

# Course Plan

Course Teachers :	Prof. Rashmi Athanikar (B – div) Prof. Rani Shetty (A – div)	Course	Code: 11UCSC706-Operations Research	4-0-0-0 : 4	52 Hrs	7 <sup>th</sup> Sem, A & B div	28-7-2017 to 2-1-2018
-------------------	---	--------	-------------------------------------	-------------	--------	-----------------------------------	--------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21-22
Ch-1 Overview: Introduction, Linear Programming: (6 Hrs.)-IA-1	4	2	-	-	-	-	-	IA-1 Week	-	-	-	-	-	-	-	-	-	-	-	-	IA-3 week
	-	2	4	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	
Ch-2: Lp2, Simplex method (6 Hrs.)-IA-1	-	2	4	-	-	-	-	IA-1 Week	-	-	-	IA-2 Week	-	-	-	-	-	-	-	-	IA-3 week
Ch-3: Simplex Method-2 (6 Hrs.)-IA-2	-	-	4	2	-	-	-		-	-	-		-	-	-	-	-	-	-	-	
Ch-4: Simplex Method-2 (6 Hrs.)-IA-2	-	-	-	2	4	-	4	IA-1 Week	-	-	-	IA-2 Week	-	-	-	-	-	-	-	-	IA-3 week
Ch-5: Duality Theory and Sensitivity analysis, other algorithms for LP (6 Hrs.)-IA-2	-	-	-	-	-	-	1 surpr sets		2	-	-		-	-	-	-	-	-	-	-	
Ch-6: Transportation and Assignment Problems (8 Hrs.)IA-3	-	-	-	-	-	-	-	IA-1 Week	2	4	2	IA-2 Week	-	-	-	-	-	-	-	-	IA-3 week
	-	-	-	-	-	-	-		-	2	4		2	-	-	-	-	-	-	-	
Ch-7: Game Theory, Decision Analysis (8 Hrs.)IA-3	-	-	-	-	-	-	-	IA-1 Week	-	-	4	IA-2 Week	-	4	-	-	-	-	-	-	IA-3 week
	-	-	-	-	-	-	-		-	-	-		-	-	-	-	-	-	-	-	
Ch-8: Metaheuristics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



IA-1	Chapters : 1,2: = 12 Hrs.
IA-2	Chapters : 3,4,5: = 18 Hrs.
IA-3	Chapters: 6, 7 & 8. : = 22 Hrs.

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, Wi indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on Assignments involving different cases of various methods in operations research. Semester End Examination (SEE) contains one full question based on CTA assignments.
- 5) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 6) **85 % attendance is mandatory.**
- 7) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.



**Action Plan based on observation taken from previous attainment of outcomes:**

- a) Design and Development type assignment as part of the CTA and Course assignments are planned to enhance the understanding real life problems to correlate the theoretical concepts learnt in the class using Online Tools.

b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.

Date: 2-08-2017

## NOTICE

This is to inform to all the V sem A and B division students that, as a part of Continuous Teachers Assessment following activities need to be completed on or before the date of completion as indicated below

Development Activity List: [10 (CTA) = Sum of Activities 1+2 or 2+3]

Self-Learning based exercises.



Activity	Date of Completion	Description	Course Outcome	Marks
1	21 <sup>st</sup> – Nov-2017	Recognize the importance and value of Operations Research in solving practical problems in industry.	3	4
2	31 <sup>st</sup> -Aug-2017	Writing Assignment 1	1	2



	3 <sup>rd</sup> —Oct-2017	Writing Assignment 2	2	2
	16-Nov-2017	Writing Assignment 3	4,5	2
3	2 to 18, Nov 2017	Student Seminar ( <i>Additional Choice</i> ) Note : Seminar topic need to be decided in the month of October	Communication Skill	4 [Opt]

**Note:**

1. Knowledge gained through these activities/ programming practices are tested for 10 marks in CTA and 20 marks of one full question in SEE.
2. Specific problems will be notified later for all these activities.

**Learning Resources:**

- 1) Frederick S Hillier and Gerald J Liberman "Introduction to Operations Research" 8/E Tata McGrawHill 2005.
- 2) Wayne L Winston "Operations Research Applications and Algorithms", 4/E Thomson Course Technology, 2003
- 3) Hamdy A T "Operations Research: An Introduction"



**RA + RRS**

**Course Teachers**



Odd - Semesters  
2017.  
UC.

SDM College of Engineering and Technology  
Department of Computer Science and Engineering  
Lesson Plan  
**COMPUTER ORGANIZATION - 2017-18**

Faculty in charge : V. B. Hemadri  
Sub Code : 15UCSC303

Semester : III  
Total Credits: 52

**Objectives:** This course is at undergraduate level for 52 contact hours / 4 credits with the focus on following learning perspectives:

- The relationship between instruction set architecture, micro architecture, and system architecture and their roles in the development of the computer.
- The concepts in the design of peripheral devices such as memory, I/O.
- The functionalities of various units of a computer.

**Prerequisite:** Knowledge of basic components of a computer, studied in the first year level. The student should be comfortable with any High level language and its basic structure.

Sl. No	Topics to be covered	Remarks
1. CH - 01	Prerequisite, Objective, Revision	
2.	Prerequisite test	
3.	Computer types: Functional units: Input unit, memory unit, ALU, Output unit, Control unit	
4.	Basic Operational concepts: Bus structures: Performance: Processor clock. Basic performance equation	
5.	Clock rate, Performance measurement, evaluation of performance	
6.	SPEC rating - examples	
7.	Historical perspective: The 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> & beyond 4 <sup>th</sup> generation,	
8. CH-02	Numbers, arithmetic operations and characters,	
9.	Memory locations and addresses, byte address ability	
10.	Big-endian & little endian assignments, word alignment, accessing numbers, Characters & character strings	
11.	Memory operation: instruction & instruction sequencing, Register transfer notation, assembly language notation, basic instruction types	
12.	Instruction execution & straight line sequencing, branching, condition codes	
13.	Generating memory addresses, addressing modes: implementation of variables and constants, indirection & pointers, indexing & arrays	
14.	Relative addressing, additional modes	
15.	Indexed mode, Variations of indexed mode - Examples	
16.	Assembly language: assembler directives, number notation, Basic I/O operations	
17.	Stacks & queues	





18.	Subroutines, Parameter passing via registers examples	
19.	Parameter passing via stack/frame	
20.	Subroutine nesting	
21.	Additional instructions: logic instruction, shift & rotate instructions, Multiplication & Division	
22.	Encoding of machine instructions,	<b>Portion of I IA</b>
23. CH-05	Addition & subtraction of signed numbers, addition/subtraction logic unit	
24.	Design of fast adders: carry look ahead additions	
25.	carry look ahead additions	
26.	Multiplication of positive numbers, signed operation multiplication	
27.	Booth's algorithm, fast multiplication	
28.	Bit pair recording of multipliers, integer division: floating point numbers & operations	
29.	IEEE standard for floating point numbers, Arithmetic operations on floating point numbers	
30.	Implementing floating point operations	
31. CH-06	Some fundamental concepts: register transfers, performing arithmetic & logic operation	
32.	Fetching a word from memory, storing a word in memory, execution of a complete instruction	
33.	Branch instruction	
34.	Multiple bus organization: hardwired control, a complete processor	
35.	Microprogrammed control, microinstruction.	
36.	Microprogram sequencing, micro-instruction with next address field	<b>Portion of II IA</b>
37. CH-03	Accessing I/O devices: Interrupts: Interrupt hardware	
38.	Enabling and disabling interrupts	
39.	Handling multiple devices, controlling device request, exceptions	
40.	DMA: Bus arbitration	
41.	Buses: synchronous bus	
42.	Asynchronous bus	
43.	Interface circuits, Parallel port	
44. CH-04	Serial port, standard I/O interfaces	
45.	PCI bus	
46.	SCSI bus	
47.	USB	
48.	Some basic concepts: Semiconductor RAM memories: internal organization of memory chips	
49.	Static memories DRAMs, Asynchronous DRAM	<b>Portion of III IA</b>
50.	Revision and doubt clearing	
51.	Revision and doubt clearing	





### Recommended Book:

1. Carl Hamacher, Z Vranesic & S Zaky, Computer Organization, 5<sup>th</sup> Edition, McGraw Hill, 2002
2. Computer Organization & Architecture, William Stallings, 7<sup>th</sup> edition, PHI, 2006
3. V Heuring & H Jordan, Computer system Design & Architecture, Addison - Wesley, 1<sup>st</sup> Edition, 1999

### Evaluation scheme for allotting CTA marks:

- One or two quizzes --- 10 Marks
- One assignment --- 10 Marks
- Seminar ( optional ) --- 10 Marks
- Average of three

### Beyond syllabi

- Simulation using VHDL.

28/7/17

Faculty Incharge:

(V.B.Hemadri)

(BV)

Reviewed by:



odd 2017

# Course Plan

Course Teachers: J.V.Vadavi / Nita.K	Course: Digital Electronics Code : 15UCSC300	4-0-0: 4	52 Hrs.	III sem A & B Div	Odd Semester 28-07-17 to 01-12-17
---	---	----------	---------	----------------------	--------------------------------------

Activity/Lesson	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18		
Ch-01: Digital Principles & Logic (4Hrs) IA-1	3	1	-	-	-	-	Practice class before IA and IA-1 Qp Discussion and Display	-	-	-	-	Practice classes & IA-2 QP Discussion and Display of Marks	-	-	-	-	-	-		
Ch-02: Combinational Logic circuits (6 Hrs) IA-1	-	3	3	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-
Ch-03: Data Processing Circuits (6Hrs) IA-1	-	-	1	4	1	2		-	-	-	-		-	-	-	-	-	-	-	-
Ch-04: Clocks, Flip-flops (6Hrs) IA-2	-	-	-	-	-	-		4	2	-	-		-	-	-	-	-	-	-	-
Ch-05: Registers (5 Hrs.) IA-2	-	-	-	-	-	-		-	2	3	-		-	-	-	-	-	-	-	-
Ch-06: Counters (7 Hrs) IA-2	-	-	-	-	-	-		-	-	1 2++	4		-	-	-	-	-	-	-	-
Ch-07: Design of Synchronous/ Asynchronous sequential circuits (9Hrs.) IA-3	-	-	-	-	-	-		-	-	-	-		-	4	4	1 3++	-	-	-	-
Ch-08: D/A conversion & A/D conversion (5 Hrs) IA-3	-	-	-	-	-	-		-	-	-	-		-	-	-	-	4	4	-	-

IA-01	Ch01 (4hrs) + Ch02(6hrs) + Ch-03(6hrs) =16 Hrs
IA-02	Ch04(6hrs) + Ch05(5hrs) + Ch06(7hrs) = 18 Hrs
IA-03	Ch-07(9hrs) + Ch08(5hrs) = 14Hrs





Course Plan  
Digital Electronics [150/CSC300]

- 1) Quiz 1 : Combinational CKTs : 30M, scale down to 10M
- 2) Mini-Project : (team wise) : 10M

~~ECE~~ Total CTA (10M) :  $\frac{(10M) \text{ Quiz} + (10M) \text{ Mini Project}}{2}$



08/2018

# Course Plan

Course Teachers : Dr. U.P. Kulkarni (B – div) Dr. S.M. Joshi (A – div)	Course	Code: 15UCSC404-Operating System	4-0-0-0 : 4	52 Hrs	4 <sup>th</sup> Sem, A & B div	16-1-2017 to 11-5-2017
--	--------	----------------------------------	-------------	--------	-----------------------------------	---------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18-21
Ch-1: Introduction to Operating System. (4 Hrs.) : IA-1	4	-	-	-	-	IA-1 Week	-	-	-	-	-	-	-	-	-	-	-	-
Ch-2: Process Management (9 Hrs.) : IA-1	-	3	4	2	-	-	-	-	-	-	-	IA-2 Week	-	-	-	-	-	-
Ch-3: Process Synchronization. (9 Hrs.) : IA-1/ IA2	-	-	-	2	2	1 Sol Diss	4	1	-	-	-	-	-	-	-	-	-	-
Ch-4: Dead Lock. (6 Hrs) : IA-2	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	-	-
Ch-5: Memory Management. (8 Hrs.) : IA-2	-	-	-	-	-	-	-	-	-	4	4	2 Class Test	1 Sol Diss	-	-	-	-	-
Ch-6: File System. (8 Hrs.) : IA-3	-	-	-	-	-	IA-1 Week	-	-	-	-	-	-	2	4	2	-	-	-
Ch-7: Secondary Storage. (4 Hrs.) : IA-3	-	-	-	-	-	-	-	-	-	-	-	IA-2 Week	-	-	2	2	-	-
Ch-8: Case study on Linux (4 Hrs.) : IA-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1+	1+	-
IA-3 Week																		
LAB Exam and Semester End Exam as per Time table given by COE's Office																		





IA-1	Chapters : 1, 2 & 3 : = 22 Hrs.
IA-2	Chapters : 4, 5 & 6 : = 14 Hrs.
IA-3	Chapters: 7 & 8. : = 16 Hrs.

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter,  $W_i$  indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50 ) is based on sum of the best two Internal Assessment ( IAs ) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on programming assignments on Linux OS. Refer activity list for details. Semester End Examination (SEE) contains one full question based on CTA assignments.
- 5) All preparatory tests (PT) are open Book tests.
- 6) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 7) **85 % attendance is mandatory.**
- 8) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on observation taken from previous attainment of outcomes:**

- a) Programming assignment as part of the CTA and Course assignments are planned to enhance the understanding of industry relevant OS and correlate the theoretical concepts learnt in the class.
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.



Programming Activity List: [ 10 (CTA) + 20 (SEE) = 30 Marks weightage ]

Self-Learning based exercises.

Activity	Date of Completion	Description	Course Outcome	Marks
1	One week after completion of chapter 1 and 2.	Programming assignments on Process creation and related activities.	2,6	10
2	One week after completion of chapter 3 and 4.	Programming assignments on signals.	2,6	10
3		Programming assignments on semaphores.	2,6	10
4		Programming assignments on Process conflicts and its resolution through semaphores	2,6	10
5	One week after completion of chapter 5 and 6.	Programming assignments on IPC: [ any one IPC]	2,6	10
6		Study of Linux File system and various related commands.	4,6	10
7	Immediately after 3 <sup>rd</sup> CIE	Report writing. ( Compulsory) Video creation on any one topic in consultation with course teacher. Or seminar in the class immediately after 2 <sup>nd</sup> CIE.	Communication Skills	10

Note:


1. Knowledge gained through these activities/ programming practices are tested for 10 marks in CTA and 20 marks of one full question in SEE.
2. Specific problems will be notified later for all these activities.





**Learning Resources:**

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating System Principles, 8th edition, Wiley India, 2009. (Listed topics only from Chapters 1 to 12, 17, 21)
2. D.M Dhamdhare: Operating systems - A concept based Approach, 2nd Edition, Tata McGraw- Hill, 2002.
3. P.C.P. Bhatt: Introduction to Operating Systems: Concepts and Practice, 2nd Edition, PHI, 2008. 3. Harvey M Deital: Operating systems, 3rd Edition, Pearson Education, 1990.

