

Hope Foundation's International Institute of Information Technology, Pune

DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

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34	Slow Learner Attendance Record	I2IT / ACAD / CP / 15

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35	Performance Improvement of Slow Learner	I2IT / ACAD / CP / 16				
36	Innovative Practices in Teaching-Learning and ICT	I2IT / ACAD / CP / 19				
.37	Content Beyond Syllabus (CBS)	I2IT / ACAD / CP / 17				
.38	CBS Attendance Record	I2IT / ACAD / CP / 17A				
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50	CO Attainment through Continuous Evaluation	I2IT / ACAD / AT / 05				
51	PO & PSO Attainment through CO for Theory	I2IT / ACAD / AT / 06				
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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

# THEORY TEACHING RECORD

Cours	e Code	e: 210254	Class: SE 20	019	Faculty Name	: Dr. Deepak	S. Uplaonkar									
Cours	e Nam	e: Microprocessor			Teaching Scheme:		Th: 3 Hrs / week									
Lr.						Date of	Remarks of Faculty	Monitore		d by						
No.		Topics to be Delivered	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	APMO						
			<b>UNIT 1 : 1</b>	Introduction	to 80386											
I	1.1	Prerequisite : First Lecture Activity Conduction, Coverage of Syllabus of Prerequisite 1, Teaching Scheme Awareness			08/02/23	14/02/23		Ĵ	)							
2	1.2	Brief History of Intel Processors, 80386 DX Features and Architecture			09/02/23	15/02/23			9							
3	1.3	Programmers Model, Operating modes,			10/02/23	15/02/23			1/							
4	1.4	Addressing modes and Data types									15/02/23	16/02/23		V		$\Lambda$
5	1.5	Data Movement Instructions, Binary Arithmetic Instructions, Decimal Arithmetic Instructions	CEO215.1 CEO215.2	CO215.1	16/02/23	17/02/23		Y	1	Den						
6	1.6	Logical Instructions, Control Transfer Instructions, String and Character Transfer Instructions	CEO215.3		17/02/23	21/02/23		1	6	113						
7	1.7	Instructions for Block Structured Language, Flag Control Instructions	inute of I	formari	22/02/23	22/02/23			$\mathbb{N}$							
8	1.8	Coprocessor Interface Instructions, Segment Register Instructions, Miscellaneous Instructions	I I I I I I I I I I I I I I I I I I I	Thechnology	23/02/23	23/02/23										

# 121T / ACAD / CP / 03 VER-01

9	2.1	Initialization: Processor state after reset		le and System	24/02/23	23/02/23	x	0	Ν
10	2.2	Functional pin diagram, functionality of various pins			01/03/23	27/02/23		1	
]]	2.3	I/O Organization. Memory organization			02/03/23	01/03/23	M	(p	
12	2.4	Basic memory read and write cycles with timing diagram	CEO215.1 CEO215.2	CO215.2	03/03/23	02/03/23	4	(08)02	13 Der
13	2.5	System Registers	CEO215,3		08/03/23	03/03/23		100'	1-
14	2.6	System Registers continued			09/03/23	08 03 23		1	11)
15	2.7	System Instructions		l f	10/03/23	08 03 23			-
16		Class Test I						/	<b>₽</b>
511			UNIT 3 : M	Iemory Mana	gement				1
17	3.1	Global descriptor table			15/03/23	15 03 23	n	0	V
18	3.2	Local descriptor table			16/03/23	41 0 07	/	/	₩
9	3.3	Interrupt descriptor table			17/03/23	17/08/23	4 24	F	1
20	3.4	GDTR, LDTR, IDTR	CEO215.1		23/03/23	21/03/23	aeiph	1	<u> </u>
:1	3.5	Formats of descriptors and selectors	CEO215.2	CO215.3	24/03/23	23 03 23		4	A
22	3.6	Segment translation	CEO215.3	F	29/03/23	31 03 23		/	
23	3.7	Page translation			30/03/23	19/04/23 Due to insen	1	`	Den
24	3.8	Combined Segment and page translation			31/03/23	20/04/23 - 4 -	¥		The second secon
			UNI	C 4 : Protection			Δ	1.	1
25	4.1	Need of Protection			05/04/23	21 04/23 Due to "45m	$\cap$	the	1
26	4.2	Overview of 80386DX Protection Mechanisms			05/04/23	26 04/23 - 11 -	1/	10-	1
27	4.3	Protection rings and levels			06/04/23	27 04 23 - 1 - "	/	10	₩
28	4.4	Privileged instruction	CEO215.1		06/04/23	27/04/23	Dely -	1	╢───
29	4.5	Concept of DPL, CPL, RPL, EPL	CEO215.2	CO215.4	12/04/23	28 04 23	pen		
30	4.6	Segment Level Protection	CEO215.3		12/04/23	28/04/23	1		-
31	4.7	Page Level Protection	1	F	13/04/23	29/04/23		-1-	<del>  </del>
32	4.8	Combining Segment and Page Level Protection		-	13/04/23	29/04/23			<u>₽</u>
33		Class Test II		of Inform				-	<u>{</u>

