

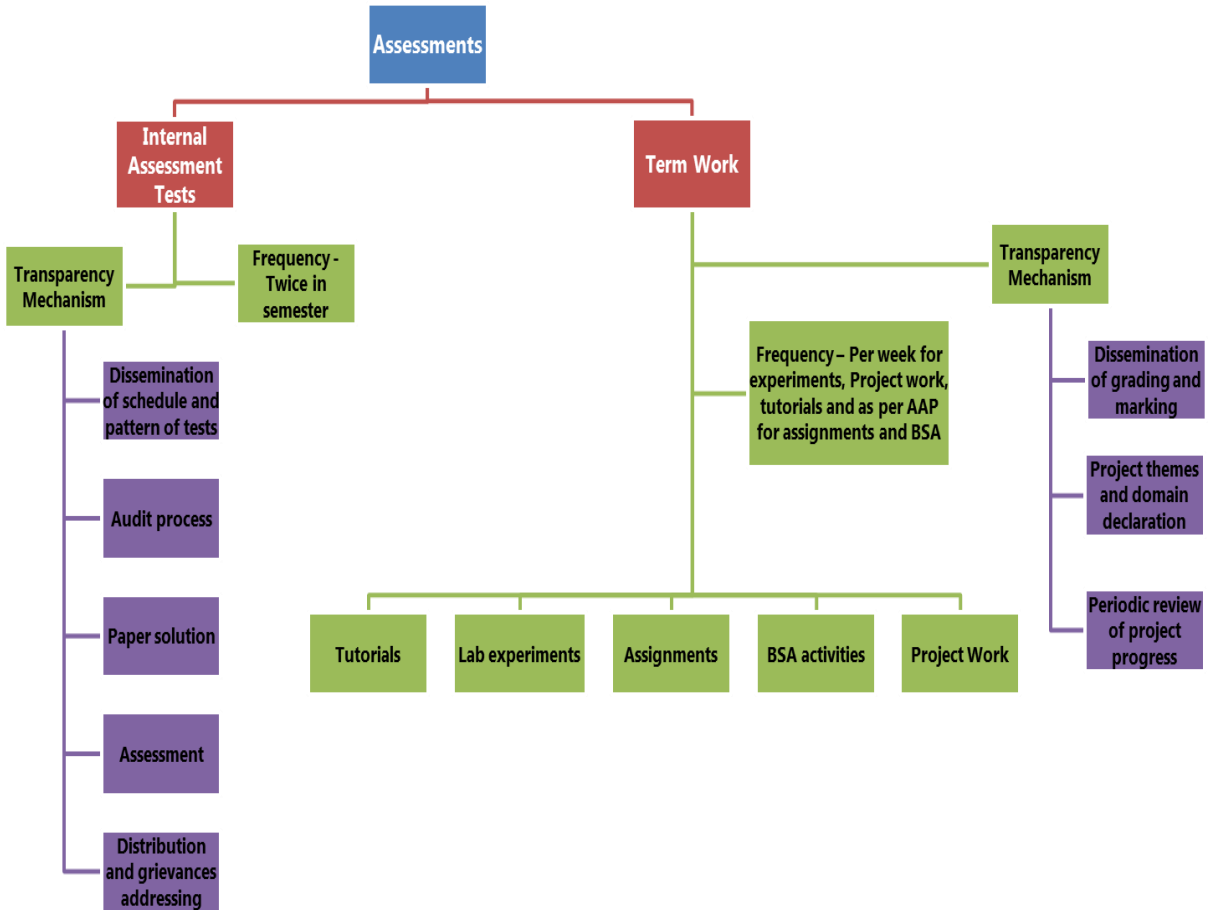
**Additional Information for the QLM:**

**2.5.1 QLM Mechanism of internal assessment is transparent and robust in terms of frequency and mode**

**This .pdf file comprise the following:**

1. Chart shows various components of internal assessment mechanism with respect to frequency and variety.
2. Dissemination of schedule and pattern of the test
3. Audit Process by cluster mentor
4. Rubric for grading and marking of Term work communicated through AAP at the beginning of semester
5. Report on BSA activities
6. Final year Project review