  
UPK + SMJ  
Course Teachers



## Course Plan

<b>Course Teachers :</b> PrathapKumar MK (B - div)	<b>Course</b>	<b>Code: 11UCSC701-</b> Advanced Object Oriented Programming	4-0-0-0 : 4	52 Hrs	7th Sem, B div	July To Nov 2017
---	---------------	---	-------------	--------	-------------------	------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18- 22				
UNIT-I Core Java CH-1: Basic OOP + Streams	4	.	.	.	.	.	.	.	IA-I WEEK	.	.	.	IA-II WEEK	.	.	.	IA-III WEEK	Lab Exam & Semester End Exams Week				
UNIT-I CH-1:Streams	.	1	.	.	.	.	.	.		.	.	.		.	.	.			.	.	.	.
UNIT-I CH-3:Streams, Threa ds & Exceptions	.	.	5	.	.	.	.	.		.	.	.		.	.	.			.	.	.	.
UNIT-I CH-1,4:Streams, Applets	.	.	.	4	.	.	.	.		.	.	.		.	.	.			.	.	.	.
UNIT-I CH-6:Generics & Utility classes	.	.	.	.	3	4	1	.		.	.	.		.	.	.			.	.	.	.
UNIT-II CH-1:Data Base Programming	.	.	.	.	.	.	.	2		.	.	.		.	.	.			.	.	.	.
UNIT-II CH-2:Java Networking	.	.	.	.	.	.	.	.		.	4	.		.	.	.			.	.	.	.
UNIT-II CH-3:RMI	.	.	.	.	.	.	.	.		.	.	2		.	.	.			.	.	.	.
UNIT-II CH-3:RMI	.	.	.	.	.	.	.	.		.	.	.		3	.	.			.	.	.	.
UNIT-II CH-3,4:RMI + Ajax	.	.	.	.	.	.	.	.		.	.	.		.	2	.			.	.	.	.
UNIT-II CH-4,5:Ajax+ JavaScript	.	.	.	.	.	.	.	.		.	.	.		.	.	5			.	.	.	.
UNIT-II CH-4,5:Ajax+ JavaScript	.	.	.	.	.	.	.	.		.	.	.		.	.	.			5	.	.	.
UNIT-II CH-5: JavaScript	.	.	.	.	.	.	.	.		.	.	.		.	.	.			.	6	.	.
UNIT-II CH-4,5:Servlets	.	.	.	.	.	.	.	.		.	.	.		.	.	.			.	.	6	.
UNIT-II CH-4,5:JSP	.	.	.	.	.	.	.	.		.	.	.		.	.	.			.	.	6	.

IA	Topics	No. Of Hours
IA-I	Core Java Basics CH: Exceptions, Threads, Event Handling, Applets, Streams, Generics, Collections Framework, Utility Classes	20 Hrs
IA-II	Advanced Java Part-I & II: Database Programming, Network Programming, and RMI	20 Hrs
IA-III	Advanced Java Part-II	12 Hrs

**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter, 'W' indicates week number of the semester.
2. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation(CIE) marks ( 50 ).





3. CIE marks (50) is based on sum of the best two Internal Assessment (IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
4. CTA (10 Marks): 3 Assignments carries 5 marks.

**Action Plan based on observation taken from previous Attainment of Outcomes:**

→ Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

1. Analysis of a given problem scenario.
2. Implementation / Programming capabilities based on fundamental object oriented concepts.
3. An assignment focuses on Basic & advanced Java to help students in campus placement.

Activity	Date of conduction	Description	Course Outcome	Marks
1	3 <sup>rd</sup> Oct To 8 <sup>th</sup> Oct 2017	Assignment-I :Focuses on Basic core Java features	1,2	5 Marks
2	17 <sup>th</sup> Oct To 22 <sup>nd</sup> Oct, 2017	Presentation/Assignment :Core Java & JavaScript	1, 6	5 Marks
3	1 <sup>st</sup> Nov To 5 <sup>th</sup> Nov, 2017	Assignment-II :Java Networking features	5	5 Marks
4	14 <sup>th</sup> Nov to 19 <sup>th</sup> Nov, 2017	Assignment-III : Development of Web applications using Ajax + JSP/Servlets	6,7	5 Marks

**Learning Resources:**

1. Herbert Schildt - Java - The Complete Reference 7/E, Tata McGraw Hill, 2007.
2. Stephanie Bodoff et al- The J2EE Tutorial, 2nd edition, Pearson Education, 2004
3. Professional AJAX – Nicholas C Zakas et al, Wrox, 2007.

\*\*\*\*\*



Prathap Kumar MK





Note -

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter; W/i indicates week number of the semester. . . indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on programming assignments on Linux OS. Refer activity list for details. Semester End Examination (SEE) contains one full question based on CTA assignments.
- 5) Course Withdrawal: .....
- 6) Dropping the course: .....
- 7) All preparatory tests (PT) are open Book tests. C, D
- 8) All IAs/SEE are as per notification of college and is common to ~~both~~ A and B divisions.
- 9) **85 % attendance is mandatory.**
- 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

Action Plan based on attainment of outcomes:

- a) Programming assignment as part of the CTA and Course assignments are planned to enhance the understanding of industry relevant OS and correlate the theoretical concepts learnt in the class.
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.



Programming Activity List: 10 (CTA) + 20 (SEE) = 30 Marks weightage |

Self-Learning based exercises.

Activity	Date of Completion	Description	Course Outcome	Marks
1	Submission before 3 <sup>rd</sup> CIE	Spoken Tutorial Certification	CO-1 to CO-6	6
2	Submission before 3 <sup>rd</sup> CIE	Hackathon Event	CO-1 to CO-6	4

Note:

1. Knowledge gained through these activities/ programming practices are tested for 10 marks in CTA.
2. Specific problems will be notified through Google docs and will be shared to all students.

Learning Resources:

Text Books:

- 1) E Balagurusamy, "Programming in ANSI C", 6/E, TMH 2012.

Reference Materials:

- 1) Brian W Kernighan & Dennis M Ritchie, "The C programming language", 2/E, PHI 2004.
- 2) R G Dromey, "How to solve it by computer", PHI 2008.
- 3) B A Forouzan and R F Gilberg, "Computer Program: A structured programming approach using C", 3/E, Thomson Learning, 2005.
- 4) Brain W. Kernighan and Rob Pike, "The Practice of Programming", Pearson Education Inc. 2008.

Other Course Teachers:

Division - A	Division - B	Division - C
Name: Dr. S. M. Joshi Mobile: 9036079402 Email: joshshree@gmail.com	Name: Prof. R. N. Yadawad Mobile: 9164685527 Email: rnyadawad@gmail.com	Name: Prof. Govind Negalur Mobile: 9740143982 Email: govsdm@gmail.com





# Course Plan

**Course Teachers :**  
 Dr. Pushpalatha Nikkam(A-div)  
 Prof. Rashmi Athanekar (B - div)

**Course**

**Code: 15UCCS503:**  
 Software Engineering

**4-0-0-0 : 4**

**52 Hrs**

**5<sup>th</sup> Sem,**  
**A and B div**

**1-8-2018 to**  
**1<sup>st</sup> Dec-2018**

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20-24	
Chapter-1: Overview: (3 Hrs - IA-1)	3																				
Chapter-2: Critical Systems, Software Processes (5 Hrs - IA-1)	1	4																			
Chapter-3: Requirements (7 Hrs - IA-1)			4	3																	
Chapter-4: System models (6 Hrs - IA-2)				1	4	1		1 - solving IA-1 QP in Class													
Chapter-5: Software Design (8 Hrs - IA-2)						3	4		1												
Chapter-6: Development (4 Hrs - IA-2)									3	1											
Chapter-7: Verification and Validation (13 Hrs - IA-3)										3	4	4									
Chapter-8: Project Management (6Hrs - IA-3)															2	4					
								<b>CIE-1</b>				<b>CIE-2</b>				<b>CIE-3</b>					
								1 - solving IA-1 QP in Class				2 - solving IA-2 QP in Class				3 - solving IA-3 QP in Class					
LAB Exam and Semester End Exam as per Time table given by COE's Office																					



8102 PDD  
2018

IA-1	3+5+7=15hrs
IA-2	6+8+4=18hrs
IA-3	13+6=19hrs

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, Wi indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on programming assignments on Linux OS. Refer activity list for details. Semester End Examination (SEE) contains one full question based on CTA assignments.
- 5) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 6) **80 % attendance is mandatory.**
- 7) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Programming assignment as part of the CTA and Course assignments are planned to enhance the understanding of industry relevant software engineering concepts and correlate the theoretical concepts learnt in the class.
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.





### Programming Activity List: 1 10 (CTA) 1

Self-Learning based exercises.

Activity	Date of Completion	Description	Course Outcome	Marks
1	Specific date mentioned by course teacher	Moodle based assignments	CO-1 to CO-6	6
2	Submission before 3 <sup>rd</sup> CIE	Video creation on any case study in real scenario in consultation with course teacher. Or seminar in the class immediately after 2 <sup>nd</sup> CIE.	Communication Skills	2+2=4

Note:

1. Knowledge gained through these activities/ programming practices are tested for 10 marks in CTA and 20 marks of one full question in SEE.
2. Specific problems will be notified through Google docs and will be shared to all students.

#### Learning Resources:

Books:

1. Ian Sommerville, "Software Engineering", 8/E, Person Education, 2009.
2. Roger S.Pressman, "Software Engineering, Practitioners approach", 7/E, McGraw-Hill, 2010.
3. Shari Lawrence, P fleeger, Joanne M. Atlee, "Software Engineering Theory and Practice", 3/E, Pearson Education, 2009.
4. Waman Jawadkar, "Software Engineering Principles and Practice", Tata McGraw Hill, 2004

Course Teacher:

Dr.Pushpalatha Nikkam  
Assistant Professor  
Computer Science and Engineering  
SDMCET  
Dharwad  
8217498894



# Course Plan

Course Teachers : Prof. PrathapKumar MK(B-div)	Course	Code: 15UCSC502: Data Base Management Systems	4-0-0-0 : 4	52 Hrs	5 <sup>th</sup> Sem, B div	1 <sup>st</sup> Aug-2018 to 1 <sup>st</sup> Dec-2018
---	--------	--	-------------	--------	-------------------------------	---

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20-24	
Chapter-1: Introduction. ( 4 Hrs.- IA-1)	2	2																			
Chapter-2 : Entity-Relationship Model ( 4 Hrs.- IA-1)			2	2																	
Chapter-3: Relational Model and Relational Algebra. ( 9 Hrs.-IA-1)				2	4	3															
Chapter-4 SQL-1 ( 8 Hrs.- IA-2)						1	4	3													
Chapter-5: SQL-2 ( 8 Hrs.- IA-2)									4	3	1										
Chapter-6: Database Design - 1: ( 6 Hrs.- IA-2)											2	3									
Chapter-7 Database Design - 2: ( 6 Hrs.- IA-3)														1							
Chapter-8: Transaction Management: ( 7Hrs.-IA-3)															2	2	2				
<b>CIE-1</b>									1 - solving IA-1 QP in Class												
<b>CIE-2</b>									1 - solving IA-1 QP in Class												
<b>CIE-3</b>									1 - solving IA-1 QP in Class												
LAB Exam and Semester End Exam as per Time table given by COE's Office																					
IA-1	Chapters : 1,2 & 3 = 4+4+9 = 17 Hrs.																				
IA-2	Chapters : 4,5 = 8+8= 16Hrs.																				
IA-3	Chapters : 6, 7 & 8 = 6+6+7 = 19 Hrs.																				





**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, Wi indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks (50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on two assignments carrying 5 marks each.
- 5) Semester End Examination (SEE) contains one full question based on CTA assignments.
- 6) Course Withdrawal: .....
- 7) Dropping the course: .....
- 8) All preparatory tests (PT) are open Book tests.
- 9) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 10) 85 % attendance is mandatory.**
- 11) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Course assignments as part of the CTA which are planned to enhance the understanding of industry relevant DBMS and correlate the theoretical concepts learnt in the class.



## Programming Activity List:

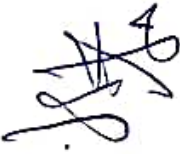
Activity	Date of Completion	Description	Course Outcome	Marks
1	27/11/2018	Assignment-I (Solve of any five exercises given the textbook)	CO-1 to CO-6	5
2		Assignment-II (Designing of database (ER-Schema → relational model → Implementation of database) for the given requirement)	CO-1 to CO-6	5

## Learning Resources:

### Books:

- 1) Elmasri and Navathe, "Fundamentals of Database Systems", 5/E, Addison-Wesley, 2009
- 2) Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3/E, McGraw-Hill, 2003.
- 3) Silberschatz, Korth and Sudharshan, "Data base System Concepts", 6/E, Mc-GrawHill, 2010.
- 4) C.J. Date, A. Kannan, S. Swamyatham, "A Introduction to Database Systems", 8/E, Pearson education, 2006.

### Course Teacher:



PrathapKumar M K  
 Mobile: 8884611980  
 Email: pratapkumar.mk@gmail.com





# Course Plan

Course Teachers : Prof Anand Vaidya (A-div)

Course

Code: 15UCSC502: Data Base Management Systems

4-0-0-0 : 4

52 Hrs

5<sup>th</sup> Sem, A div

1<sup>st</sup> Aug-2018 to 1<sup>st</sup> Dec-2018

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20-24	
Chapter-1: Introduction. (4 Hrs.-IA-1)	3	2																			
Chapter-2: Entity-Relationship Model (4 Hrs.-IA-1)		2	2																		
Chapter-3: Relational Model and Relational Algebra. (9 Hrs.-IA-1)			1+	3	4	1															
Chapter-4 SQL-1 (8 Hrs.-IA-2)						2	3	1 - solving IA-1 QP in Class													
Chapter-5: SQL-2 (8 Hrs.-IA-2)								3													
Chapter-6: Database Design - 1: (6 Hrs.-IA-2)										3	4										
Chapter-7 Database Design - 2: (6 Hrs.-IA-3)																					
Chapter-8: Transaction Management: (7Hrs.-IA-3)																					
								<b>CIE-1</b>				<b>CIE-2</b>				<b>CIE-3</b>					
LAB Exam and Semester End Exam as per Time table given by COE's Office																					



8102 PPO



IA-1	Chapters : 1,2 & 3 = 4+4+9 = 17 Hrs.
IA-2	Chapters : 4,5 = 8+8 = 16Hrs.
IA-3	Chapters : 6, 7 & 8 = 6+6+7 = 19 Hrs.

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, WI indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50 ) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on assignments and performance in the class.
- 5) . Semester End Examination (SEE) contains one full question based on CTA assignments.
- 6) Course Withdrawal: .....
- 7) Dropping the course: .....
- 8) All preparatory tests (PT) are open Book tests.
- 9) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 10) 85 % attendance is mandatory.**
- 11) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- 2) Course assignments as part of the CTA which are planned to enhance the understanding of relevant DBMS and correlate the theoretical concepts learnt in the class..





