



Bearys
Institute
of Technology
MANGALORE

BEARYS INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi, Affiliated to Visvesvaraya Technological University, Belagavi)

Near Mangalore University, Lands End, Innoli
Mangaluru, Karnataka-574153

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING COURSE FILE

COURSE NAME : System Software Laboratory

COURSE CODE : 18CSL66

NBA CODE : C315

SEMESTER & SECTION : VI sem

ACADEMIC YEAR : 2021-2022

FACULTY INCHARGE : Prof.Umme Najma S.K

BEARYS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
PERSONAL TIME TABLE EVEN SEM(2021-22)

Prof.Umme Najma S.K

	1	2	3	4		5	6	7
	09:20 AM 10:15 AM	10:15 AM 11:15 AM	11:20 AM 12:10 PM	12:10 PM 01:00 PM	01:00 PM 02:00 PM	02:00 PM 02:50 PM	02:21 PM 03:24 PM	03:24 PM 04:27 PM
MON	BE 18CS61 CS Semester 6 A		BE 18CS46 / 18EC643 CS / EC Semester 4 / Semester 6 A			BE 18CS61 CS Semester 6 A		
TUE	BE 18CS46 CS Semester 4 A	BE 18CS61 CS Semester 6 A				BE 18CS66 / 18EC643 CS / EC Semester 6 A		
WED						BE 18CS66 CS Semester 6 A		
THU	BE 18CS61 CS Semester 6 A		BE 18CS46 / 18EC643 CS / EC Semester 4 / Semester 6 A					
FRI	BE 18EC643 EC Semester 6 A						BE 18CS46 CS Semester 4 A	
SAT		BE 18EC643 EC Semester 6 A	BE 18CS61 CS Semester 6 A					

PROGRAM OUTCOMES (POs)

1. **Engineering Knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/ Development of Solutions**: Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern Tool Usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **The Engineer and Society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and Sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.
8. **Ethics** : Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and Team Work** : Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project Management and Finance** : Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning** : Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

1. Professional IT development and problem solving skills.
2. Preparing graduands for higher education and competitive exams.
3. Successful career and Entrepreneurship.



COURSE OUTCOMES SYSTEM SOFTWARE LABORATORY(18CSL66)

CO1	Implement and demonstrate Lexers and Parsers
CO2	Evaluate different algorithms required for management, scheduling, allocation and communication

SYSTEM SOFTWARE LABORATORY
(Effective from the academic year 2018 -2019)
SEMESTER – VI

Course Code	18CSL66	CIE Marks	40
Number of Contact Hours/Week	0:2:2	SEE Marks	60
Total Number of Lab Contact Hours	36	Exam Hours	03

Credits – 2

Course Learning Objectives: This course (18CSL66) will enable students to:

- To make students familiar with Lexical Analysis and Syntax Analysis phases of Compiler Design and implement programs on these phases using LEX & YACC tools and/or C/C++/Java
- To enable students to learn different types of CPU scheduling algorithms used in operating system.
- To make students able to implement memory management - page replacement and deadlock handling algorithms

Descriptions (if any):

Exercises to be prepared with minimum three files (Where ever necessary):

1. Header file.
2. Implementation file.
3. Application file where main function will be present.

The idea behind using three files is to differentiate between the developer and user sides. In the developer side, all the three files could be made visible. For the user side only header file and application files could be made visible, which means that the object code of the implementation file could be given to the user along with the interface given in the header file, hiding the source file, if required. Avoid I/O operations (printf/scanf) and use *data input file* where ever it is possible.

Programs List:

Installation procedure of the required software must be demonstrated, carried out in groups and documented in the journal.