**1. Chart shows various components of internal assessment mechanism with respect to frequency and variety**



## 2. Dissemination of schedule and pattern of the test:

### a) Snapshots of AAP:

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW/Practical	Tutorial	Total
CSC402	Analysis of Algorithms	03	--	--	03	--	--	03
CSL401	Analysis of Algorithms Lab	--	02	--	--	01	--	01

Subject Code	Subject Name	Examination Scheme							
		Theory Marks IA Test			End Sem. Exam Marks	TW	Practical	Oral	Total
		IA 1	IA 2	Average of IA1 and IA2					
CSC402	Analysis of Algorithms	20	20	20	80	--	--	--	100
CSL401	Analysis of Algorithms Lab	--	--	--	--	25	--	25	50

**8**

### Internal Assessment / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	IA Question Paper Pattern	Policy
1 <sup>st</sup> IA Test	05/03/2022	1, 2, 3	CO1- CO3	22 MCQ FOR 20 Marks each for IA 1 & IA2	No IA Re-test
2 <sup>nd</sup> IA Test	16/04/2022	4, 5, 6	CO4- CO6		IA is a Head of passing *
Pop Quiz	18/02/2022 29/04/2022	1, 2, 3 4, 5, 6	CO1, CO2, CO3 CO4, CO5, CO6	--	Online MCQ
Open Book Test	NA	NA	NA	--	--
Take Home Test	06/05/2022	1-6	CO1-CO6	Attempt any 2 out of 3 questions	Online Subjective

**3. Audit Process by cluster mentor:**

**a) Sample Audit:**

**Department of Computer Engineering  
Internal Assessment-1 Audit (2021-2022)-EVEN SEM**

Date: 05/03/2022			Semester: IV		
Name of the Subject: Analysis of Algorithms			Timings: 09:30 AM to 10:00 AM		
Question No.	Unit No.	Week No.	Question	Marks	CO
Q.1	1	3	The running time of insertion sort is (Best Case):	1 Mark	CO1
			a) $O(n^2)$		
			b) $O(n)$		
			c) $O(\log n)$		
Q.2	1	3	Which of the following sorting procedure is the slowest?	1 Mark	CO1
			A) Quick sort		
			b) Heap sort		
			c) Shell sort		
Q.3	2	4	The worst-case running time of quick sort is equal to:	1 Mark	CO2
			a) The worst-case running time of selection sort		
			b) The best-case running time of insertion sort		
			c) The worst-case running time of Merge sort		
Q.4	1	1	The time factor when determining the efficiency of algorithm is measured by	1 Mark	CO1
			a) Counting microseconds		
			b) Counting the number of key operations		
			c) Counting the number of functions		
Q.5	1	1	If for an algorithm time complexity is given by $O(1)$ then complexity of it is:	1 Mark	CO1
			a) Constant		
			b) Polynomial		
			c) Exponential		
Q.6	1	1	In the analysis of algorithms, what plays an important role?	1 Mark	CO1
			a) Text Analysis		
			b) Growth factor		
			c) Space		

			d) Impact Factor		
Q.7	1	2	Asymptotic or mathematical notations, which is used to represent the worst-case complexity of an Algorithm is _____.	1 Mark	CO1
			a) Big Omega $\Omega$ (f)		
			b) Big Theta $\theta$ (f)		
			c) Big O O (f)		
			d) Gamma Notation		
Q.8	1	1	An algorithm that indicates the amount of temporary storage required for running the algorithm, i.e., the amount of memory needed by the algorithm to run to completion is termed as _____.	1 Mark	CO1
			a) Big Theta $\theta$ (f)		
			b) Space complexity		
			c) Big Oh O (f)		
			d) None of the above		
Q.9	2	4	A divide and conquer approach to solving a problem is useful when	1 Mark	CO2
			a) We can break the problem into several subproblems that are similar to the original problems but smaller in size		
			b) The subproblems are overlapping so we don't have to solve them over and over again		
			c) The complexity is exponential to solve the entire problem		
			d) For optimal solution		
Q.10	2	4	The best case complexity is achieved in Quick sort when:	1 Mark	CO2
			a) Every time pivot element is found at the beginning		
			b) Every time pivot element is found at the middle		
			c) Every time pivot element is found at the end		
			d) Pivot I single digit number		
Q.11	2	4	Which of the following is divide and conquer approach algorithm	1 Mark	CO2
			a) Bubble sort		
			b) Insert sort		
			c) Quick sort		
			d) Selection sort		
Q.12	1	2	The worst case complexity for insertion sort is	1 Mark	CO1
			a) $O(n)$		
			b) $O(\log n)$		
			c) $O(n^2)$		
			d) $O(n \log n)$		
Q.13	1	1	Lower bound is denoted as _____	1 Mark	CO1
			a) $\Omega$ (Omega)		
			b) $\Theta$ (Theta)		