**Programming Activity List:**

Activity	Date of Completion	Description	Course Outcome	Marks
1	22-9-2018& 28-10-2018	Course Programming Assignments(2 No)	CO-1 to CO-6	6
2		Class performance	CO-1 to CO-6	4

**Learning Resources:**

**Books:**

- 1) Elmasri and Navathe, "Fundamentals of Database Systems", 5/E, Addison-Wesley, 2009
- 2) Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3/E, McGraw-Hill, 2003.
- 3) Silberschatz, Korth and Sudharshan, "Data base System Concepts", 6/E, Mc-GrawHill, 2010.
- 4) C.J. Date, A. Kannan, S. Swamyatham, "A Introduction to Database Systems", 8/E, Pearson education, 2006.

**Course Teacher**

Anand Vaidya

Mobile: 9036889732

Email: vaidyase@gmail.com



Odd Semester 2018

UG

# Course Plan (Academic Year 2018-19, Odd Semester)

Course Teacher V.B.Hemadri	Course 15UCSC501 Compiler Design	4-0-0 : 4	52 Hrs	5 <sup>th</sup> Sem CSE B. Div	01-08-2018 to 30-11-2018
-------------------------------	--	-----------	--------	-----------------------------------	-----------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W20-24	
Unit - 1 Introduction (10 Hrs IA-I)	3	4	3 PT																	
Unit - 2 Bottom-up Parsing (8 Hrs IA-I)				3	4	1 PT														
Unit - 3 Intermediate code generation and optimization (8 Hrs IA-II)						3	4	1 IA-I												
Unit - 4 Run-time environment (6 Hrs IA-II)									4											
Unit - 5 Code Generation (6 Hrs IA-II)										2										
Unit - 6 Ancillary Code Processing Techniques (14 Hrs IA-III)											2	1 PT	2	4	4	4	4	4 PT		IA-III
Lab Exam and Semester End Exams per the Time table given by COE's Office																				

### Internal Assessments Syllabus

IA-1	Units : 1 and 2	10 + 8 = 18 Hrs
IA-2	Units : 3, 4 and 5	8+6+6=20 Hrs
IA-3	Unit : 6	14 Hrs
Total		52 Hrs



UG  
Odd 2018



Note:

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter; Wi indicates week number of the semester.
- 2) Final grade(absolute) is calculated based on Semester End Examination(SEE) marks (100 marks reduced to 50) plus Continuous Internal Evaluation(CIE) marks (50).
- 3) CIE marks(50) is based on sum of the best two Internal Assessment(IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on two quizzes. — Each Quiz will be taken for 10 marks
- 5) Last date to drop the course: 27-09-2018 — Total 20 marks. Scaled down to 10
- 6) Last date to withdraw the course: 27-09-2018 — GATE questions on the covered topics will be asked.
- 7) All preparatory tests (PTs) are open Book tests.
- 8) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 9) **85 % attendance is mandatory.**
- 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

Action Plan based on attainment of outcomes:

- a) Programming assignment are planned to enhance the understanding and correlate the theoretical concepts learnt in the class to compiler working.
- b) Programming assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.



## Learning Resources

1. Compilers: Principles, Techniques and Tools, Second Edition, Pearson  
Alfred V Aho, Monica S Lam, Ravi Sethi, Jeffrey D Ullman
2. System Programming and Operating Systems, Second Edition, Tata McGraw-Hill  
D M Dhamdhare
3. Crafting a Compiler with C, Pearson Education  
Charles N Fischer, Richard J LeBlanc Jr
4. Modern Compiler Implementation in C, Cambridge University Press  
Andrew W Apple

## Other Resources

1. Lex & Yacc, O'Reilly, John R. Levine, Tony Mason, Doug Brown

## Course Teacher

V.B.Hemadri

Email: [vidya\\_gouri@yahoo.com](mailto:vidya_gouri@yahoo.com)





# Course Plan

Course Teacher: Ranganath G Yadav Indira R. Umarji (For both A and B divisions)	Course Code: 15UCSC302 - DS	4-0-0-0 4	52 Hrs	3rd Semester, A & B div	01-08-2018 to 30-11-2018
--	--------------------------------	-----------	--------	----------------------------	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W 18	W19 - W22					
UNIT - I Structure, Union and Pointer Revisit	3	-	-	-	-	-	-	IA 1	-	-	-	-	IA 2	-	-	-	REVISION	IA 3	Lab Exam & Semester End Exams Week					
	-	2	-	-	-	-	-		-	-	-	-		-	-	-				-	-			
	-	-	3	-	-	-	-		-	-	-	-		-	-	-				-	-			
UNIT - III Stack	-	-	-	3	-	-	-		-	-	-	-		-	-	-				-	-	-	-	-
	-	-	-	-	4	-	-		-	-	-	-		-	-	-				-	-	-	-	-
	-	-	-	-	-	3	-		-	-	-	-		-	-	-				-	-	-	-	-
UNIT - IV Queue	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-					
	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-					
UNIT - II Lists	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-					
UNIT - V Trees	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-					
UNIT - VI Hash Table	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-					
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-					
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-					

IA	Topics	No. Of Hours
IA-I	UNIT I, UNIT III and UNIT IV up to Circular Queue	20 Hrs
IA-II	UNIT IV continued (including Priority Queue and De Queue), UNIT II (all types of linked lists)	16 Hrs
IA-III	UNIT V and UNIT VI	16 Hrs

**Note:**

- Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
- The entry 2 in the 2<sup>nd</sup> week (W2) is just indicative, but there will be 3 full days, i.e., 8<sup>th</sup> to 10<sup>th</sup> August, 2018, Hands on session on "Advanced C" under CIII, by IRU and RGY.
- Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50).
- CIE marks (50) is based on sum of the best two Internal Assessment (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks).
- CTA (10 Marks): The details are shown in Table 1.
- 85 % attendance is mandatory.



Action Plan based on observation taken from previous Attainment of Outcomes:  
 Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

1. Understand the various data structures available and their relevant applications.
2. Understand where what data structure is suitable.
3. Inculcate coding standards while writing the programs.

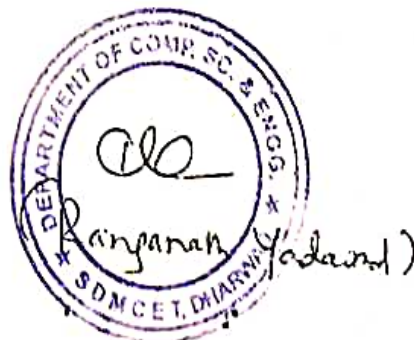
Activity	Date of conduction	Description	Course Outcome	Marks
1	08-08-2018 to 10-08-2018	Hands on session on "Advanced C" under CIII for all 3 <sup>rd</sup> semester students	CO 1	-
2	14-09-2018 / 15-09-2018	Class test as a preparatory for IA 1	CO 1, CO 3	3
3	10-11-2018	Implementation of application (Assigned or chosen)	CO 1 – CO 6	4
4	24-11-2018	Quiz covering UNIT V and UNIT VI	CO 5, CO 6	3

Table 1: LIST OF ACTIVITIES / ASSIGNMENTS

**Learning Resources:**

1. Aaron M. Tenenbaum, YedidyahLangsam and Moshe J. Augenstein: Data Structures using C and C ++, Pearson Education / PHI, 2006,
2. E. Balagurusamy: Programming in ANSI C, 4<sup>th</sup> Edition, Tata McGraw-Hill
3. Behrouz A. Forouzan and Richard F. Gilberg: Computer Science: A Structured Programming Approach Using C, 2<sup>nd</sup> Edition, 2003, Cengage Learning.

\*\*\*\*\*





Even 2018

**LESSON PLAN**

Course Name : Analysis & Design of Algorithms  
 Course Code : 15UCSC403  
 Teaching Hours : 39  
 No. of Hours/Week: 03Hrs/week  
 Course Teacher : Prof. Anand Valdya

CIE Marks : 30  
 Exam Hours : 03  
 Exam Marks : 100

Period: 2017-18 Even Sem

SESSION	CONTENTS	Mapping to Co's.)	Remarks
1	Lesson plan and syllabus and scope		
2	1. Introduction: Notion of Algorithm, Examples: gcd(m,n) by Euclid's	CO → 1	
3	consecutive integer checking, middle school procedure		
4	Fundamentals of Algorithmic problem Solving		
5	Fundamentals of Algorithmic problem Solving		
6	Fundamentals of the Analysis of Algorithm Efficiency Analysis Frame work.	CO → 2,3	
7	Asymptotic Notations and Basic Efficiency Classes		
8	Asymptotic Notations and Basic Efficiency classes		
9	Mathematical analysis of Recursive algorithms, Examples		
10	Mathematical analysis of Non recursive algorithms, Examples	CO → 2,3,4	
11	Brute Force: Selection Sort and Bubble sort		
12	Sequential search and String Matching		
13	Divide-and-Conquer: Merge sort,		
14	Quick sort, Binary Search		
15	Revision upto 1-14 classes		
16	Multiplication of large integers,		
17	Strassen's Matrix multiplication.		
18	Decrease and Conquer : concept , Insertion Sort		
19	Depth First and Breadth First Search		
20	Depth First and Breadth First Search		
21	Topological Sorting	Self learning	
	Heaps and Analysis of Heap sort		
22	Greedy Technique: Introduction ,Prim's Algorithm		
23	Job Sequencing		
24	Kruskal's Algorithm		

IA-1

IA-2



25	Dijkstra's Algorithm	CO → 2,3,4, 5	IA-3
26	Huffman tree, Knapsack problem		
27	Revision on Greedy technique		
28	Dynamic Programming : Computing a binomial coefficient		
29	Warshall's Algorithm and analysis		
30	Floyd's Algorithms and analysis		
31	Knapsack problem(0/1)		
32	Revision on Dynamic Programming, comparison between greedy and dynamic paradigm		
33	Backtracking and Branch and bound		
34	n-Queen's problem and Sub-set		
35	Branch and bound(Assignment problem,Knapsack)		
36	Branch and bound(Assignment problem,Knapsack)		
37	Revision on Back tracking and branch and bound technique		
38	Limitations of Algorithm Power :Lower bound Arguments,		
39	P, NP Problems		

CIE = IA (60%) + CTA (40%)

IA → Based on 3 written test of max.20 marks, we choose best of two marks and scaled down to 30 marks

CTA → Based on lab test of max.30 marks and continuous evaluation 5 marks ,total scaled down to 20 marks

#### Laboratory Evaluation Scheme

Sl.No	Description	Marks
1.	Write up (Design and analysis)	10
2.	Implementation	15
3.	Viva voce	05
<b>Total</b>		<b>30</b>

Final Exam: Max. 100 marks

Marks = (SEE/2)+CIE

Date: 5/8/2018

Signature of the Course Teacher







- 1) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 2) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (20 marks)
- 3) CTA (20 Marks) is based on use of Design, Implementation and use of tools. (Based on the observation made in the previous semester on attainments of outcome).
- 4) All IAs/SEE are as per notification given by the college.
- 5) 85 % attendance is mandatory.
- 6) Class room coverage focuses on attainment of course outcome defined for the course and is available in the syllabus.

**Action Plan based on observation taken from previous Attainment of Outcomes:**

- a) The course is of nature 3-0-2, which give more focus on practice of the things that are learnt in theory has yielded good result and all Cos have been attained. It is required to continue with the same practice with some changes in the experiments
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.

**Note:** Activities/assignments will be notified in the Google group created for this course.





# CTA assessment

(20 Marks) is based on the submission of report and oral examination on the following assignments.

Activity	Date of Completion	Description	Course Outcome	Marks
1	One week after completion of chapter 1 and 2.	Programs to realize basic geometric primitives using OpenGL. [This assignment is designed to enable the students to explore different geometric primitives of OpenGL using GL_POINTS, GL_LINES, GL_LINE_STRIP, GL_LINE_LOOP, GL_POLYGON, GL_QUADS, GL_TRIANGLES, GL_TRIANGLE_STRIP, GL_QUAD_STRIP, and GL_TRIANGLE_FAN. Simulate and observe color formation in OpenGL.]	1,2	10
2		CO Programs to realize plots for polar coordinate equations. [This assignment enables the students to realize 2D polar co-ordinate graphs using mathematical equations].	1,2	10
3		Programs to generate Fractals. [This assignment helps students to realize 2D and 3D fractal implementations in OpenGL and to realize the concept of Hidden Surface Removal Algorithm].	1,2,3	10
4	One week after completion of chapter 3 and 4.	Interactive programs to realize human computer interaction (HCI) using input devices. [This assignment enables the students to understand input interaction techniques available in OpenGL by using callback functions for various input devices.]	1,2	10
5		Menu driven programs to realize different geometric objects and apply affine transformations on them. [This assignment enables the students to understand creation of menu bar in OpenGL and facilitates them to use different APIs for performing various affine transformations supported in OpenGL.]	1,2,3,4	10
6	One week after completion of chapter 5 and 6	CO1 Programs to transform 3D object w.r.t X, Y & Z axes and apply lighting and shading techniques. [This assignment enables the students to simulate shading and lighting techniques on 3D objects supported in OpenGL.]	1,2,3,4,5	10
7		CO2 Programs to simulate various scan conversion and clipping algorithms. [This assignment enables the students to realize proven algorithms for scan conversion and clipping.]	2,6	10

**NPTEL or any other certification with 60% or more marks and minimum of 20 hours of duration from reputed organization with prior approval of the course teacher will be considered for CTA ASSESSMENT in place of above assignments. In such case students are expected to register with course teacher on or before 20-8-2019.**



**Learning Resources:**

1. Edward Angel, "Interactive Computer Graphics A Top-Down Approach with OpenGL", 5/E, Addison-Wesley, 2008
2. James D Foley, Andries Van Dam, Steven K Feiner, John F Hughes, "Computer Graphics Principles and Practice", 2/E, Addison-Wesley, 1997.
3. Edward Angel, Dave Shreiner, "Interactive Computer Graphics A Top-Down Approach with Shader-Based OpenGL", 6/E, Addison-Wesley, 2012.
4. F.S. Hill, Jr., "Computer Graphics Using OpenGL", 2/E, Pearson Education, 2005
5. Donald Hearn and Pauline Baker, "Computer Graphics- OpenGL Version", 2/E, Pearson Education, 2003

**SMJ+RA**  
**Course Teachers**





Even 2019

# Course Plan

20

Course Teacher: Prof. Prathap Kumar MK		Course		ISUCSC504- UNIX System Programming							4-0-0-0: 4		52 Hrs		5 <sup>th</sup> Sem, A div		1 <sup>st</sup> Aug-2019 to 30 <sup>th</sup> Nov-2019																																							
Month	Activity/ Lesson	August							September							October				November			December																																	
		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20																																			
	Chapter-1: Introduction	2	2																																																					
	Chapter-2: Unix Files		2	3																																																				
	Chapter-3: Unix File APIs				1	4																																																		
	Chapter-4: Unix Processes						3	4																																																
	Chapter-5: Process Control								2	3	3																																													
	Chapter-6: Signals and Daemon Processes										2	4																																												
	Chapter-7: Inter-process Communication													4	3	2	4	4																																						
		IA-1 (18-9-2019 to 20-9-2019)																																																						
		IA-2 (4-11-2019 to 6-11-2019)																																																						
		IA-3 (27-11-2019 to 29-11-2019)																																																						
		LAB SEE (3-12-2019 to 10-12-2019)																																																						
		Topics																																																						
		Introduction; Unix Files; Unix File APIs; Unix Processes																																																						
		Inter-process Communication																																																						
		Process Control; Signals and Daemon Processes																																																						
		No. of Hours																																																						
		IA																																																						
		IA-1																																																						
		IA-2																																																						
		IA-3																																																						
		No. of Hours																																																						
		21 Hrs																																																						
		16 Hrs																																																						
		15 Hrs																																																						



Even 2019

**General Instructions:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, which indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) plus Continuous Internal Evaluation (CIE) marks (50).
- 3) CIE marks (50) is based on the sum of best two Internal Assessments (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on assignments and online quiz.
- 5) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 6) 85% attendance is MANDATORY.
- 7) Class room coverage focuses on attainment of course outcomes defined for course and is available in the syllabus.