1.
 - a. Write a LEX program to recognize valid *arithmetic expression*. Identifiers in the expression could be only integers and operators could be + and *. Count the identifiers & operators present and print them separately.
 - b. Write YACC program to evaluate *arithmetic expression* involving operators: +, -, *, and /
2. Develop, Implement and Execute a program using YACC tool to recognize all strings ending with *b* preceded by *n a's* using the grammar $a^n b$ (note: input *n* value)
3. Design, develop and implement YACC/C program to construct *Predictive / LL(1) Parsing Table* for the grammar rules: $A \rightarrow aBa, B \rightarrow bB \mid \epsilon$. Use this table to parse the sentence: *abba*
4. Design, develop and implement YACC/C program to demonstrate *Shift Reduce Parsing* technique for the grammar rules: $E \rightarrow E+T \mid T, T \rightarrow T * F \mid F, F \rightarrow (E) \mid id$ and parse the sentence: *id + id * id*.
5. Design, develop and implement a C/Java program to generate the machine code using *Triples* for the statement $A = -B * (C + D)$ whose intermediate code in three-address form:

$$T1 = -B$$

$$T2 = C + D$$

$$T3 = T1 + T2$$

$$A = T3$$

6.	
a.	Write a LEX program to eliminate <i>comment lines</i> in a C program and copy the resulting program into a separate file.
b.	Write YACC program to recognize valid <i>identifier, operators and keywords</i> in the given text (C program) file.
7.	Design, develop and implement a C/C++/Java program to simulate the working of Shortest remaining time and Round Robin (RR) scheduling algorithms. Experiment with different quantum sizes for RR algorithm.
8.	Design, develop and implement a C/C++/Java program to implement Banker's algorithm. Assume suitable input required to demonstrate the results
9.	Design, develop and implement a C/C++/Java program to implement page replacement algorithms LRU and FIFO. Assume suitable input required to demonstrate the results.

Laboratory Outcomes: The student should be able to:

- Implement and demonstrate Lexer's and Parser's
- Evaluate different algorithms required for management, scheduling, allocation and communication used in operating system.

Conduct of Practical Examination:

- Experiment distribution
 - For laboratories having only one part: Students are allowed to pick one experiment from the lot with equal opportunity.
 - For laboratories having PART A and PART B: Students are allowed to pick one experiment from PART A and one experiment from PART B, with equal opportunity.
- Change of experiment is allowed only once and marks allotted for procedure to be made zero of the changed part only.
- Marks Distribution (*Courseed to change in accordance with university regulations*)
 - m) For laboratories having only one part – Procedure + Execution + Viva-Voce: 15+70+15 = 100 Marks
 - n) For laboratories having PART A and PART B
 - i. Part A – Procedure + Execution + Viva = 6 + 28 + 6 = 40 Marks
 - ii. Part B – Procedure + Execution + Viva = 9 + 42 + 9 = 60 Marks

6 . Course Information

6 . 2 Lab

Semester : 6

Section : A

Course : SYSTEM SOFTWARE LABORATORY

Experiment #	Questions	CO
1	a. Write a LEX program to recognize valid arithmetic expression. Identifiers in the expression could be only integers and operators could be + and *. Count the identifiers & operators present and print them separately. b. Write YACC program to evaluate arithmetic expression involving operators: +, -, *, and /	1
2	Develop, Implement and Execute a program using YACC tool to recognize all strings ending with b preceded by n a's using the grammar a n b (note: input n value)	1
3	Design, develop and implement YACC/C program to construct Predictive / LL(1) Parsing Table for the grammar rules: A #aBa , B #bB #. Use this table to parse the sentence: abba\$	1
4	Design, develop and implement YACC/C program to demonstrate Shift Reduce Parsing technique for the grammar rules: E #E+T T, T #T*F F, F #(E) id and parse the sentence: id + id * id.	1
5	Design, develop and implement a C/Java program to generate the machine code using Triples for the statement $A = -B * (C + D)$ whose intermediate code in three-address form: $T1 = -B$ $T2 = C + D$ $T3 = T1 + T2$ $A = T3$	1
6	a. Write a LEX program to eliminate comment lines in a C program and copy the resulting program into a separate file. b. Write YACC program to recognize valid identifier, operators and keywords in the given text (C program) file.	1
7	Design, develop and implement a C/C++/Java program to simulate the working of Shortest remaining time and Round Robin (RR) scheduling algorithms. Experiment with different quantum sizes for RR algorithm.	2
8	Design, develop and implement a C/C++/Java program to implement Banker's algorithm. Assume suitable input required to demonstrate the results	2
9	Design, develop and implement a C/C++/Java program to implement page replacement algorithms LRU and FIFO. Assume suitable input required to demonstrate the results.	2



