



1. Learning Objectives:

- To identify, design, develop and implement solution of various problems by using different data structures learnt in Semester II.
- The project work constitutes an important component of the MCA programme and it is to be carried out with due care and should be executed with seriousness by the students.
- To make the student ready to practice acquired knowledge of Data structures within the chosen area.

2. **Desirable:** Knowledge of various data structures and its applications, C programming.

3. General Guidelines for Project development

- Group size: 2-3 Persons per group.
- The project should be free from plagiarism of any kind.
- Project must use files to store data.
- An internal guide will be allocated to each Group.
- Use of any of the linear or non linear data structure is essential.
- One can use searching and/or sorting techniques to generate specific outputs
- **Project should not be copied from earlier batches or downloaded from Internet. It should be ones' own creation.**
- Project definition can be derived from curriculum, or it may be a real-life project based on some research area, gaming or such other areas where usage of Data Structures is essential.
- It is strongly recommended that faculty guides should take ownership of the student projects being guided by them.
- The project should be able to test the student's ability to use the technology and the features of the language he/she studied during the semester even if the problem does not belong to the curriculum.
- Project statement and scope should be written very clearly along with potential benefits (and the beneficiaries) right from the initial semesters.
- Students should be oriented to follow the concept of algorithmic approach right from the initial semesters.
- Students should prepare test plan, test data and should go through testing of their software.

4. Knowledge about the following is expected to be demonstrated

- Proper knowledge about the purpose of the application and the use of specific data structure, and algorithm. Time and space efficiency for the suggested algorithm.

5. Minimum Expectations:

- Application must be developed using basic operations on various Data structures.
- Knowledge of data structures used and their storage representation.
- Knowledge of reason for using a particular data structure.
- Data Storage in files.

6. Evaluation scheme

Evaluation Parameters :

- The main parameter of assessment would be the ability of the students understanding of the subject and the code.



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Integrated MCA 3rd Semester

Subject Name: Software Project – II (SP2)

Subject Code: 2638605

With effective
from academic
year 2018-19

- Though the project and domain specific knowledge would be assessed for, the evaluation would predominantly depend on the students' ability to explain, modify or revise of code.
- Coding standards should be followed meticulously. Clear justification of data structures used and approach taken is appreciated.

Sr. No.	Particulars	Weightage
1	Project domain understanding	30%
2	Code Changes & code explanation	40%
3	Coding standards	10%
4	VIVA	20%

7. Some Sample project definitions:

1. Implement the dictionary based on stacks. Your implementation should declare and use two stacks.
2. Implement the dictionary based on queues. Your implementation should declare and use two queues.
3. Implement a city database using a BST to store the database records
4. Devise an efficient algorithm to sort a set of numbers with values in the range 0 to 30,000. There are no duplicates. Keep memory requirements to a minimum. Try to justify the efficiency of your algorithm.
5. Implement a system for managing document retrieval. Your system should have the ability to insert (abstract references to) documents into the system, associate keywords with a given document, and to search for documents with specified keywords.
6. Implement a system to view images, an image viewer – Previous and next images are linked, hence can be accessed by next and previous button.
7. Implement a system to view Previous and next page in web browser – We can access previous and next url searched in web browser by pressing back and next button since, they are linked as linked list.
8. Implement a system for Music Player – Songs in music player are linked to previous and next song, you can play songs either from starting or ending of the list.
9. Fibonacci Heap.
10. Employee Record System
11. Library Management System
12. Calendar Application
13. Student Record System
14. Quiz (Who will be the millionaire)
15. Hangman Game
16. Pacman Game
17. Snake Game
18. Tic-Tac-Toe Game
19. Typing Tutor
20. Personal Diary Management System