**Action Plan based on observations taken from previous Attainment of Outcomes:**

Observation taken from previous Attainment of Outcomes (AY-2018-19):

- Students are weak in programming

Action plan proposed to overcome the weakness:

- 1) Programming assignments are planned to enhance programming skills and implementing features learnt in theory classes.
- 2) Online quiz to test thorough understanding of UNIX system programming API features.





Activity	Date of Completion	Description	Course Outcome	Marks
1	On or before IA-2	<p>Programming Assignment problem statement: Write a C program using UNIX system APIs to implement the following features:</p> <p>1) Reads basic student information like (but not limited to): USN, Name, Semester as input and write the data to a named file. 2) Provides an exclusive lock while writing the data to the file. 3) Provides a shared lock while reading data from the file. 4) Displays the PID of the locked process, if another process has already acquired an exclusive lock while writing data to a file.</p> <p><b>NOTE:</b> The program should allow the user to write data to the file <b>ONLY IF</b> no other process has acquired ANY lock on it.</p>	CO-2,3	5
2	Before IA-3	Online un-proctored Quiz (through Google Forms)	CO-1,2,3,4,5,6	5

## Text Books:

1. Terrence Chan, "UNIX System Programming using C++", Prentice Hall India, 2009.
2. Stephen A. Rago, W. Richard Stevens, "Advanced Programming in the UNIX Environment", 2<sup>nd</sup> Edition, Pearson Education, 2005.
3. Marc J. Rochkind, "Advanced UNIX Programming", 2<sup>nd</sup> Edition, Pearson Education, 2004.
4. Maurice J. Bach, "The Design of the UNIX Operating System", Pearson Education, 1987.

## Course Teacher:

Prof. Prathap Kumar M.K.,

+91-8884611980

pratapkumar.mk@gmail.com.

pratapkumar.mk@sdmceet.ac.in



Even 2019 (6)

## Course Plan

<b>Course Teachers:</b> Ranganath G Yadawad Nita K (For both A and B divisions)	<b>Course Code:</b> 15UCSC404 – Operating Systems	4-0-0-0 : 4	52 Hrs	4 <sup>th</sup> Semester A & B div	11-01-2019 to 03-05-2019
--	--	-------------	--------	---------------------------------------	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W18 -W22
UNIT – I Introduction to Operating Systems, System structures	2	-	-	-	-	-		-	-	-	-	-		-	-	-		Lab Exam & Semester End Exams Week
	-	2	-	-	-	-		-	-	-	-	-		-	-	-		
UNIT – II Process Management	-	1	-	-	-	-		-	-	-	-	-		-	-	-		
	-	-	3	-	-	-		-	-	-	-	-		-	-	-		
	-	-	-	4	-	-		-	-	-	-	-		-	-	-		
	-	-	-	-	1	-		-	-	-	-	-		-	-	-		
UNIT – III Process Synchronization	-	-	-	-	3	-		-	-	-	-	-		-	-	-		
	-	-	-	-	-	4		-	-	-	-	-		-	-	-		
	-	-	-	-	-	-	1		-	-	-	-		-	-	-		
	-	-	-	-	-	-	-	1		-	-	-		-	-	-		
UNIT – IV Deadlocks	-	-	-	-	-	-	-	3		-	-	-		-	-	-		
	-	-	-	-	-	-	-	-	3		-	-		-	-	-		
UNIT – V Memory Management	-	-	-	-	-	-	-	-	-	4	-	-		-	-	-		
	-	-	-	-	-	-	-	-	-	-	4	-		-	-	-		
UNIT – VI File System, Implementation of File System	-	-	-	-	-	-	-	-	-	-	-	4		-	-	-		
	-	-	-	-	-	-	-	-	-	-	-	-	1		-	-		
	-	-	-	-	-	-	-	-	-	-	-	-	-	3		-		
UNIT-VII Secondary Storage Structures, Protection	-	-	-	-	-	-	-	-	-	-	-	-	-	1		-		
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3			
UNIT-VIII Case Study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4		

IA	Topics	No. Of Hours
IA-I	UNIT I, UNIT II and UNIT III up to Critical Section Problem only introduction	17 Hrs
IA-II	UNIT III continued (including detailed critical section problem), UNIT IV and UNIT V	19 Hrs
IA-III	UNIT VI, UNIT VII and UNIT VIII	16 Hrs

**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
2. The entry 1 in the 2<sup>nd</sup> week (W2) is just indicative, but there will be a class test to assess the capability of the students for deciding the pedagogy.
3. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50)





# CTA / Laboratory Exercises – 10 Marks (CTA)

This is based on the submission of report and oral examination on the following assignments. The specification and problem statements for each assignment will be published during semester, common to both A and B division.

1. Study of UNIX commands for day-today administrative task and end user activities.
2. Writing C program to demonstrate the use of process related system calls.
3. Writing C program to demonstrate the use of files related system calls.
4. Writing C program to demonstrate the use of directories related system calls.
5. Study of use of filters.
6. Writing shell scripts to do simple administrative task.
7. Writing awk scripts to do simple administrative task.

Note:

1. NPTEL or any other certification with 60% or more marks and minimum of 20 hours of duration from reputed organization with prior approval of the course teacher will be considered for CTA ASSESSMENT with suitable weightage. In such case students are expected to register with course teacher on or before 15-8-2019.
2. Internal assessments/SEE focuses on programming based on laboratory activities and theory covered in the class.



### Reference Books:

- 1) Sumitabha Das UNIX Concepts and Applications, Third edition, Tata McGraw Hill, 2003
- 2) Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating System Principles, 8th edition, Wiley India, 2009.
- 3) Behrouz A. Forouzan and Richard F. Gilberg UNIX and Shell Programming A Text book, Thomson, edition 2003.





## Course Plan

Course Teachers: Nita K and Archana N. (A & B divisions).	Course Code: 15UCSC400 - Microcontroller	4-0-0-0 : 4	52 Hrs	4 <sup>th</sup> Semester A & B div	11-01-2019 to 03-05-2019
---	--	-------------	--------	--	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W18-W22					
UNIT - I 8051 Microcontroller Architecture	0	-	-	-	-	-	IA-1	-	-	-	-	-	IA 2	-	-	-	-	IA 3	Lab Exam & Semester End Exams Week				
UNIT - II Addressing Modes, Logical, Arithmetic operations	-	2	2	5	3	-		-	-	-	-	-		-	-	-	-			-	-	-	-
UNIT - III Jump CALL Instructions, Interrupts and Return	-	-	-	-	-	-		-	3	-	-	-		-	-	-	-			-	-	-	-
UNIT - IV 8051 Programming in C	-	-	-	-	-	-		-	1	-	-	-		-	-	-	-			-	-	-	-
UNIT - V 8051 Timer Programming	-	-	-	-	-	-		-	5	-	-	-		-	-	-	-			-	-	-	-
UNIT - VI Interrupts & Serial Communication	-	-	-	-	-	-		-	-	3	-	-		-	-	-	-			-	-	-	-
UNIT-VII 8051 Application & Interfacing	-	-	-	-	-	-		-	-	-	4	-		-	-	-	-			-	-	-	-

IA	Topics	No. Of Hours
IA-I	UNIT I, UNIT II up to addressing modes	14 Hrs
IA-II	UNIT II continued, UNIT III, and UNIT IV	18 Hrs
IA-III	UNIT V, UNIT VI and UNIT VII	16 Hrs

**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
2. The entry 1 in the 2<sup>nd</sup> week (W2) is just indicative, but there will be a class test to assess the capability of the students for deciding the pedagogy.
3. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50).
4. CIE marks (50) is based on sum of the best two Internal Assessment (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks).
5. CTA (10 Marks): The details are shown in Table 1.
6. 85 % attendance is mandatory.

Action Plan based on observation taken from previous Attainment of Outcomes



Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

1. Understand the 8051 architecture.
2. Understand the importance of addressing modes and assembly language programming.

Activity	Date of conduction	Description	Course Outcome	Marks
1	25-02-2019/ 18-01-2018	Class test to assess the capability of the students to decide on pedagogy.	CO 1, CO2	4
2	18-02-2019	Class test as a preparatory for IA 1	CO 1, CO 2	6

Table 1: LIST OF ACTIVITIES / ASSIGNMENTS

**Learning Resources:**

1. Muhammad Ali Maizidi, Janice G Maizidi, Rolin D McKinlay, "The 8051 Microcontroller and Embedded Systems using Assembly and C" 2/E, Eastern Economy 2005.
2. Kenneth J. Ayala "The 8051 Microcontroller Architecture, Programming and Application", 3/E, 2004.

\*\*\*\*\*





# Course Plan (Academic Year 2018-19, Even Semester)

Course Teacher Rashmi Athanikar	Course	Problem Solving and Programming in C(18UCSC200)	3-2-0 : 4	52 Hrs	Semester I-Division	II Semester I-Division	11-01-2019 to 3-05-2019
------------------------------------	--------	--	-----------	--------	------------------------	------------------------------	-------------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W20-17
Unit - 1 Algorithms and Flowcharts (4 Hrs IA-I)	4																
Unit - 2 Fundamentals of C Programming (8 Hrs IA-I)		3	4	1													
Unit - 3 Control Structures (10 Hrs IA-II)				PT 3	4	2 IA-1	1										
Unit - 4 Arrays and Strings (10 Hrs IA-II)							3	3	4								
Unit - 5 Modular Programming and Recursion (10 Hrs IA-III)										PT 4	4	1 IA-2	1				
Unit - 6 Building blocks of data structures (10 Hrs IA-III)													3	2	4	1 IA-3	
Lab Exam and Semester End Exam as per the Time table given by COE's Office																	



Internal Assessments Syllabus

IA-1	Units : 1 and 2	4 + 8 =12 Hrs
IA-2	Units : 3 and 4	10 + 10=20 Hrs
IA-3	Units : 5 and 6	10+10 =20 Hrs
Total		52 Hrs

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter; Wi indicates week number of the semester.
- 2) Final grade(absolute) is calculated based on Semester End Examination(SEE) marks (100 marks reduced to 50) plus Continuous Internal Evaluation(CIE) marks (50).
- 3) CIE marks(50) is based on sum of the best two Internal Assessment(IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on assignments and quizzes.
- 5) Last date to drop the course: 01-03-2019
- 6) Last date to withdraw the course: 06-04-2019
- 7) All preparatory tests (PT's) are practice tests towards IAs and SEE.
- 8) All IAs/SEE are as per notification of college and is common to all divisions.
- 9) 85 % attendance is mandatory.**
- 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Assignments on programming/debugging are planned to enhance the understanding of concepts.
- b) Preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.





## Learning Resources

1. E Balagurusamy, "Programming in ANSI C", 6/E, TMH 2012.
2. Brian W Kernighan & Dennis M Ritchie, "The C programming language", 2/E, PHI 2004
3. R G Dromey, "How to solve it by computer", PHI 2008
4. B A Forouzan and R F Gilberg, "Computer Program: A structured programming approach using C", 3/E, Thomson Learning, 2005
5. Brain W. Kernighan and Rob Pike, "The Practice of Programming", Pearson Education Inc. 2008
6. <https://nptel.ac.in/courses/106105171/>
7. [https://spoken-tutorial.org/tutorial-search/?search\\_foss=C++and+Cpp&search\\_language=English](https://spoken-tutorial.org/tutorial-search/?search_foss=C++and+Cpp&search_language=English)

## Course Teacher

Rashmi Athanikar

Assistant Professor, Dept of CSE







IA-1	Chapters: 1,2 & 3 = 15 Hrs.
IA-2	Chapters: 4,5 = 14Hrs.
IA-3	Chapters: 6, 7 & 8 = 6+6+ 7 = 10 Hrs.

**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter, WI indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE = IA (60%) + CTA (40%) IA ---> Based on 3 written test of max.20 marks, we choose best of two marks and scaled down to 30 marks
- 4) CTA--> Based on lab test of max.30 marks and continuous evaluation 5 marks ,total scaled down to 20 marks

**Laboratory Test Evaluation Scheme**

Sl.No	Description	Marks
1.	Write up (Design and analysis)	10
2.	Implementation	15
3.	Viva voce	05
<b>Total</b>		<b>30</b>



- 5) Semester End Examination (EE) contains one full question based on CTA assignments.
- 6) Course Withdrawal: .....
- 7) Dropping the course: .....
- 8) All preparatory tests (PT) are open Book tests.
- 9) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 10) 85 % attendance is mandatory.**
- 11) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Laboratory assignments as part of the CTA which are planned to enhance the understanding of industry relevant ADA and correlate the theoretical concepts learnt in the class..

**Learning Resources:**

**Books:**

- 1. Anany Levitin, "Introduction to the Design and analysis of algorithms", Pearson Education 3/E 2011
- 2. Horowitz, Sahani et.al "Fundamentals of Computer Algorithms", Galgotia Publication, 2004.
- 3. Marks Allen Weiss, "Data Structure and Algorithm Analysis", Pearson Education, 3/E, 2009
- 4. Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest, "Introduction to Algorithms", 2/E, PHI 2003.