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CO-PO-PSO MAPPING

CO No.	Programme Outcomes (POs)												Programme Specific Outcome (PSOs)		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1		2	2		3								3	2	
CO2		3	3	3									2	3	

JUSTIFICATION FOR CO-PO MAPPING:

MAPPING	LEVEL	JUSTIFICATION
CO1-PO2	2	Identify, and analyse complex engineering problems that helps moderately to implement & demonstrate lexers & parsers.
CO1-PO3	2	Design solution for complex engineering problems and design system components or processes that helps moderately to implement & demonstrate lexers & parsers.
CO1-PO5	3	Create select & apply appropriate technique & modern engineering IT tools that leads highly to implement & demonstrate lexers & parsers
CO2-PO2	3	Identify, formulate, and analyse complex engineering problems that helps highly to evaluate different algorithms required for management, scheduling, allocation & communication used in operating system.
CO2-PO3	3	Design solution for complex engineering problems and design system components or processes that helps highly to evaluate different algorithms required for management, scheduling, allocation & communication used in operating system.
CO2-PO4	3	Use research based knowledge & research methods including design of experiments, analysis & interpretation of data that leads highly to evaluate different algorithms required for management, scheduling, allocation & communication used in operating system.

JUSTIFICATION FOR CO-PSO MAPPING:

MAPPING	LEVEL	JUSTIFICATION
CO1-PSO1	3	Implement & demonstrate lexers & parsers helps highly in professional IT development and problem solving skills.
CO1-PSO2	2	Implement & demonstrate lexers & parsers that helps moderately in preparing graduands for higher education and competitive exams.
CO2-PSO1	2	Evaluate different algorithms required for management, scheduling, allocation & communication used in operating system that helps moderately in professional IT development and problem solving skills.
CO2-PSO2	3	Evaluate different algorithms required for management, scheduling, allocation & communication used in operating system that helps highly in preparing graduands for higher education and competitive exams.

EXPT NO. 1

Lex & Yacc prg to recognize & evaluate
valid arithmetic exp

SL NO	USN	Name	C	V	R	Total(10)
1	4BP18CS032	Mohammed Fawad	5	2	3	10
2	4BP18CS034	Mohammed Jaseel Abdulla	5	2	3	10
3	4BP19CS001	Abbas Salith B	5	2	3	10
4	4BP19CS002	Abdul Faraz	5	2	3	10
5	4BP19CS003	Abdus Samad	5	2	3	10
6	4BP19CS004	Afiya Banu	5	2	3	10
7	4BP19CS005	Afrid	5	2	3	10
8	4BP19CS006	Ahammad Ali	5	2	3	10
9	4BP19CS007	Aleemath Shihana	5	2	3	10
10	4BP19CS008	Asiya Jannath Shireen	5	2	3	10
11	4BP19CS009	Aysa Surayya	5	2	3	10
12	4BP19CS010	Ayshath Shahiba	5	2	3	10
13	4BP19CS012	Azmal	5	2	3	10
14	4BP19CS013	Badrudin Sahabaz	5	2	3	10
15	4BP19CS014	Beefathima	5	2	3	10
16	4BP19CS015	Faiza Shareef	5	2	3	10
17	4BP19CS016	Fathima Rafeea	5	2	3	10
18	4BP19CS017	Fathima Safeeda G	5	2	3	10
19	4BP19CS018	Fathima Thasma	5	2	3	10
20	4BP19CS019	Fathimath Farzana	5	2	3	10
21	4BP19CS020	Fathimath Sabeeba	5	2	3	10
22	4BP19CS021	Fathimath Zoukhiyya	5	2	3	10
23	4BP19CS022	Fiza	5	2	3	10
24	4BP19CS023	Habeeburrahman	5	2	3	10
25	4BP19CS024	Haleema Shereefa	5	2	3	10
26	4BP19CS025	Hussain Mohammad Babaya Kunhi	5	2	3	10
27	4BP19CS026	Ibrahim Asthar	5	2	3	10
28	4BP19CS027	Ibrahim Khaleel	5	2	3	10
29	4BP19CS028	Kathija Zuhaina Fathima	5	2	3	10
30	4BP19CS029	Lamees Mohammed Anees	5	2	3	10