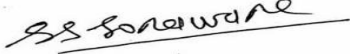

			c) O (Big O)		
			d) $\alpha$ (Alpha)		
Q.14	1	2	The complexity of adding two matrices of order $m*n$ is	1 Mark	CO1
			a) $O(m+n)$		
			b) $O(m*n)$		
			c) $O(\max(m,n))$		
			d) $O(\min(m,n))$		
Q.15	1	3	Master's theorem is used for?	1 Mark	CO1
			a) Solving recurrences		
			b) Solving iterative relations		
			c) Analyzing loops		
			d) Calculating the time complexity of any code		
Q.16	1	4	The running time of quick sort largely depends on:	1 Mark	CO1
			a) Number of inputs		
			b) Pivot element		
			c) Size of element		
			d) Largest element		
Q.17	2	4	If the recurrence relation for a binary search is represented by $T(n)=aT(n/b)+O(n^d)$ then the value of $a+b+d$ is	1 Mark	CO2
			a) 3		
			b) 4		
			c) 1		
			d) 0		
Q.18	1	2	Which of the following sorting algorithm is best suited if the elements are already sorted?	1 Mark	CO1
			a) Selection Sort		
			b) Quick Sort		
			c) Insertion Sort		
			d) Merge Sort		
Q.19	1	2	The worst-case complexity for insertion sort is	1 Mark	CO1
			a) $O(n)$		
			b) $O(\log n)$		
			c) $O(n^2)$		
			d) $O(1)$		
Q.20	1	3	What is the complexity of $f(n)=4f(n/2)+n$ (Apply Masters theorem)	1 Mark	CO1
			a) $O(n)$		
			b) $O(\log n)$		
			c) $O(1)$		
			d) $O(n^2)$		
Q.21	1	3	What is the complexity of $f(n)=f(n/2)+1$ (Apply Substitution Method)	1 Mark	CO1
			a) $O(n)$		
			b) $O(\log_2 n)$		
			c) $O(1)$		

			d) $O(n^2)$		
Q.22	2	4	The best case time complexity of Min-Max algorithm is:	1 Mark	CO2
			a) $O(n)$		
			b) $O(\log_2 n)$		
			c) $O(1)$		
			d) $O(n^2)$		

Should Question be modified: YES/NO

If YES, then new Question:

Question No.	Question	Correct Answer	Marks	CO
Q.1				
Q.2				
Q.3				

	Subject Teacher	Reviewer	HOD
Name:	Sanjeev Dwivedi Swapnil Sonawane	Sanjeev Dwivedi	Dr. Sachin Bojewar
Signature:	 		

#### 4. Rubric for grading and marking of Term work communicated through AAP at the beginning of semester

##### a) Image showing relevant information from AAP

Lecture + Practical (% Attendance) & Marks	Assign-ments	Tutorial	Lab / Practical Performance	Lab Journal Assessment	Class Tests (Other than IA)	Other (2) specify	Total
05 Marks	05 Marks	--	10 Marks	05 Marks	--	--	25 Marks