Course Teacher:



Anand Vaidya  
 Mobile: 9036889732  
 Email: vaidyasec@gmail.com





## Course Plan

Course Teacher: Rashmi Athanikar	Course Code: 15UCSC402 – Object Oriented Programming	4-0-0-0 : 4	52 Hrs	4 <sup>th</sup> Semester, B div	11-01-2020 to 03-05-2020
-------------------------------------	--	-------------	--------	---------------------------------------	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W18-W22			
Introduction to OOPs, OOPs features	2	-	-	-	-	-	IA-1	-	-	-	-	-	IA-2	-	-	-	IA-3	Lab Exam & Semester End Exams Week			
Inheritance, Polymorphis m Introduction to Java	2	-	-	-	-	-		-	-	-	-	-		-	-	-			-	-	-
	1	-	-	-	-	-		-	-	-	-	-		-	-	-			-	-	
	3	-	-	-	-	-		-	-	-	-	-		-	-	-			-	-	
Data types, Arrays, String handling, Classes	-	-	-	4	-	-		-	-	-	-	-		-	-	-			-	-	-
	-	-	-	-	3	-		-	-	-	-	-		-	-	-			-	-	-
Packages and Interfaces	-	-	-	-	-	-		-	1	-	-	-		-	-	-			-	-	-
	-	-	-	-	-	-		-	3	-	-	-		-	-	-			-	-	-
Overloading Over riding Exception Handling	-	-	-	-	-	-		-	-	3	-	-		-	-	-			-	-	-
	-	-	-	-	-	-		-	-	-	4	-		-	-	-			-	-	-
Exception handling Event Handling	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-				
	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-				
AWT Programming and Applets	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-				
	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-				
SWINGS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-				

IA	Topics	No. Of Hours
IA-I	UNIT I, UNIT II and UNIT III up to Critical Section Problem only introduction	17 Hrs
IA-II	UNIT III continued (including detailed critical section problem), UNIT IV and UNIT V	19 Hrs
IA-III	UNIT VI, UNIT VII and UNIT VIII	16 Hrs

**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
2. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50).
3. CIE marks (50) is based on sum of the best two Internal Assessment (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks).
4. CTA (10 Marks): The details are shown in Table 1.
5. 85 % attendance is mandatory.

Action Plan based on observation taken from previous Attainment of Outcomes:



Even 2020

Introduction to JAVAX Object Oriented Programming

Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

1. Understand the ECLIPSE IDE.
2. Understand and distinguish POP and OOP paradigms.
3. Emphasis on AWT programming

Activity	Date of conduction	Description	Course Outcome	Marks
1	17-01-2018/ 18-01-2018	Working with Eclipse, installation etc.	CO 1	1
2	22-04-2018 (Throughout the week)	Implementation of producer consumer problem with buffer size 1 Implementation of Producer consumer problem with buffer size N.	CO 2 – CO 6	4
3	During tail ending regular labs	Mock Interview	CO 1 - CO 6	3

Table 1: LIST OF ACTIVITIES / ASSIGNMENTS

**Learning Resources:**

1. Herbert Schildt – Java The Complete Reference" 9/E, Tata McGraw Hill, 2014.
2. Grady Booch – Object Oriented Analysis and Design with Applications", 3/E, Pearson Education, 2007.

\*\*\*\*\*





Contact Hours: 39

Course Learning Objectives (CLOs): This course focuses on the following learning perspectives:

- To provide the student with an exposure on UNIX platform so that various other domain specific project activities can be performed with ease and comfort.

To provide the student with an exposure on the structure and working principles of UNIX operating systems at introductory level, focusing on OS services, commands and scripting language for administration of UNIX operating system.

Course Outcomes (COs):

Description of the Course Outcome: At the end of the course the student will be able to:		Mapping to POs(1-12)/ PSOs (13,14)		
		Substantial Level (3)	Moderate Level (2)	Slight Level (1)
CO-1	Explain the structure and working principles of UNIX operating system.	-	-	1,13
CO-2	Use different UNIX commands and System Calls to perform system administration and user specified tasks.	-	13,14	1,2,3,12,15
CO-3	Write shell scripts to perform different system administrative task.	-	13,14	1,2,3,12,15
CO-4	Write awk scripts to perform different system administrative task.	-	13,14	1,2,3,12,15

Note: BL- Bloom's Level

POs/PSOs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mapping Level	-	-	-	-	2.0	-	-	-	-	-	-	-	1.7	2.0	2.0	-

Prerequisites: None

AS A SYLLABUS  
 - CASE STUDY -  
 PETA MODEL USED AS  
 COURSE PLAN - DEMO  
 BY  
 IOAC



AUG - DEC - 2020

Course Contents

Unit	Contents	Performance Ensuring Measures - PEM [Hours/ Course Outcomes/ Scope of Internal Assessments/ Assessment Tools / Evidences]		Course Outcome	IAs	Assessment Tools: Class Test, Written Test, Quiz, Programming based assignments, Group activity/ Course Project, Peer Learning & Training from Industry experts.
		Durations in Hours	Hours			
		Theory	Practice			
1.	Introduction to Operating Systems: Computer System organization/ architecture; Operating System structure; Operating System operations; Introduction to Process management; Memory management; Storage management; Protection and security; Distributed system; Computing environments. Operating System Services; System calls; System programs; Operating System design and implementation; Operating System structure; Virtual machines; System boot	4	-	CO-1	1	<ol style="list-style-type: none"> <li>Written test- CIE / SEE (CO-1)</li> <li>CTA: Assignment on Study of UNIX OS evolution.</li> </ol>
2.	Unix System Architecture, commands and System calls: Unix System structure, Commands for performing various activities related to process, files, directories, devices, password protection, vi editors, and other administrative task. Daemon process. System calls related to process, files and directories.	6	-	CO-12	2	<ol style="list-style-type: none"> <li>Class test / Quiz (CO-1,2)</li> <li>Written test- CIE/SEE(CO-1,2)</li> <li>CTA- Exercises on use of system calls (CO-2) Ex: Writing programs for                             <ul style="list-style-type: none"> <li>Directory Listing</li> <li>Displaying file attributes</li> <li>Implementing unix command ls -l.</li> </ul> </li> </ol>
3.	Filters in Unix: Paginating Files, head: Displaying the Beginning of a File, tail: Displaying the End of a File, cut: Splitting a File Vertically, paste: Pasting files, sort Ordering a File, uniq Locate Repeated and Non repeated Lines, tr Translating Characters, An Example: Displaying a Word count List. grep Searching for a Pattern, Basic Regular Expressions	8	-	CO-2	2	<ol style="list-style-type: none"> <li>Class Test/Quiz (CO-2)</li> <li>Written test- CIE/SEE (CO-2)</li> <li>CTA- Command Level Exercises on Filters (CO-2)</li> </ol>



MS-DEG  
2020



	(BRE) - An Introduction, Extended Regular Expressions (ERE) and egrep.					1
	<b>Shell Programming:</b> Environment Variables, Aliases (bash), Command History (bash). Shell Scripts, read and readonly commands, Using Command Line Arguments, exit and Exit Status of Command, The Logical Operators && and    Conditional Execution, The if Conditional, Using test and [ ] to Evaluate Expressions, The case Conditional, expr: Computation and String Handling, \$0: Calling a Script by Different names, while: Looping, for: Looping with a List, set and shift: Manipulating the Positional Parameters.					2
4.	<b>Awk Scripting Language:</b> awk program line and script structure, awk's operational mechanism, Records and fields, special variables \$0, \$1, \$2, etc., patterns, The BEGIN and END, Variables, built in variables, built in functions, length, split, getline, print, printf, sprintf, index, system, substr, etc., control structures, operators in awk, associative arrays, writing simple awk scripts, Running awk scripts from the shell.	8	-	CO-3	3	<ol style="list-style-type: none"> <li>1. Class Test/Quiz (CO-3)</li> <li>2. Written test- CIE /SEE (CO-3)</li> <li>3. CTA- Programming exercises on Shell scripts. (CO-3)</li> </ol>
5.		7	-	CO-4	3	<ol style="list-style-type: none"> <li>1. Class Test/Quiz (CO-4)</li> <li>2. Written test- CIE /SEE (CO-4)</li> <li>3. CTA- Programming exercises on awk scripts. (CO-4)</li> </ol>

### Other performance ensuring measures

Like Industrial Visits, Course Projects, Implementation based assignments, Survey & Presentation, Certification, Conducting workshops/training programs, paper presentation, hobby projects, any engineering solutions for societal problems, Participation in relevant conference/training program/workshops etc....

**Note:** Course teachers' assessment (CTA) consists of study of various commands, mastery over vi editors, structure of UNIX operating system, in depth writing shell and awk scripts for simple administrative task. The report is to be submitted by individual students. Students are expected to spend approximately 26 hours on practice based learning and its evaluation.

#### Reference Books:

- 1) Sumitabha Das UNIX Concepts and Applications, Third edition, Tata McGraw Hill, 2003
- 2) Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating System Principles, 8th edition, Wiley India, 2009.



MS-  
DEC-  
2022  
EM

18UCSC503

Software Engineering

(3-0-0) 3

Contact Hours: 39

**Course Learning Objectives (CLOs):**

This is a 3 credit, 39 contact hours course at undergraduate level focusing on knowing the process of software system development and enables students to develop software system using engineering techniques.

**Course Outcomes (COs):**

CO	Description of the Course Outcome: At the end of the course, the student will be able to:	Mapping to POs and PSOs		
		Substantial	Moderate	Low
CO-1	Describe the properties of various critical systems and the quality parameters. [Familiarity] (BL-2)	-	-	16
CO-2	Describe the different practices that are key components of various process models. [Familiarity] (BL-2)	-	-	3,13
CO-3	Identify various system requirements and prepare system specification reports to solve real life problems in various domains and develop domain expertise. [Usage] (BL-3)	13	2	1
CO-4	Conceptualize the system through design and modeling the system architecture, components and processes with quality and standards. [Usage] (BL-3)	13	3,5,12	10
CO-5	Develop software system using engineering techniques, industry relevant tools and programming features/techniques. [Usage] (BL-3)	-	8,9,14	10,12
CO-6	Verify and validate the given system using standard tools and techniques. [Usage] (BL-3)	15	5,12	10
CO-7	Manage project in terms of risk, configuration/versions, Cost and Resources. [Usage] (BL-3)	-	9,11	10

Note: BL- Bloom's Level

POs/PSOs Mapping Level	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mapping Level	1	2	1.5	-	2	-	-	2	2	1	-	1.66	2.3	2	3	1

**Prerequisites: Knowledge of:**

- Basics of computer systems and its usage.
- Any Computer Programming Language.



PMS-DEC



## Course Contents

UNIT	Contents	Performance Ensuring Measures- PEM				Assessment Tools
		Hours/ Course Outcomes/ Scope of Internal Assessments/ Assessment Tools/Evidences ]		Course Outcomes	IAs	
		Durations in Hours	Practice			
		Theory	Practice			
1	<p>Overview: Introduction: FAQ's about software engineering, Professional and ethical responsibility. Socio-Technical systems: Emergent system properties; Systems engineering; Organizations, people and computer systems; Legacy systems.</p> <p>Critical Systems, Software Processes: Critical Systems: A simple safety critical system; System dependability; Availability and reliability. Software Processes: Models, Process iteration, Process activities; The Rational Unified Process; Computer Aided Software Engineering.</p>	7	-	1	1	<p>1. Class Test. (CO-1, 2)</p> <p>2. Written test- CIE / SEE. (CO-1,2)</p>
2	<p>Requirement Engineering: Software Requirements: Functional and Non-functional requirements; User requirements; System requirements; Interface specification; The software requirements document. Requirements Engineering Processes: Feasibility studies; Requirements elicitation and analysis; Requirements validation; Requirements management.</p>	5	2	3	1	<p>1. Class test. (CO-3)</p> <p>2. Written test- CIE/SEE. (CO-3)</p> <p>3. CTA- Group Activity: Course project Preparing SRS report in IEEE standard format. (CO-3)</p>



<p>System models: System Models; Context models; Behavioral models; Data models; Object models; Structured methods.</p> <p>Software Design and Development: Architectural Design; Architectural design decisions; System organization; Modular decomposition styles; Control styles. Object-Oriented design. UI Design Issues.</p> <p>Rapid Software Development: Agile methods; Extreme programming; Rapid application development. Software Evolution: Program evolution dynamics; Software maintenance; Evolution processes; Legacy system evolution.</p>			<ol style="list-style-type: none"> <li>1. Class test. (CO-4)</li> <li>2. Written test- CIE/SEE. (CO-4)</li> <li>3. CTA- Group Activity: Course project Use of industry relevant tool for building system models. Evaluation is to be based on report submission and oral presentation. (CO-4)</li> </ol>
<p>Verification and Validation: Verification and Validation: Planning; Software inspections; Automated static analysis; Verification and formal methods. Software testing: System testing; Component testing; Test case design; Test automation. Testing Techniques: Equivalence Partitioning, Boundary Value Analysis, Cause Effect Graphing, Test Generation from Predicates, Statement testing, Branch Testing, Condition Testing, Path Testing, Procedural Call Testing, Data Flow Testing.</p>	6	3	<ol style="list-style-type: none"> <li>1. Class test. (CO-6)</li> <li>2. Written test- CIE/SEE. (CO-6)</li> <li>3. CTA- Group Activity: Course project Use of industry relevant tool for testing the design and the code developed. (CO-6)</li> <li>4. CTA- Group Activity: Exercise on writing test script for the given system specification (Model based testing) (CO-6)</li> </ol>
<p>Software Quality &amp; Project Management: Various Software quality parameters and associated standards and procedures. Project Management activities; Project planning; Project scheduling; Risk management. Configuration Management. Managing People: Selecting staff; Motivating people; Managing People: The People Capability Maturity Model Software Cost Estimation: Productivity; Estimation techniques. Project duration and staffing.</p>	7	-	<ol style="list-style-type: none"> <li>1. Written test- CIE/SEE.(CO-7)</li> <li>2. CTA- Group Activity: Exercise on cost estimation and project management tool. Ex: GitHub (CO-7)</li> </ol>



PERM



**Other performance ensuring measures**

Like Industrial Visits, Course Projects, Implementation based assignments, Survey & Presentation, Certification, Conducting workshops/training programs, paper presentation, hobby projects, any engineering solutions for societal problems, Participation in relevant conference/training program/workshops etc...

1. Minimum two Online Webinars from Alumni connecting industry to class room on related topics / technological trends.

2. Quiz is to be conducted based on the Webinar and is to be considered as part of CTA.

3. CTA- Group Activity: Programming based on requirements & design created and use of tools to study various testing strategies. (CO-5)

Evaluation is to be based on report submission and oral presentation

Note: CTA: Course Teacher's Assessment, CIE: Continuous Internal Evaluation, SEE: Semester End Examination. Procedure for conduction of IAs and SEE will be notified by the office of the Dean academic program and is common to all courses and programs.

**Reference Books:**

1. Ian Sommerville, "Software Engineering", 10/E, Person Education, 2016.
2. Roger Pressman, "Software Engineering, Practitioners approach", 7/E, McGraw-Hill, 2010.