31	4BP19CS031	Mohammed Irshad	5	2	3	10
32	4BP19CS032	Mahammad Rizwan	5	2	3	10
33	4BP19CS033	Mariyam Sahima	5	2	3	10
34	4BP19CS034	Mohammed Fardeen Kuraib	5	2	3	10
35	4BP19CS035	Mohammad Hashik K	5	2	3	10
36	4BP19CS036	Mohammad Shuhaib B A	5	2	3	10
37	4BP19CS037	Mohammed Bilal	5	2	3	10
38	4BP19CS038	Mohammed Eidres Suhan	5	2	3	10
39	4BP19CS040	Mohammed Junaid	5	2	3	10
40	4BP19CS041	Mohammed Sanih	5	2	3	10
41	4BP19CS042	Mohammed Thanish Ali	5	2	3	10
42	4BP19CS043	Mohammedashqan	5	2	3	10
43	4BP19CS044	Mufida	5	2	3	10
44	4BP19CS045	Munawar Ali Abbas	5	2	3	10
45	4BP19CS046	Mushfiq K	5	2	3	10
46	4BP19CS047	Naheem Abdul Khader	5	2	3	10
47	4BP19CS048	Nigah Rehem Shaik	5	2	3	10
48	4BP19CS049	Nithin V R	5	2	3	10
49	4BP19CS050	Rafa Anan	5	2	3	10
50	4BP19CS051	Ria Fathima	5	2	3	10
51	4BP19CS052	S. A Sajjad Ahmed	5	2	3	10
52	4BP19CS053	Saad Adam Bandady	5	2	3	10
53	4BP19CS054	Safreena	5	2	3	10
54	4BP19CS055	Safuvana	5	2	3	10
55	4BP19CS056	Shaheer	5	2	3	10

Cumulative Internal Assessment						
SL NO	USN	Name	C(15)	W(10)	R&V(15)	Total(40)
1	4BP18CS03 2	Mohammed Fawad	10	9	12	31
2	4BP18CS03 4	Mohammed Jaseel Abdulla	8	4	12	24
3	4BP19CS00 1	Abbas Salith B	15	10	13	38
4	4BP19CS00 2	Abdul Faraz	10	5	13	28
5	4BP19CS00 3	Abdus Samad	14	10	13	37
6	4BP19CS00 4	Afiya Banu	15	10	14	39
7	4BP19CS00 5	Afrid	14	10	13	37
8	4BP19CS00 6	Ahammad Ali	12	10	13	35
9	4BP19CS00 7	Aleemath Shihana	13	9	12	34
10	4BP19CS00 8	Asiya Jannath Shireen	5	7	12	24
11	4BP19CS00 9	Aysha Surayya	15	10	13	38
12	4BP19CS01 0	Ayshath Shahiba	12	8	13	33
13	4BP19CS01 2	Azmal	8	4	12	24
14	4BP19CS01 3	Badruddin Sahabaz	8	4	12	24
15	4BP19CS01 4	Beefathima	10	9	14	33
16	4BP19CS01 5	Faiza Shareef	15	10	14	39
17	4BP19CS01 6	Fathima Rafeea	15	10	14	39
18	4BP19CS01 7	Fathima Safeeda G	13	9	12	34
19	4BP19CS01 8	Fathima Thasma	5	7	12	24
20	4BP19CS01 9	Fathimath Farzana	14	10	13	37
21	4BP19CS02 0	Fathimath Sabeeba	14	10	13	37
22	4BP19CS02 1	Fathimath Zoukhiyya	13	10	13	36

