recursive and non-recursive functions
- b) Write a program to multiply two given matrices.
- c) Write a program for Method overloading and Constructor overloading

Week 2:

- a) Write a program to demonstrate execution of static blocks ,static variables & static methods.
- b) Write a program to display the employee details using Scanner class
- c) Write a program for sorting a given list of names in ascending order

Week 3:

- a) Write a program to implement single and Multi level inheritance
- b) Write a program to implement Hierarchical Inheritance.
- c) Write a program to implement method overriding.

Week 4:

- a) Write a program to create an abstract class named Shape that contains two integers and an empty method named printArea (). Provide three classes named Rectangle, Triangle and Circlesuch that each one of the classes extends the class Shape. Each one of the classes contains only the method printArea () that prints the area of the given shape.

b) Write a program to implement Interface.

Week 5:

- a) Write a program to create inner classes
- b) Write a program to create user defined package and demonstrate various access modifiers.
- c) Write a program to demonstrate the use of super and final keywords.

Week 6 :

- a) Write a program if number is less than 10 and greater than 50 it generate the exception out of range. else it displays the square of number.
- b) Write a program with multiple catch Statements.

Week 7:

- c) Write a Program to implement simple Thread by extending Thread class and implementing runnable interface.
- d) Write a program that implements a multi-thread application that has three threads.
- e) Write a program to set and print thread priorities.

Week 8:

- a) Write a program to list all the files in a directory including the files present in all its subdirectories.
- b) Write a Program to Read the Content of a File Line by Line.

Week 9:

Write a program that works as a simple calculator. Use a Grid Layout to arrange Buttons for digits and for the + - * % operations. Add a text field to display the result.

References:

1. P. J. Deitel, H. M. Deitel, "Java for Programmers", Pearson Education, PHI, 4th Edition, 2007.
2. P. Radha Krishna, "Object Oriented Programming through Java", Universities Press, 2nd Edition, 2007
3. Bruce Eckel, "Thinking in Java", Pearson Education, 4th Edition, 2006.
4. Sachin Malhotra, Saurabh Chaudhary, "Programming in Java", Oxford University Press, 5th Edition, 2010.