PEED

## Course Plan

Course Teachers: Nita K (A division)	Course Code: 18UCSC400 – ARM Processor	3-0-0-0 : 3	39 Hrs	4 <sup>th</sup> Semester, A div	21-01-2020 to 03-05-2020
--	---	-------------	--------	---------------------------------------	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W18-W22														
Chapter -1 ARM Embedded Systems and Processor Fundamentals	2	-	-	-	-	-	IA 1	-	-	-	-	-	IA 2	-	-	-	IA 3	Lab Exam & Semester End Exams Week														
	-	3	-	-	-	-		-	-	-	-	-		-	-	-			-	-												
	-	-	3	-	-	-		-	-	-	-	-		-	-	-			-	-												
Chapter-2 ARM Instruction Set	-	-	-	1	-	-		IA 1	-	-	-	-		-	IA 2	-			-	-	IA 3	Lab Exam & Semester End Exams Week										
	-	-	-	1	-	-			-	-	-	-		-		-			-	-			-	-								
	-	-	-	2	-	-			-	-	-	-		-		-			-	-			-	-								
Chapter-3 Introduction to Thumb and ARM programming	-	-	-	-	3	-			IA 1	-	-	-		-		-			IA 2	-			-	-	IA 3	Lab Exam & Semester End Exams Week						
	-	-	-	-	3	-				-	-	-		-		-				-			-	-			-	-				
	-	-	-	-	1	-				-	-	-		-		-				-			-	-			-	-				
Chapter-4 Exceptions and interrupt handling schemes	-	-	-	-	-	-				IA 1	3	-		-		-				-			IA 2	-			-	-	IA 3	Lab Exam & Semester End Exams Week		
	-	-	-	-	-	-					-	+		-		-				-				-			-	-			-	-
	-	-	-	-	-	-					-	1		-		-				-				-			-	-			-	-
Chapter-5 LPC2148 ARM CPU	-	-	-	-	-	-	IA 1				-	-	3	-		-	IA 2	-		-				-			IA 3	Lab Exam & Semester End Exams Week				
	-	-	-	-	-	-					-	-	-	+		-		-		-				-							-	-
	-	-	-	-	-	-					-	-	-	1		-		-		-				-							-	-
Chapter-6 Peripherals: GPIO, PLL & Timers	-	-	-	-	-	-		IA 1			-	-	-	-	-	IA 2		-		-	3	IA 3		Lab Exam & Semester End Exams Week								
	-	-	-	-	-	-					-	-	-	-	-			-		-	-										-	+
	-	-	-	-	-	-					-	-	-	-	-			-		-	-										-	1

IA	Topics	No. Of Hours
IA-I	Chapter- 1, Chapter-2	16 Hrs
IA-II	Chapter- 3, Chapter-4	15 Hrs
IA-III	Chapter -5 Chapter-6	08 Hrs





**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
2. The entry 1 in the 2<sup>nd</sup> week (W2) is just indicative, but there will be a class test to assess the capability of the students for deciding the pedagogy.
3. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50).
4. CIE marks (50) is based on sum of the best two Internal Assessment (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks).
5. CTA (10 Marks): The details are shown in Table 1.
6. 85 % attendance is mandatory.

**Action Plan based on observation taken from previous Attainment of Outcomes:**

Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

1. Understand the internal architecture, instruction set of ARM7 microcontroller.
2. Understand the use of interrupts related to ARM 7.
3. Write APL / C program for a given real time application.
4. Basic programming and methods used to interface ARM 7 to devices such as motors, LCD, ADC, DAC etc.

Activity	Date of conduction	Description	Course Outcome	Marks
1	14-02-2020	Class test/Quiz as a preparatory for IA 1	CO 1	4
2	20-03-2019	Class test/Quiz as a preparatory for IA 2	CO 2, CO3	4
3	24-04-2020	Programming Assignment	CO 4, CO 5	2

**Table 1: LIST OF ACTIVITIES / ASSIGNMENTS**

**Learning Resources:**

1. Andrew N. Sloss. ARM System Developer's guide, ELSEVIER Publications, 2016
2. William Hohl. ARM Assembly Language, CRC Press.
3. Steve Furber. ARM System-on-chip Architecture by, Pearson Education, 2012
4. James K. Peckol. Embedded Systems: A Contemporary Design Tool, 2008
5. Jonathan W. Valvano, Brookes / Cole, Embedded Microcomputer Systems, Real Time Interfacing, 1999
6. LPC 2148 USER MANUAL.

\*\*\*\*\*



# Course Plan

<b>Course Teachers:</b> Sharada H N (B division)	<b>Course Code:</b> 20UCSC300 Digital Electronics	4-0-0-0 : 4	52 Hrs.	3 <sup>rd</sup> Semester, B div	01-10-2021 to 02-02-2022
--	--	-------------	---------	------------------------------------	--------------------------------

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W 18	W19-W22								
Chapter -1 ARM Embedded Systems and Processor Fundamentals	4	-	-	-	-	-	IA 1	-	-	-	-	-	IA 2	-	-	-	-	IA 3	Lab Exam & Semester End Exams Week								
	-	4	-	-	-	-		-	-	-	-	-		-	-	-	-			-	-	-					
	-	-	4	2	-	-		-	-	-	-	-		-	-	-	-			-	-	-					
Chapter-2 ARM Instruction Set	-	-	-	2	1	-	IA 1	-	-	-	-	-	IA 2	-	-	-	-	IA 3		Lab Exam & Semester End Exams Week							
	-	-	-	-	3	1		-	-	-	-	-		-	-	-	-				-	-	-				
	-	-	-	-	-	2		-	-	-	-	-		-	-	-	-				-	-	-				
Chapter-3 Introduction to Thumb and ARM programming	-	-	-	-	-	1	IA 1	-	-	-	-	-	IA 2	-	-	-	-	IA 3			Lab Exam & Semester End Exams Week						
	-	-	-	-	-	-		4	-	-	-	-		-	-	-	-					-	-	-			
	-	-	-	-	-	-		-	-	4	-	-		-	-	-	-					-	-	-			
Chapter-4 Exceptions and Interrupt handling schemes	-	-	-	-	-	-	IA 1	-	-	-	3	4	-	IA 2	-	-	-	-				IA 3	Lab Exam & Semester End Exams Week				
	-	-	-	-	-	-		-	-	-	-	-	3		-	-	-	-						-	-		
	-	-	-	-	-	-		-	-	-	-	-	-		1	-	-	-						-	-		
Chapter-5 LPC2145 ARM CPU	-	-	-	-	-	-	IA 1	-	-	-	-	-	IA 2	3	-	-	-	IA 3				Lab Exam & Semester End Exams Week					
	-	-	-	-	-	-		-	-	-	-	-		-	1	-	-							-	-	-	
	-	-	-	-	-	-		-	-	-	-	-		-	-	-	4							1	-	-	
Chapter-6 Peripherals- GPIO, PLL & Timers	-	-	-	-	-	-	IA 1	-	-	-	-	-	IA 2	-	-	-	-	IA 3						Lab Exam & Semester End Exams Week			
	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-								-	-	-
	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-								-	3	-

IA	Topics	No. Of Hours
IA-I	Chapter-1, Chapter-2	21 Hrs
IA-II	Chapter-3, Chapter-4	20 Hrs
IA-III	Chapter -5 Chapter-6	11 Hrs

**Note:**

1. Number in the 'cell' indicates the number of hours/class used in that week to cover that chapter; 'W' indicates week number of the semester.
2. The entry 1 in the 2nd week (W2) is just indicative, but there will be a class test to assess the capability of the students for deciding the pedagogy.
3. Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) + Continuous Internal Evaluation (CIE) marks (50).
4. CIE marks (50) is based on sum of the best two Internal Assessment (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks).
5. CTA (10 Marks): The details are shown in Table 1.
6. 85 % attendance is mandatory.





**Action Plan based on observation taken from previous Attainment of Outcomes:**  
 Programming assignment as part of the CTA and Course assignments are planned to enhance the following abilities:

- Combinational circuit design and simplification techniques used for realizing them.
- Sequential circuit design and working of a basic storage element
- Simple circuits using passive elements (resistors, capacitors, inductors).

Activity	Date of conduction	Description	Course Outcome	Marks
1	14-02-2020	Class test/Quiz as a preparatory for IA 1	CO 1, CO 2, CO3	4
2	20-03-2019	Class test/Quiz as a preparatory for IA 2	CO3, CO 4	3
3	24-04-2020	Simulation Simple Project	CO 4, CO 5, CO6	3

**Table 1: LIST OF ACTIVITIES / ASSIGNMENTS**

**Learning Resources:**

- Donald P Leach, Albert Paul Malvino and Goutam Saha: Digital Principles and Applications, 7th Edition, Tata McGraw Hill, 2010.
- R D Sudhakar Samuel: Illustrative Approach to Logic Design, Sanguine-Pearson, 2010.
- Charles H. Roth: Fundamentals of Logic Design, Jr., 5th Edition, Cengage Learning, 2004.
- M Morris Mano: Digital Logic and Computer Design, 10th Edition, Pearson Education, 2008

\*\*\*\*\*



Course Plan			
Course Title	Software Engineering	Course Code	18UCSC503
Semester	V A and B	Course Instructor	Dr.U.P.Kulkarni Prof.Rashmi Patil
Semester Duration	1-10-2021 to 1-02-2022		

- IA1, IA2 and IA3 are to be conducted as per standard procedure, written type; 20 marks each. Sum of the best two out of 40 is considered for CIE.
- CTA is evaluated for 10 marks based on the implementation suggested in PEM based syllabus.
- $CIE = IAs(40) + CTA(10) = 50$  marks
- $SEE = 100$  reduced to 50
- Grading based on  $SEE(50) + CIE(50)$
- Class test based on topic covered before every IA.
- Report submission for CTA before 3<sup>rd</sup> IA begins.
- Coverage plan as specified in PEM Syllabus.

#### CTA work

T1: Study of Assertions in C language and its importance in writing reliable code.

T2: Model based Testing: Writing test script for a STATE DIAGRAM → FINISHED  
Ex: FAFL and DS to be taken

T3: SRS Preparation for Minor project.

T4: Cost Estimation Exercise

T5: Study of tools:

- UI/UX (Roll 1-20)
- Software testing – Open source tool (Roll 21-40)
- Rational Unified Process Design tool (Roll 41-60)
- Use of GitHub – (Roll 61 onwards)

NOTE:





- Every group has to give presentation after 2<sup>nd</sup> IA and to be completed before 3<sup>rd</sup> IA.
- SEE will contain 20 marks based on CTA assignments in appropriate unit.
- MARKS:

T1: 01 MARK -----Individual work

T2: 04 MARKS -----Individual work

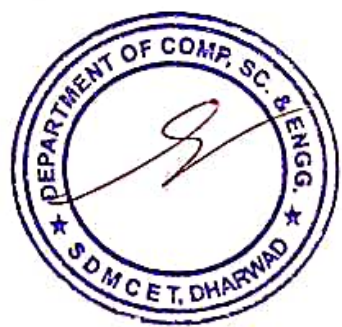
T3: 05 MARKS -----Group Work

10 MARKS FOR  
T2

- Two talks connecting industry to class room will be arranged.

*[Handwritten signature]*

*[Handwritten signature]*



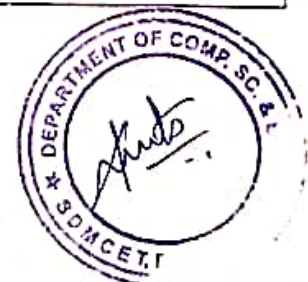
# Course Plan

Course Teachers : Prof Ranganath Yadawad (B- div)	Course	Code: 18UCSC501: Data Base Management Systems	4-0-0- 0 : 4	52 Hrs	5 <sup>th</sup> Sem, B div	1 <sup>st</sup> Oct-2021 to 1 <sup>st</sup> Feb-2022
--	--------	---	-----------------	-----------	-------------------------------	---

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W6	W7	W8	W9	W10	W11	W 12	W 13	W14	W 15	W 16	W 17	W18	W19	W20-24			
Chapter-1 : Introduction. ( 4 Hrs.- IA-1)	3	2						1- solving IA-1 QP in Class				CIE-2											
Chapter-2 : Entity- Relationship Model ( 4 Hrs.- IA-1)		2	2																				
Chapter-3: Relational Model and Relational Algebra. ( 9 Hrs.- IA-1)			1 +	3	4	1																	
Chapter-4 SQL- 1 ( 8 Hrs.- IA-2)						2	3			3													
Chapter-5: SQL- 2 ( 8 Hrs.- IA-2)								CIE-1		3	4	1											
Chapter-6: Database Design -1: ( 6 Hrs.- IA-2)													4	2									
Chapter-7 Database Design - 2: ( 6 Hrs.- IA-3)														1	2	3							
Chapter-8: Transaction Management: ( 7Hrs.- IA-3)																	3	4					

LAB Exam and Semester End Exam as per Time table given by COE's Office

IA-1	Chapters : 1,2 & 3 = 4+4+9 = 17 Hrs.
IA-2	Chapters : 4,5 = 8+8 = 16Hrs.
IA-3	Chapters : 6, 7 & 8 = 6+6+7 = 19 Hrs.





**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter.  $W_i$  indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on assignments and performance in the class.
- 5) . Semester End Examination (SEE) contains one full question based on CTA assignments.
- 6) Course Withdrawal: .....
- 7) Dropping the course: .....
- 8) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 9) **85 % attendance is mandatory.**
- 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Course assignments as part of the CTA which are planned to enhance the understanding of industry relevant DBMS and correlate the theoretical concepts learnt in the class..



### Programming Activity List:

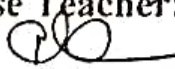
Activity	Date of Completion	Description	Course Outcome	Marks
1	05-9-2022 to 25-9-2022	Demonstrate advantages of DB approach The student will write program to visualize the difference between flat file system and database management system. Small real time application ( INFOSYS Campus connect) with all requirement in the form of pdf format is provided.	CO-→1	5
2	22-10-2022 & 22-12-2022	Course Programming Assignments(2 No)	CO-→2 to CO- →6	5

### Learning Resources:

#### Books:

- 1) Elmasri and Navathe, "Fundamentals of Database Systems", 5/E, Addison-Wesley, 2009
- 2) Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3/E, McGraw-Hill, 2003.
- 3) Silberschatz, Korth and Sudharshan, "Data base System Concepts", 6/E, Mc-GrawHill, 2010.
- 4) C.J. Date, A. Kannan, S. Swamynatham, "A Introduction to Database Systems", 8/E, Pearson education, 2006.

#### Course Teacher:

  
Prof. Ranganath Yadawad  
MNo: 9448049909





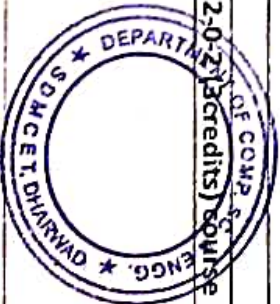
Odd 2021

# Course Plan

Course Teachers : Ranganath Yadawad	Course	18UCSC304 Introduction to UNIX Operating System	2-0-2-0 : 3	39 Hrs	3 <sup>rd</sup> Sem, A div	1-10-2021 to 10-02-2022
---	--------	--	-------------	--------	-------------------------------	-------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19- onwards																
Introduction to the course; About COs, POs and Laboratory/Practice based activities of this course	T1 L1																																		
		T2 L1	T1 L1	T1 L1																															
2. Unix System Architecture commands and System calls. (6Hrs)- IA-1				T1 L1	T2 L1	T1 L1	T2 L1																												
3. Filters in Unix. ( 4 Hrs)- IA-2																																			
4. Shell Programming. (8Hrs)- IA-2																																			
5. Awk Scripting Language. (4Hrs) – IA-3																																			
<b>Class Test &amp; IA-1; Solution Discussion</b>																																			
									T1 L1	T2 L1																									
											T1 L1	T2 L1	T2 L1	T2 Class Test																					
<b>IA-2 and Solution Discussion</b>																																			
<b>IA-3 &amp; Semester Closes (Last Day of Teaching)</b>																																			
<b>LAB Exam and Semester End Exam as per Time table given by CoE's Office</b>																																			

IA-1	Chapter 1 and 2; 10 Hours	
IA-2	Chapter 3 & 4; 12 Hours	
IA-3	Chapter 5; 04 Hours	
<b>Total</b>	<b>26 Hours theory and 13 Hours Lab = 39 Hours for 2-0-2 (3credits) course</b>	



Odd 2021

**Note:** Number in the above table indicates the total hours planned for the corresponding topic. Wi indicates week number of the semester.