##### b) Lab Manual (Only index is shown here)

*Department of Computer Engineering*

**Subject Name** : SBL Course: Python Programming  
**Semester** **IV**  
**Academic Year** : 2021-22  
**Theory Faculty In-charge** : Prof. Swapnil Sonawane, Prof. Prakash Parmar  
**Practical Faculty In-charge** : Prof. Swapnil Sonawane , Prof. Prakash Parmar  
**Laboratory** : M314  
**Software Requirement** : Python Interpreter 3.7  
**Hardware Requirement** : Normal PC Configuration

**Course Objectives**

<b>Cognitive</b>	<b>What do you want students to know?</b>	<b>Basic concepts of python as well as decision making statements, OOP concepts used in python programming</b>
<b>Affective</b>	<b>What do you want students to think / care about?</b>	<b>Use of web frameworks used in python and python applications in various fields</b>
<b>Behavioural</b>	<b>What do you want students to be able to do?</b>	<b>Mini project which showcases concepts learned in python course in real life application to solve a particular problem</b>

**Course Outcome**

CO No.	Statements	Related Module/s
<b>CO1</b>	<b>To understand basic concepts in python</b>	<b>1</b>
<b>CO2</b>	<b>To explore contents of files, directories, and text processing with python</b>	<b>2</b>
<b>CO3</b>	<b>To develop program for data structure using built in functions in python</b>	<b>3</b>
<b>CO4</b>	<b>To explore Django web framework for developing python-based web application</b>	<b>4</b>
<b>CO5</b>	<b>To understand Multithreading, NumPy and Pandas concepts using python</b>	<b>5, 6</b>



**c) List of experiments-(relevant information from AAP is shown here):**

**8.a Practical Activities – Regular Experiments**

Practical No.	Module No.	Title of the <b>Regular Experiment</b>	Concepts to be highlighted	CO Map	Audit / Quality Rate (0 to 4)
1	2	Analysis of Amplitude Modulation and Demodulation and Calculation of Modulation Index.	Amplitude Modulation and Demodulation	CO1	4
2	3	Study of Frequency Modulation & Demodulation.	Frequency Modulation & Demodulation	CO1	4
3	5	Analysis of Signal Sampling and reconstruction	Sampling and reconstruction	CO2	4
4	6	Study and analysis of Pulse Modulation (a) Pulse Amplitude Modulation & Demodulation (b) Pulse Width Modulation & Demodulation (c) Pulse Position Modulation & Demodulation	PAM, PPM, PWM	CO2	4
5	3	Design of Preemphasis and Deemphasis circuit in FM	Preemphasis and Deemphasis	CO1	4
6	3, 4	Capture of Live FM signal and display of live FM Channels	Frequency Modulation	CO1	4
7	6	Study of Time Division Multiplexing and Demultiplexing	Time Division Multiplexing	CO3	3
8	2, 3	A. Simulation of Amplitude Modulation and Demodulation using MATLAB. B. Simulation of Frequency Modulation and Demodulation using MATLAB.	Amplitude Modulation	CO1, CO4	4

**8.b Practical Activities – Newly Added Experiments**

Practical No.	Module No.	Title of the <b>Newly Added Experiments</b>	Concepts to be highlighted	CO Map	Audit / Quality Rate (0 to 4)
1	2	To generate amplitude modulation using Transistor BC-547 and calculate modulation index for different amplitude of modulating signal	Amplitude modulation	CO1	4
2	3	To perform frequency modulation and demodulation using Octave	Frequency Modulation	CO1	4

**8.c Practical Activities – PBL Experiments**

Practical No.	Module No.	Title of the <b>PBL Experiments</b>	Concepts to be highlighted	CO Map	Audit / Quality (0 to 4)
1	6	Design a circuit to generate Pulse width modulation using Op-Amp and comment on the output obtained	Pulse width modulation	CO2	4

d) Assignments/Tutorials planned by faculty (relevant information from AAP is shown here):

**7 Assignments / Tutorials Details**

Assignment/ Tutorial No.	Title of the Assignments / Tutorials	CO Map	Assignment/ Tutorials given to Students on	Week of Submission
1	<b>Assignment 1:</b> Introduction, Stack, Queue	CO1, CO2, CO3	Displayed Week 1	Week 8
2	<b>Assignment 2:</b> Linked List, Tree	CO4, CO5	Displayed Week 1	Week 12