23	4BP19CS02 2	Fiza	12	6	11	29
24	4BP19CS02 3	Habeeburrahman	15	10	13	38
25	4BP19CS02 4	Haleema Shereefa	15	10	14	39
26	4BP19CS02 5	Hussain Mohammad Babaya Kunhi	7	7	12	26
27	4BP19CS02 6	Ibrahim Asthar	12	8	13	33
28	4BP19CS02 7	Ibrahim Khaleel	15	10	14	39
29	4BP19CS02 8	Kathija Zuhaina Fathima	10	8	12	30
30	4BP19CS02 9	Lamees Mohammed Anees	14	10	13	37
31	4BP19CS03 1	Mohammed Irshad	12	10	11	33
32	4BP19CS03 2	Mahammad Rizwan	12	6	11	29
33	4BP19CS03 3	Mariyam Sahima	15	10	14	39
34	4BP19CS03 4	Mohammed Fardeen Kuraib	13	9	13	35
35	4BP19CS03 5	Mohammad Hashik K	15	10	14	39
36	4BP19CS03 6	Mohammad Shuhaib B A	10	9	12	31
37	4BP19CS03 7	Mohammed Bilal	15	10	13	38
38	4BP19CS03 8	Mohammed Eidres Suhan	10	5	11	26
39	4BP19CS04 0	Mohammed Junaid	14	10	13	37
40	4BP19CS04 1	Mohammed Sanih	14	10	13	37
41	4BP19CS04 2	Mohammed Thanish Ali	14	10	13	37
42	4BP19CS04 3	Mohammedashqan	8	8	11	27
43	4BP19CS04 4	Mufida	15	10	14	39
44	4BP19CS04 5	Munawar Ali Abbas	6	6	12	24
45	4BP19CS04 6	Mushfiq K	13	9	13	35
46	4BP19CS04 7	Naheem Abdul Khader	15	10	14	39
47	4BP19CS04 8	Nigah Rehem Shaik	15	10	14	39
48	4BP19CS04 9	Nithin V R	6	6	12	24

BEARYS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYSTEM SOFTWARE LABORATORY 18CSL66 (2021-22)

SL NO	USN	Name	SEE(100)
1	4BP18CS032	Mohammed Fawad	50
2	4BP18CS034	Mohammed Jaseel Abdulla	90
3	4BP19CS001	Abbas Salith B	95
4	4BP19CS002	Abdul Faraz	75
5	4BP19CS003	Abdus Samad	20
6	4BP19CS004	Afiya Banu	100
7	4BP19CS005	Afrid	90
8	4BP19CS006	Ahammad Ali	75
9	4BP19CS007	Aleemath Shihana	93
10	4BP19CS008	Asiya Jannath Shireen	50
11	4BP19CS009	Aysha Surayya	95
12	4BP19CS010	Ayshath Shahiba	90
13	4BP19CS012	Azmal	78
14	4BP19CS013	Badruddin Sahabaz	93
15	4BP19CS014	Beefathima	93
16	4BP19CS015	Faiza Shareef	73
17	4BP19CS016	Fathima Rafeea	98
18	4BP19CS017	Fathima Safeeda G	80
19	4BP19CS018	Fathima Thasma	93
20	4BP19CS019	Fathimath Farzana	53
21	4BP19CS020	Fathimath Sabeeba	95
22	4BP19CS021	Fathimath Zoukhiyya	98
23	4BP19CS022	Fiza	95
24	4BP19CS023	Habeeburrahman	76
25	4BP19CS024	Haleema Shereefa	95
26	4BP19CS025	Hussain Mohammad Babaya Kunhi	50
27	4BP19CS026	Ibrahim Asthar	91
28	4BP19CS027	Ibrahim Khaleel	98
29	4BP19CS028	Kathija Zuhaina Fathima	83
30	4BP19CS029	Lamees Mohammed Anees	93