- 1) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 2) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 3) CTA (10 Marks) is based on programming exercises. (Based on the observation made in the previous semester on attainments of outcome).
- 4) All preparatory tests (PT) are open Book tests.
- 5) All IAs/SEE are as per notification given by the college.
- 6) 85 % attendance is mandatory.
- 7) Class room coverage focuses on attainment of course outcome defined for the course and is available in the syllabus.

**Action Plan based on observation taken from previous Attainment of Outcomes:**

- a) Programming assignments as a part of CTA assessment and practice based learning with simple exercise on system calls, shell scripts and awk programming are planned to enhance their programming ability.
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.

**Note:** Activities/assignments will be notified in the Google group created for this course.





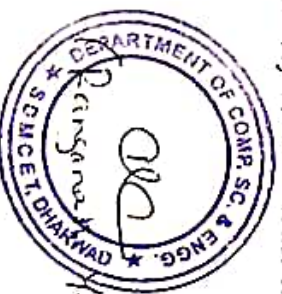
## CTA / Laboratory Exercises – 10 Marks (CTA)

This is based on the submission of report and oral examination on the following assignments. The specification and problem statements for each assignment will be published during semester, common to both A and B division.

1. Study of UNIX commands for day-today administrative task and end user activities.
2. Writing C program to demonstrate the use of process related system calls.
3. Writing C program to demonstrate the use of files related system calls.
4. Writing C program to demonstrate the use of directories related system calls.
5. Study of use of filters.
6. Writing shell scripts to do simple administrative task.
7. Writing awk scripts to do simple administrative task.

Note:

1. NPTEL or any other certification with 60% or more marks and minimum of 20 hours of duration from reputed organization with prior approval of the course teacher will be considered for CTA ASSESSMENT with suitable weightage. In such case students are expected to register with course teacher on or before 15-8-2019.
2. Internal assessment/SEE focuses on programming based on laboratory activities and theory covered in the class.



Even 2021

# Course Plan

Course Teachers : Prof. AnandVaidya	Course	Code: 18UCSC100: Problem Solving & Programming in C	3-2-0-0 : 4	52 Hrs	1 <sup>st</sup> Sem, C div	05-01- 2021 to 17 April- 2021
---	--------	---	----------------	-----------	----------------------------------	--

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W20-24	
Unit-1: Flow-Chart and Algorithm (4 Hrs.- IA-1)	2	2						CIE-1									LAB Exam and Semester End Exam as per Time table given by COE's Office	
Unit-1: Fundamentals of C Programming Language (6L + 2T Hrs.- IA-1)		2	4	2														
Unit-2: Control Structures (6L + 2T Hrs.- IA-2)				2	4	4												
Unit-3: Arrays (6L + 2T Hrs.- IA-2)							4		2	4								
Unit-4: Modular Programming and Strings (6T + 2L Hrs.- IA-3)											4	4	2					
Unit-5: Building Blocks of Data Structure. Pointers, Files (6T + 2L Hrs.- IA-2)													2	2	3	2		





**Note:**

1. Number in the cell indicates the number of hours/class used in that week to cover that chapter; Wi indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
2. Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
3. CIE marks ( 50) is based on the sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
4. CTA (10 Marks) is based on programming assignments on Linux OS. Refer activity list for details. Semester End Examination (SEE) contains one full question based on CTA assignments.
5. All preparatory tests (PT) are open Book tests.
6. All IAs/SEE are as per notification of college and is common to A, B, C and D divisions.
7. **85 % attendance is mandatory.**
8. Class room coverage focuses on attainment of course outcomes defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a. Programming assignment as part of the CTA and Course assignments are planned to enhance the understanding of industry relevant OS and correlate the theoretical concepts learnt in the class.
- b. Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester.

**Note:**

1. Knowledge gained through these activities/ programming practices are tested for 10 marks in CTA.
2. Specific problems will be notified through Google docs and will be shared to all students.

**Learning Resources:**

**Text Books:**

1. E Balagurusamy, "Programming in ANSI C", 6/E, TMH 2012.

**Reference Materials:**

1. Brian W Kernighan & Dennis M Ritchie, "The C programming language", 2/E, PHI 2004.
2. R G Dromey, "How to solve it by computer", PHI 2008.
3. B A Forouzan and R F Gilberg, "Computer Program: A structured programming approach using C", 3/E, Thomson Learning, 2005.
4. Brain W. Kernighan and Rob Pike, "The Practice of Programming", Pearson Education Inc., 2008.





SDM College of Engineering and Technology, Dharwad-580002  
Department of Computer Science and Engineering

## COURSE PLAN

Course	: Object Oriented Modeling and Design-OOMD
Course Code	: 18UCSC601
Duration	: 15 <sup>th</sup> March 2021 to 5 <sup>th</sup> June 2021
Type of Course	: 4-0-0= 4 credit course
Contact Hours	: 52
Course Teacher	: Dr. U.P.Kulkarni
Sem / Div	: 6 <sup>th</sup> Semester- A division.

Teaching and Learning process is planned as per PEM model of Syllabus which include the following:


1. Google Class for all sharing of information and assignment submission including the deadlines (CTA based on PEM).
2. CTA for 10 marks is based on assignment mentioned in Performance Ensuring Measure of Syllabus-PEM. All submissions are to be done in the Google class.





3. CTA assignments are based on programming, an action plan based on the observation made on attainment of outcome and performance of the students in Software Engineering course of 5<sup>th</sup> semester.
4. Two alumni talks based on the course is planned as per PEM to connect industry to the class room. One session after IA-1 and another after IA-2.
5. Class wise coverage and scope of each internal assessment are as per the information given in the syllabus.

15-3-2021

  
Dr. U.P.kulkarni



Odd 2022

# Course Plan (Academic Year 2022-23, Odd Semester)

Course Teacher Nita G Kulkarni	Course	18UCSE711 Internet of Things	2-0-2 : 3	39 Hrs	7 <sup>th</sup> Sem CSE A & B Div	01-09-2022 to 22-12-2022
-----------------------------------	--------	---------------------------------	-----------	--------	---	-----------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19-24
Unit - 1 Introduction to IoT (07 Hrs (A-II))	0	2	3	1															
Unit - 2 Domain Specific IoT's (08 Hrs (A-I))				2	3	3													
Unit - 3 IoT and M2M, IoT Platform Design Methodology (07 Hrs (A-II))							IA-1 1	3	4										
Unit - 4 Arduino Programming (10 Hrs (A-I & A-II))										4	4	Lab							
Unit - 4 Sensors, Actuators with Arduino (04 Hrs (A-III))												3	IA-2						
Unit - 5 Raspberry Pi & IoT Implementation (12 Hrs (A-III))														4	2+ Lab	Lab	Lab	IA-III	
Lab Exam and Semester End Exam as per the Time table given by COE's Office																			





# Course Teacher Assessment (CTA) – 10 Marks

This is based on the following two components

1. One Lab test will be conducted before third internal assessment. (For 5 Marks)
2. The students were given Programming Assignments for implementation using all sensors and Arduino/ Raspberry Pi as a part of their CTA. (For 5 Marks)

Conduction of Practical Sessions:

Practical sessions shall include experiments on the following:

- 1) Use of Arduino board and coding to blink built-in as well as external LEDs
- 2) Interfacing temperature, humidity, soil moisture, light intensity, accelerometer, ultrasonic and obstacle detection sensors with Arduino and displaying the results
- 3) Connecting modules like Bluetooth and Wi-Fi to Arduino and sending the sensed data to cloud for storage and analytics.
- 4) Use of Raspberry Pi as a surveillance system

Reference Books:

- 1) ArshdeepBahga, Vijay Madisetti, "Internet of Things – A Hands-on Approach", ISBN 978-81-7371-954-7, Universities Press, 2015
- 2) Ammar Rayes, Samer Salam, "Internet of Things From Hype to Reality – The Road to Digitalization", Second Edition, ISBN 978-3-319-99515-1, Springer Nature Switzerland AG 2017, 2019

Other Sources:

- 1) NPTEL course on "Introduction to Internet of Things" by Prof. Sudip Misra, Link: [https://onlinecourses.nptel.ac.in/noc20\\_cs22/course](https://onlinecourses.nptel.ac.in/noc20_cs22/course)

Course Teacher

Nita G Kulkarni

Email: [nitagkulkarni@gmail.com](mailto:nitagkulkarni@gmail.com)

*Nita G Kulkarni*  
01/9/2022



# Course Plan (Academic Year 2022-23, Odd Semester)

Course Teacher Nita G Kulkarni	Course Advanced Computer Architecture	18UCSC701	4-0-0 : 4	52 Hrs	7 <sup>th</sup> Sem CSE A Div	01-09-2022 to 22-12-2022
-----------------------------------	--	-----------	-----------	--------	----------------------------------	-----------------------------

Activity/ Lesson	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19-24
Unit - 1 Theory of Parallelism (12 Hrs IA-I)	4	4	4																
Unit - 2 Hardware Technologies (09 Hrs IA-I & IA-II)				4	4	2													
Unit - 3 Bus, Cache and Shared Memory (04 Hrs IA-II)						2	IA-1	2											
Unit - 3 Superscalar Techniques (05 Hrs IA-II)							2		2										
Unit - 4 Parallel and Scalable Architecture (10 Hrs IA- II & III)									4	4	2	IA-2	2	IA-1					
Unit - 5 Software for Parallel programming (12 Hrs IA-III)											2			3	4	4	Rev Isio n	IA-3	

Lab Exam and Semester End Exam as per the Time table given by COE's Office





Internal Assessments Syllabus

IA-1	Units: 1 and 2	$12 + 04 = 16$ Hrs
IA-2	Units : 3 and 4	$04 + 04 + 05 + 03 = 15$ Hrs
IA-3	Unit : 4 and 5	$05 + 12 = 17$ Hrs
Total		48 Hrs

Note:

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter; Wi indicates week number of the semester.
  - 2) Final grade(absolute) is calculated based on Semester End Examination(SEE) marks (100 marks reduced to 50) plus Continuous Internal Evaluation(CIE) marks (50).
  - 3) CIE marks(50) is based on sum of the best two Internal Assessment(IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
  - 4) CTA (10 Marks) is based on an implementation and a quiz
  - 5) Last date to drop the course: 27-09-2021
  - 6) Last date to withdraw the course: 13-11-2021
  - 7) All preparatory tests (PTs) are open Book tests.
  - 8) All IAs/SEE are as per notification of college and is common to both A and B divisions.
  - 9) **85 % attendance is mandatory.**
  - 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.
- Action Plan based on observation taken from previous Attainment of Outcomes:
- a) Presentation of the latest processors used in different applications are planned to enhance the understanding and correlate the theoretical concepts learnt in the class.
  - b) Problem solving assignments are planned to improve performance in the examination through regular study from the beginning of the semester.



# Course Teacher Assessment (CTA) – 10 Marks

This is based on the following two components:

1. One Problem solving assignment will be given before third internal assessment. (For 5 Marks)
2. Presentation of the latest processors used in different applications. Students are free to choose any one of the processor and have to form a group of two members in a team. (For 5 Marks)

## Learning Resources

- 1) Kai Hwang and Naresh Jotwani, "Advanced Computer Architecture (SIE): Parallelism, Scalability, Programmability", 3<sup>rd</sup> Edition, McGraw Hill Education, 2015
- 2) John L. Hennessy and David A. Patterson "Computer Architecture: A quantitative approach" 5<sup>th</sup> Edition, Morgan Kaufmann, Elsevier 2013.
- 3) Richard Y.Kain, "Advanced Computer Architecture: A System's Design Approach", Pearson Publications, 2015
- 4) John D. Carpinelli, "Computer Systems Organization and Architecture", Pearson Publications, 2001

Course Teacher

Nita G Kulkarni

Email: nitagkulkarni@gmail.com

*Nita G Kulkarni*  
01/9/2022





# Course Plan

Course Teachers : Prof Ranganath Yadavwad (B- div)	Course	Code: 18UCSC501: Data Base Management Systems	4-0-0- 0:4	52 Hrs	5 <sup>th</sup> Sem, B div	1 <sup>st</sup> Sep-2022 to 21 <sup>st</sup> Dec-2022
---	--------	---	---------------	-----------	-------------------------------	--

Activity/ Lesson	W 1	W 2	W 3	W 4	W 5	W6	W7	W8	W9	W1 0	W11	W 12	W 13	W1 4	W 15	W 16	W 17	W1 8	W1 9	W2 0- 24
Chapter-1: Introduction. (4 Hrs.- IA-1)	3	2																		
Chapter-2: Entity- Relationship Model (4 Hrs.- IA-1)		2	2																	
Chapter-3: Relational Model and Relational Algebra. (9 Hrs.- IA-1)			1 +	3	4	1														
Chapter-4 SQL- 1 (8 Hrs.- IA-2)						2	3													
Chapter-5: SQL- 2 (8 Hrs.- IA-2)									3	4	1									
Chapter-6: Database Design - 1: (6 Hrs.- IA-2)												4	2							
Chapter-7: Database Design - 2: (6 Hrs.- IA-3)													1	2	3					
Chapter-8: Transaction Management: (7Hrs.- IA-3)																3	4			

1- solving IA-1 QP in Class

CIE-1

CIE-2

CIE-2

CIE-3

LAB Exam and Semester End Exam as per Time table given by COE's Office

IA-1	Chapters : 1,2 & 3 = 4+4+9 = 17 Hrs.
IA-2	Chapters : 4,5 = 8+8 = 16Hrs.
IA-3	Chapters : 6, 7 & 8 = 6+6+7 = 19 Hrs.



**Note:**

- 1) Number in the cell indicates the number of hours/class used in that week to cover that chapter. Wi indicates week number of the semester. '+' indicates one extra class required along with regular class of that week.
- 2) Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Internal Evaluation(CIE) marks ( 50 ).
- 3) CIE marks ( 50) is based on sum of the best two Internal Assessment ( IAs) ( 40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) CTA (10 Marks) is based on assignments and performance in the class.
- 5) . Semester End Examination (SEE) contains one full question based on CTA assignments.
- 6) Course Withdrawal: .....
- 7) Dropping the course: .....
- 8) All IAs/SEE are as per notification of college and is common to both A and B divisions.
- 9) **85 % attendance is mandatory.**
- 10) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

**Action Plan based on attainment of outcomes:**

- a) Course assignments as part of the CTA which are planned to enhance the understanding of industry relevant DBMS and correlate the theoretical concepts learnt in the class..