**Analysis of Assignment / Tutorial Questions and Related Resources**

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		R	PQ	OBT		<u>Text Book</u>	Reference Book	<u>Other Learning Resource</u>	MU EQ	Thought Provoking
1	8	√	-	-	01, 02,	#1, #2	#2	4f (#3, #5), 4c(#1, #4)	√	-
2	12	√	-	-	03, 04,05	#1, #3, #4	#1, #4	4c(#2,#3, #4) 4f(#1, #3, #5, #6)	√	√

e) Question Bank prepared by faculty (First two pages are shown here)

**Branch: EXTC**

**Semester: V**

**Name of the Subject: RF Modelling and Antennas (RFMA)**

**Prepared by: PRAVIN PATIL for the cluster RF and Microwave Engineering**

**Cluster members: Dr Sanjay Thakur and Prof. Sheetal Mapare**

**Module 1 Behaviour of Active and Passive Components in RF range**

*(Syllabus: Frequency Spectrum, hazards of Electromagnetic Radiations, and fundamentals of radio frequency design, High Frequency behaviour, equivalent circuit and frequency response of resistor, capacitor, inductor, diode, BJT, and FET, Characteristics, structure and applications of coaxial line, stripline, Microstrip line, and coplanar lines)*

**Short Questions (for 2 Marks)**

1. Define skin effect and give it's significance.
2. State true or false. Characteristics impedance of Microstrip line is controlled by dimensions in one plane only.
3. Draw high frequency model of resistor.
4. Draw high frequency model of capacitor.
5. List hazards of electromagnetic radiation.
6. The reasons for using RF/microwave frequencies are-  
a) Wider Bandwidth b) Lower interference c) High gain antennas are possible d) low data rate  
A) only a is true B) Only b is true C) a and b true D) a ,b and c are true
7. State True or False  
Capacitor acts as open circuit and inductor acts as short circuit at microwave frequency.
8. The skin depth for copper at 1 GHz is -----
9. The diameter of the wire is AWG 26 then the radius of the wire is-----
10. RF coils are used to  
A) Short circuit devices to DC voltage condition B) to increase gain C) as a filter
11. Frequency range of the inductor can be extended as

- A) Using large diameter wire B) Spreading winding apart C) Increasing permeability D) All A, B, C
12. The propagation mode of coaxial cable is -----  
A) TE B) TM C) TEM D) Quasi TEM
13. The characteristics of the Microstrip lines are  
i) Low power handling capacity ii) Characteristics impedance can be controlled by defining dimensions in single plane iii) Radiations from open structure  
A) i and iii true B) only ii true C) i, ii and iii are true D) None of the above statement is true
14. The value of short circuit gain at transit frequency is  
A) Unity B) Zero C) infinity D) Five
15. Higher the value of gate source capacitance ( $C_{gs}$ ) and gate drain ( $C_{ds}$ ), \_\_\_\_\_ will be the transition frequency.  
A) Higher B) lower C) zero D) infinity

#### **Long Questions (for 5 Marks)**

1. Draw and Explain IEEE Radio frequency spectrum.
2. Discuss Hazards of electromagnetic radiation.
3. List stray effect of RF frequency.
4. Explain linear diode model.
5. Draw and explain high frequency model of BJT.
6. Draw and explain high frequency model of FET.
7. Discuss advantages/disadvantages of Planar transmission line.
8. Write short note on 'Microstrip Lines'.
9. Compare coaxial cable with Microstrip lines.

#### **Long Questions (for 10 Marks)**

1. Explain with equivalent circuit the RF behavior of resistor.
2. Draw and explain high frequency model capacitor and Inductor.
3. Draw and explain high frequency model of BJT.
4. Draw and explain high frequency model of FET
5. Compare structure, properties and applications of Microstrip and striplines.