31	4BP19CS031	Mohammed Irshad	96
32	4BP19CS032	Mahammad Rizwan	95
33	4BP19CS033	Mariyam Sahima	98
34	4BP19CS034	Mohammed Fardeen Kuraib	98
35	4BP19CS035	Mohammad Hashik K	98
36	4BP19CS036	Mohammad Shuhaib B A	93
37	4BP19CS037	Mohammed Bilal	95
38	4BP19CS038	Mohammed Eidres Suhan	18
39	4BP19CS040	Mohammed Junaid	95
40	4BP19CS041	Mohammed Sanih	50
41	4BP19CS042	Mohammed Thanish Ali	61
42	4BP19CS043	Mohammedashqan	61
43	4BP19CS044	Mufida	98
44	4BP19CS045	Munawar Ali Abbas	50
45	4BP19CS046	Mushfiq K	98
46	4BP19CS047	Naheem Abdul Khader	50
47	4BP19CS048	Nigah Rehem Shaik	96
48	4BP19CS049	Nithin V R	0
49	4BP19CS050	Rafa Anan	93
50	4BP19CS051	Ria Fathima	98
51	4BP19CS052	S. A Sajjad Ahmed.	98
51	4BP19CS053	Saad Adam Bandady	98
53	4BP19CS054	Safreena	91
54	4BP19CS055	Safuvana	96
55	4BP19CS056	Shaheer	98
56	4BP19CS057	Shahid Afrid	50
57	4BP19CS058	Shakeela Ps	90
58	4BP19CS059	Shamreen	95
59	4BP19CS060	Shireen Fathima	100
60	4BP19CS061	Muhammed Shijas T	96
61	4BP19CS062	Zakir Hussain	50
		No of students who attained set target of 60%	49
		No. of students who performed the experiment	61

% attainment	80.33
Attainment Level	3

Year: 2011-12
 Department of Computer Science & Engineering
 Bangalore University, Bangalore, Karnataka 560075

Department of Computer Science & Engineering
 Laboratory CO Attainment

Name:	Sudhakar Software Laboratory		
Code:	SCSE101		
Faculty:	Prof. Datta Raju S B	Academic Year:	2011-12
Experimental Part			
Sr	Expt. Name	Attainment	Weightage
1	Expt. No. 1	3	
2	Expt. No. 2	3	
3	Expt. No. 3	3	
4	Expt. No. 4	3	
5	Expt. No. 5	3	
6	Expt. No. 6	3	
7	Expt. No. 7		
8	Expt. No. 8		
9	Expt. No. 9		
10	Expt. No. 10		
11	Expt. No. 11		
12	Expt. No. 12		
13	Expt. No. 13		
14	Expt. No. 14		
15	Expt. No. 15		
Total Experimental		30	100
Total CO Attainment		80.33	80.33

Total Attainment 80.33% Experimental Attainment 100%



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Department of Computer Science & Engineering				
Laboratory CO Attainment				
Name:	System Software Laboratory			
Code:	18CSL66			
Faculty:	Prof.Umme Najma S.F	Academic Year	2021-22	
Experiment No	Experiment Name	C314.1	C314.2	
1	Expt. No.1	3		
2	Expt. No.2	3		
3	Expt. No.3	3		
4	Expt. No.4	3		
5	Expt. No.5	3		
6	Expt. No.6	3		
7	Expt. No.7		3	
8	Expt. No.8		3	
9	Expt. No.9		3	
10	Expt. No.10			
11	Expt. No.11			
12	Expt. No.12			
13	Expt. No.13			
14	Expt. No.14			
15	Expt. No.15			
	Experimental CO att	3	3	
	Internal test Lab CO	3	3	
	Semester End Lab C	3	3	
	Final CO attainment	3.0	3.0	0.0

Final Attainmnet =60% Experimental+20%Internal +20% Semester End