### Programming Activity List:

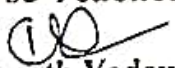
Activity	Date of Completion	Description	Course Outcome	Marks
1	05-9-2022 to 25-9-2022	Demonstrate advantages of DB approach The student will write program to visualize the difference between flat file system and database management system. Small real time application ( INFOSYS Campus connect) with all requirement in the form of pdf format is provided.	CO-→1	5
2	22-10-2022 & 22-12-2022	Course Programming Assignments(2 No)	CO-→2 to CO- →6	5

### Learning Resources:

#### Books:

- 1) Elmasri and Navathe, "Fundamentals of Database Systems", 5/E, Addison-Wesley, 2009
- 2) Raghu Ramakrishnan and Johannes Gehrke, "Database Management Systems", 3/E, McGraw-Hill, 2003.
- 3) Silberschatz, Korth and Sudharshan, "Data base System Concepts", 6/E, Mc-GrawHill, 2010.
- 4) C.J. Date, A. Kannan, S. Swamynatham, "A Introduction to Database Systems", 8/E, Pearson education, 2006.

Course Teacher:

  
Ranganath Yadav  
Mobile: 9448049909







SL No	No.Hrs	Topics	Marks
IA-1	17 Hrs.	Unit-1: Introduction to web, HTML, XHTML, HTML5, XML, DTD, XML-DOM Unit-3- Introduction to JavaScript	20Marks
IA-2	12 Hrs.	Unit-2: i. Introduction to CSS, ii. Advanced CSS Unit-4: Introduction to PHP	20Marks

Internal Assessment details												
basic and Advanced CSS)												
UNIT-2 (Introduction to basic and Advanced CSS)												
UNIT-2 (Introduction to basic and Advanced CSS)												
UNIT-4 (Introduction to PHP)												
UNIT-4 (Introduction to PHP)												
UNIT-4 (Introduction to PHP)												
UNIT-4 (Introduction to PHP)												
UNIT-4 (Introduction to PHP)												
UNIT-5 (Introduction to Web 2.0)												
UNIT-5 (Introduction to Web 2.0)												
Syllabus Conclusion/extra classes/tutorials												

10/05/2023  
 17th Sem - 2023



IA-3	10 Hrs.	Unit-4: Continuation of PHP Unit-5: Introduction to Web 2.0, AJAX, Future of Web.	20Marks
------	---------	--	---------

**General Instructions:**

- 1) Number in the cell indicates the number of hours/classes used in that week to cover that chapter; which indicates week number of the semester. '+' indicates one extra class required along with a regular class of that week.
- 2) Final grade (absolute) is calculated based on Semester End Examination (SEE) marks (100 marks reduced to 50) plus Continuous Internal Evaluation (CIE) marks (50).
- 3) CIE marks (50) is based on the sum of best two Internal Assessments (IAs) (40 Marks) plus Course Teacher's Assessment (CTA) marks (10 marks)
- 4) All IAs/SEE are as per notification of college.
- 5) 85% attendance is MANDATORY.
- 6) Class room coverage focuses on attainment of course outcomes defined for course and is available in the syllabus.

**Action Plan based on observations taken from previous Attainment of Outcomes:**

Observation taken from the previous Attainment of Outcomes ():

- Enhancing the requirement with Java 8 features like lambda expressions, concurrent utilities.
- Enabling the students to analyze and solve any given requirement using Java8 features.

**Activity List for CTA**

Activity	Date of Completion	Description	Course Outcome	Marks
1	Before IA-1	Development of static web pages for the identified problem statements and building XML, DTD, and XSDs.	CO-1, 2	10
2	Before IA-2	Integration of CSS, and JavaScript to the activity-1	CO - 3 & 6	10
3	Before IA-3	Integration of business logic using PHP, and MySQL to activity-1 & 2.	CO-4	10
4	Before IA-3	Integration of AJAX to the activities -1, 2, 3 and creation of web services for the identified problem statements	CO-5, 6	10
5	Before IA-3	Presentations on Database concepts – Basics (Table designing). (Interest)	CO-4	5





## COURSE PLAN

Course Code: 18UCSC502 - Theory 18UCSL505 - Laboratory		Course Name : Compiler Design and System Software ( Theory and Laboratory)	
Dr. Umakant P. Kulkarni		Semester Duration: 1 <sup>st</sup> Sept to 22 <sup>nd</sup> Dec 2022	
Semester: 5	Division: A	Credits : 3 / Hours: 39	Type: 3-0-0

**Coverage:** As specified in the PEM based syllabus and Academic calendar published by the Institution.

Unit	Start Date	End Date	No. of Hours
1	01-09-2022	15-09-2022	07
2	19-09-2022	06-10-2022	08
3	10-10-2022	08-22-2022	08
4	10-11-2022	29-11-2022	08
5	01-12-2022	19-12-2022	08
TOTAL			39

### Assessment Tools :

1. Three assessment tool of written type examination (IAs), each of 20 marks.
2. Course teacher's assessment (CTA) is for 10 marks based on Course project specified by the course teacher/ PEM based syllabus.  
Problem Statement: Study how macros are implemented in C language. Write a complete C program to read an input file containing C program with macros and perform replacement of macro call by its body.
 

3-9-22  
 05/9/22
3. Preparatory test (Open Book) for each IA will be conducted a day before the IA. It is mandatory for all students to attend this to become eligible to appear for corresponding IA. This will enable slow learners also to pick the concepts and make a progress.
4. **Action plan** – Based on attainment of Outcomes (Previous semester) : Solving relative more complex real life situations focusing on Systems level descriptions. Course projects and laboratory experiments are designed to take care of learning outcomes.
5. Solutions for every test will be discussed in the class immediately following the test. This will enable slow learners to pick the concepts and make a progress.
6. CIE out of 50 is calculated based on Sum of the best two IAs plus CTA.
7. Semester End Examination (SEE) is of written type for 100 marks, reduced to 50.
8. Final grading is based on sum of CIE (50) and reduced SEE (50).
9. Minimum marks to be scored in CIE are 20 to appear for SEE.
10. Minimum passing marks is 40 out of 100 in SEE.



# LABORATORY COVERAGE

[Term works for Laboratory course- 18UCSL505]  
(Academic Year: 2022-23- ODD semester)

**Course Learning Objectives (CLOs):** This laboratory course focuses on representation of patterns and syntax using lexical rules and grammars respectively, implementation of parser & translation schemes, Implementation of language processors like assemblers, loaders, linkers & macro processor, Knowledge of system level APIs for implementation of IPC and system commands.

**Course outcomes (COs):**

CO	Description of the Course Outcome: At the end of the course the student will be able to:	Mapping to POs/PSOs		
		Substantial	Moderate	Low
CO-1	Design and Implement a system to recognize a given pattern from the input stream using appropriate design tools and programming language.	13,14	1,2,3	15
CO-2	Prepare the grammar for the given the pattern/language constructs and Write a computer program using compiler writing tools to implement lexical analyzer and parser.	13,14	1,2,3	15
CO-3	Design and implement a parser and related applications.	13,14	1,2,3	15
CO-4	Write a computer program to implement a feature of systems level language processing tools to enable them to handle large scale systems like macro processor and assembler functions.	13,14	1,2,3	15
CO-5	Write a computer program to Implement various UNIX commands using system calls.	13,14	1,2,3	15
CO-6	Use IPC concepts in implementing communication protocol.	13,14	1,2,3	15

POs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mapping Level	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-	3.0	3.0	1.0	-

**Prerequisites:** Knowledge of: Unix Operating System, Any programming language, and Finite automata and formal Languages





## TERM WORK DESCRIPTION:

1. Design and Implement a system to recognize a given pattern from the input stream using appropriate design tools and programming language. [ CO-1] [ Marks-05]

### Problem Statement:

LAST DATE: 12/9/22

Do the following for the given problem description.

- a) Identify system requirements.
- b) Prepare an appropriate diagram showing the design of the required system.
- c) Prepare all possible test cases based on stories built.
- d) Prepare a suitable output layout on the screen.
- e) Write a Java / C/ C++ code to implement design prepared in b).
- f) Write a Java/C/C++ code to automate testing the product built as specified above.
- g) Ensure the following in your course assignment.
  1. Code readability.
  2. Maintainability.
  3. Robust code.
  4. Testability.

### DESCRIPTION:

You are asked to develop a product that reads continuous flow of characters as a stream (external) which is not under the control, i.e. the rate at which character flow in stream is not controlled. The product is supposed to read such uncontrolled flow of streams of characters and prints OK for every overlapped consecutive appearance of characters (numeric) '1'. The system will halt when the special character '.' (dot) appears in the input stream.

Extend the system to identifying a special case input pattern of two consecutive appearances of character 'b' followed by character '#' and a character ',' is to be shown on screen with a message "Found SPECIAL". Note that the character '#' and a character ',' are not part of the special case pattern. The characters from the set {! @ \$ % &} are invalid inputs and are to be indicated with the message "ERROR in i/p".

Note: Suitable corrections if any and assumptions can be made to provide real perspective of the given scenario.



**Learning Objectives:**

- (1) Understand system requirements and prepare stories.
- (2) Prepare state diagram based on the stories showing behavior of the system.
- (3) Write robust, reliable, readable and maintainable code.
- (4) Write test cases.

2. Prepare the grammar for the given the pattern/language constructs and Write a computer program using compiler writing tools to implement lexical analyzer and parser.

[CO-2] [ Marks- 05]

**Problem Statement:**

All Odd numbered USNs - Syntax of PL/SQL stored procedure and function.  
All Even numbered USNs - Syntax of TRIGGERS in database programming.

**Learning Objectives:**

- (1) Represent a syntax of any construct using BNF notations and use appropriate grammar.
  - (2) Use compiler writing tools. (Lex and Yacc)
3. Design and implement a parser and related applications. [CO-3] [ Marks- 05]

**Problem Statement:**

Design a predictive parsing table for the following operators and their description. Write a C program to implement infix to postfix conversion based on the predictive parsing table designed.

Operator	Precedence	Associativity
-	High	right
+	↓	left
*		right
/	Low	left

**Learning Objectives:**

- (1) Study parsing techniques and principles.
- (2) Design a parser.





4. Write a computer program to Implement various UNIX commands using system calls.  
[CO-4] [ Marks- 05]

**Problem Statement:** Study the synopsis of ls -l command in Unix OS and write a complete C program to simulate the same using various system calls.

**Learning Objectives:**

- (1) Study functionality of UNIX system calls.
- (2) Use system call to write tools and utility functions.

5. Write a computer program to implement a feature of systems level language processing tools to enable them to handle large scale systems like macro processor and assembler functions. [CO-5] [ Marks- 10]

[ Theory Course Project to be done in group of 04 students]

**Problem Statement:** Study how macros are implemented in C language. Write a complete C program to read an input file containing C program with macros and perform replacement of macro call by its body.

**Learning Objectives:**

- (1) Study working of macros in C language and in general, various types.
- (2) Write language processing tools.

6. Use IPC concepts in implementing communication protocol. [ CO-6] [ Marks- 20]

[Laboratory Course Project to be done in group of 04 students]

**Problem Statement:** Write a complete C program using SOCKETS to implement FTP client protocol and test it with standard FTP server available in OS.

**Learning Objectives:**

- (1) Study RFC for any standard protocol.
- (2) Use appropriate system calls to write protocol based on standards so that it interoperates with available standard protocols.



**Note:**

1. CIE marks for Lab: 50 and distribution of marks shown against each term work.
2. SEE is based on Lex and Yacc tools only. However, viva-voce exam is based on all term work concepts and related theory course contents.

**Reference Books:**

- 1) Alfred V Aho, Monica S. Lam, Ravi Sethi, Jeffrey D Ullman, "Compilers- Principles, Techniques and Tools", 2/E, Addison-Wesley, 2007.
- 2) D.M. Dhamdhare, "System Programming and Operating Systems", 2nd revised edition, Tata McGraw - Hill, 2009 reprint.
- 3) Leland L Beck, "System Software: An Introduction to Systems Programming" 3rd Edition Pearson Education 2007
- 4) John J Donovan, "System Programming", Tata McGraw-Hill 2017





# COURSE PLAN

Course Teachers : Dr. S M Joshi and Prof. R G yadawad	Course BE IV (CSE)	Code: 18UCSC404 Operating Systems	4-0-0: 4	52 Hrs	4 <sup>th</sup> Sem,	17-03-2022 to 4-7-2022
--	--------------------------	--------------------------------------	----------	--------	----------------------	---------------------------

ACTIVITY/ LESSON	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	
Unit-1 Process Management (10 Hrs) (IA1)	2	4	4			IA1(Portion) Process Management and process synchronization												
Unit 2 : Process Synchronization, 10 Hrs (IA 2 / IA-2)				4 + 1	4 + 1						IA2(Portion) Deadlocks and Memory management up to segmentation							
Module-3 Deadlocks; 10 Hrs (IA 2)							4	4	2									
Unit-4 Memory Management 10 Hrs (IA 2)									2	4								
Unit-5: File System, Implementation, secondary storage systems 12 Hrs. (IA-3)												4		4	4	4		
																		IA-3: Virtual memory + File stem and its impleme ntation, Secondary storage

Semester End Exam as per Time table given by COE's Office



1) Number in the cell indicates the number of hours/class used in that week to cover that chapter. W1 indicates week number of the semester. Final grade ( absolute) is calculated based on Semester End Examination (SEE) marks ( 100 marks reduced to 50 ) plus Continuous Evaluation (CE) marks ( 50 )

- 2) CIL marks (30) is based on score of the best two In-100 Assessment (150) (50 Marks) plus Course Teacher's Assessment (150) marks (10 marks)
- 3) CIA (10 Marks) is based on programming/ assignments and Class test/quiz/seminar.
- 4) Last date for Course drop : 01-05-2022
- 5) Last date for Course Withdrawal: 04-06-2022.
- 6) All IAs SEE are as per notification of college and is common for all divisions.
- 7) 85% attendance is mandatory.
- 8) Class room coverage focuses on attainment of course outcome defined for course and is available in the syllabus.

Course Plan is available on the website.

- a) More focus on solving process synchronization problems..
- b) Course assignments and preparatory test are planned to improve performance in the examination through regular study from the beginning of the semester

**Self-Learning based exercises.**

Activity	Date of Completion	Description	Course Outcome	Marks
1	Submission before 2 <sup>nd</sup> CIE	Implementation of solution to synchronization problem using Semaphores and Monitors.	C0-2	5
2	Submission before 3 <sup>rd</sup> CIE	Exploring Unix file system.	C0-5	5

**Note:**


1. Knowledge gained through these activities is tested for 10 marks in CTA.
2. Specific problems will be notified through Google docs and will be shared to all students.

**Learning Resources.**

**Text Books**

- 1) Abraham Silberschatz, Peter Baer Galvin, Greg Gagne , "Operating System Principles": 8/E, Wiley India, 2009
- Reference Book
- 1) William Stallings, "Operating Systems: Internals and Design Principles", 6/E. Prentice Hall, 2013.

**Course Teachers:**

Division - A	Division - B
<b>Dr. S.M Joshi,</b> <b>Mobile No. 9036079402,</b> <b>Email-Id: joshshrec@gmail.com</b>	 <b>Prof. Raaganath G Yadwad.</b> <b>Mobile No. 9448049909</b> <b>Email-Id: rgyadawad@gmail.com</b>