**5. Report on BSA activities-**

**a) Objective and BSA activity table:**

**Beyond Syllabus Activity (BSA)**

1	<p><b>Objective:</b> To identify curriculum gap and take efforts to mitigate the same with the help Beyond syllabus Activities (BSA).</p>
2	<p><b>Identification of Curriculum gap and its mitigation:</b></p> <ul style="list-style-type: none"> <li>• Faculty with interaction with Cluster Mentor identify the curriculum gap at the beginning of the semester.</li> <li>• Cluster meeting is conducted at the beginning of the semester to make list of efforts required (BSA activity) to mitigate the same.</li> <li>• Faculty prepares Academic Administration Plan (AAP) which includes BSA.</li> <li>• AAP is approved by Cluster Mentor, External Industry and Academic Mentor and HoD before it is uploaded on students' portal vLive.</li> <li>• Beyond Syllabus Activities are conducted as per AAP.</li> </ul>

**b) Beyond Syllabus Activity (BSA) Table:**

The following table shows list of Beyond Syllabus Activities recommended for consideration:

No.	Type of the Activity	Activities	Details – no of attendees, guest, feedback, mark sheet, report
1	<b>Experiential learning/Interaction with Outside World</b>	1- Guest Lectures by Industry Expert	--
		2- Workshops	--
		3- Mini Project	--
		4- Industrial Visit	--
		5- Any other activity	--
2	<b>Collaborative &amp; Group Activity</b>	1- Poster Presentation	--
		2- Minute Papers	--
		3- Students Seminars	--



2								
3								
4								
5								
6								
7								
8								
9								
10								

**Sample Screenshot:**

Module No.	Tick for Practical Expt./Assignment / Tutorials in two columns below		Write BSA Activity Numbers (1-16) from BSA table in the four columns given below				Any Other Recommendations
	Practical Expt./Assignment/Tutorials	NPTEL & Other Video	Interaction with Outside World	Collaborative or Group Activity	Co-Curricular Activity	Tests and Assessments	
1	√		1	7, 9	14	17, 20	Take applications just after completion of ADT of data structure
2	√		1	7	14	17, 20	--
3	√		1	7	14	17, 20	--
4	√		1	7	14	17, 20	More examples of AVL, B, B+ tree
5	√	√	1	7	13,14	17, 20	Video demonstration on BFS and DFS
6	√		1	7	14	17, 20	--

**Beyond Syllabus Activity (BSA) Table**

Type of BSA	Activity No.	Beyond Syllabus Activity	Type of BSA	Activity No.	Beyond Syllabus Activity
Experiential Learning/ Interaction with outside world	1	Guest Lectures by Industry Experts	Co-curricular Activity	13	Informative Videos (NPTEL   YouTube   TEDx   MIT OCW   edX   Coursera   Udemy)
	2	Workshop		14	Lecture Capture Usage
	3	Mini Project		15	Any other activity
	4	Industrial Visit	Test and Assessment	16	Class Test   Weekly Test
	5	Any other activity		17	Pop Quiz
Collaborative and Group Activity	6	Poster Presentation		18	Mobile APP Based Quiz
	7	Minute Paper		19	Open Book Test
	8	Student Seminar	20	Take Home Test	
	9	Student Debate	21	Any other activity	
	10	Panel Discussion   Mock GD			
	11	Mock Interview			
	12	Any other activity			



## 6. Final year Project review

Sample Project Audit and monitoring form

SEM - VII		DEPARTMENT OF COMPUTER ENGINEERING							
Project Id	Group Member		Guide	Project Title	Domain (Product/Research/ Application)	Review 1 (50)			
	Roll No.	Name of Student				Planning (5)	Problem statement & objectives (10)	Literature Review (15)	Analysis (20)
C29	19102B0004	Hrishikesh kulkarni	Swapnil Sonawane	Twitter Sentiment Analysis	Application	5	9	14	19
	19102B0050	Chaitanya salunke				5	9	14	19
	19102B0020	Priya raut				5	9	14	19
	19101A0067	Vaibhav kshirsagar				5	9	14	19
C30	19102B0004	Siddhesh Bangar	Swapnil Sonawane	Paraphraser	Research	5	9	14	19
	20102B2006	Kaushal Joshi				5	9	14	19
	20102B2003	Kaustubh Inamdar				5	9	14	19
	20102B2008	Miheer More				5	9	14	19