# 12IT / ACAD / CP / 03 VER 01

		UNI	T 5 : Multita	sking and Virt	ual 8086 Mod	le			
34	5.1	Task State Segment			19/04/23		0	N	x
35	5.2	TSS Descriptor, Task Register			19/04/23	020523			A
36	5.3	Task Gate Descriptor			20/04/23	02/05/23			
37	5.4	Task Switching, Task Linking	CEO215.1		20/04/23	02 05 23	Beit	Ĩ/	
38	5.5	Task Address Space	CEO215.2	CO215.5	21/04/23	03/05/23	- ARX-	14	
39	5.6	Virtual 8086 Mode- Features	CEO215.3		21/04/23	11 05 23			
40	5.7	Memory management in virtual mode: Structure Of V86 Stack	-		26/04/23	15/05/23			
41	5.8	Entering And Leaving V86 Mode		-	26/04/23	15 05/23	/		1
		UNIT 6 : Interr	upts, Exceptio	ons and Introd		rocontrollers		L	<u> </u>
42	6.1	Identifying Interrupts Enabling & Disabling Interrupts,	- <u>p-,p-</u>		27/04/23	16 05 23	P		
43	6.2	Priority among Simultaneous Interrupts & Exceptions	10 1		27/04/23	1710523	Celt	6	Der
44	6.3	Interrupt Descriptor Table (IDT), IDT Descriptors			28/04/23	171 05/23			
45	6.4	Interrupt Tasks and Interrupt Procedures	CEO215.1	-	28/04/23	18 05 23			
46	6.5	Error Code, and Exception Conditions	CEO215.2	CO215.6	03/05/23	(9) 05)23			
47	6.6	Introduction to Microcontrollers: Architecture of typical Microcontroller	CEO215.3		03/05/23	24/05/23			
48	6.7	Difference between Microprocessor and Microcontroller,			04/05/23	26/05/23			
49	6.8	Characteristics of microcontrollers Application of Microcontrollers.			04/05/23	26/05/23			
50		Class Test III		-					

## Start of Semester

Signature	Date	
Course Faculty :	08 02	23
HoD:	10/12/2	2



#### End of Semester

S	ignature	Date
Course Facul	ty:	27/05/23
HoD :	K	0115/09



### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

	se Code: 210257	Class: SE 2	019		ne: Dr. Deepak		- 9
_	se Name: Microprocessor Laboratory	-		Batch: A		Teaching Scheme:	Pr:2 Hrs/week
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitored by AC HOD APMO
1	Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.	CEO218.1 CEO218.2 CEO218.3	CO218.1	7/2/2023 14/02/23 21/02/23	14/02 21/02 14/03		Jas 7, 70
2	Write an X86/64 ALP to accept a string and to display its length.	CEO218.1 CEO218.2 CEO218.3	CO219.1	28/02/23	21/02		( Grad
3	Write an X86/64 <b>ALP</b> to find the largest of given Byte/Word/Dword/64-bit numbers.	CEO218.1 CEO218.2 CEO218.3	CO218.1	14/03/23	21/03		844
4	Write a switch case driven X86/64 ALP to perform 64-bit hexadecimal arithmetic operations $(+,-,*, /)$ using suitable macros. Define procedure for each operation.	CEO218.1 CEO218.2 CEO218.3	CO218.2	21/03/23	18/04		721
5	Write an X86/64 ALP to count number of positive and negative numbers from the array.	CEO218.1 CEO218.2 CEO218.3	CO218.1	28/03/23	75/04		199
6	Write X86/64 ALP to convert 4-digit Hex number into its equivalent BCD number and 5-digit BCD number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).	CEO218.1 CEO218.2 CEO218.3	CO218.3	04/04/23	16/05		2 0
7	Write X86/64 ALP to detect protected mode and display the values of GDTR, LDTR, IDTR, TR and MSW Registers also identify CPU type using CPUID instruction.	CEO218.1 CEO218.2 CEO218.3	CO218.4	11/04/23	82/05		Les A
8	Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.	CEO218.1 CEO218.2 CEO218.3	CO218.5	18/04/23	16/05		
9	Write X86/64 ALP to perform overlapped block transfer with string specific instructions. Block containing data can be defined in the data segment.	CEO218.1 CEO218.2 CEO218.3	CO218.5	25/04/23	23/05		
10	Write X86/64 ALP to perform multiplication of two 8-bit hexadecimal numbers. Use successive addition and add and shift method. (use of 64-bit registers is expected).	CEO218.1 CEO218.2 CEO218.3	CO2182	02/05/23 of Info	23/05		111
	Start of Semester		Insu .	Ta	and of Semeste	r	
	Course Faculty :	Date 07/02/23	ational	of Information	Course Faculty :	Signature	Date 77)05



### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

out	rse Code: 210257 rse Name: Microprocessor Laboratory	Class: SE 2	01)	Batch: B	ne: Dr. Deepak	Teaching Scheme:	Pre	2 Het	/ week
Sr.		070			Date of	Remarks of Faculty		lonitor	
No.	Experiment / Assignment	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC		APMO
	Write an X86/64 ALP to accept five 64 bit Hexadecimal	CEO218.1		7/2/2023	1402		6	3	1
1	numbers from user and store them in an array and display	CEO218.2	CO218.1	14/02/23	15 02		$\mathbf{D}$	4	1
	the accepted numbers.	CEO218.3	-	21/02/23	14/03		1/		100
	Write an X86/64 ALP to accept a string and to display its	CEO218.1					14		191
2	length.	CEO218.2	CO219.1	28/02/23	21/02		T	112	H.M
		CEO218.3					14.	100	TRANK
	Write an X86/64 ALP to find the largest of given	CEO218.1			21/03		12	10	10
3	Byte/Word/Dword/64-bit numbers.	CEO218.2	CO218.1	06/03/23	211032				11
		CEO218.3				1	5		
	Write a switch case driven X86/64 ALP to perform 64-bit	CEO218.1			1.	1	V	5	N
4	hexadecimal arithmetic operations (+,-,*, /) using suitable	CEO218.2	CO218.2	21/03/23	15/04		1		1/
	macros. Define procedure for each operation.	CEO218.3							11
	Write an X86/64 ALP to count number of positive and	CEO218.1			1 to .		Lon	H	11
5	negative numbers from the array.	CEO218.2	CO218.1	28/03/23	25/04		ASK	$U^{-}$	11
	negauto numorio nom no array.	CEO218.3						1	11
	Write X86/64 ALP to convert 4-digit Hex number into its			× .				4	11-
	equivalent BCD number and 5-digit BCD number into its						X		
	equivalent HEX number. Make your program user friendly	CEO218.1					Λ		11
6	to accept the choice from user for: (a) HEX to BCD b) BCD	CEO218.2	CO218.3	04/04/23			11		1
	to HEX (c) EXIT. Display proper strings to prompt the user	CEO218.3		1	16/05		11		1
	while accepting the input and displaying the result.							1	1 .
	(Wherever necessary, use 64-bit registers).						1	E	$\mathbf{V}$
	White VOCICA AT Data datase personal and a and disalaw the	CEODIA 1					1		100
-	Write X86/64 ALP to detect protected mode and display the		000184	11/04/02	1-		1	1	10
7	values of GDTR, LDTR, IDTR, TR and MSW Registers	CEO218.2	CO218.4	11/04/23	02/05		1	LV	11
	also identify CPU type using CPUID instruction.	CEO218.3					Leik	V	
-	Write X86/64 ALP to perform non-overlapped block	CEO218.1					(Jerg		17
8	transfer without string specific instructions. Block	CEO218.2	CO218.5	18/04/23	16/05		1		V
	containing data can be defined in the data segment.	CEO218.3			1/2/2/		1		
-	Write X86/64 ALP to perform overlapped block transfer	CEO218.1					[]	1	1
9	with string specific instructions. Block containing data can	CEO218.2	CO218.5	25/04/23	23/05		V		N
-	be defined in the data segment.	CEO218.3					1		1
	Write X86/64 ALP to perform multiplication of two 8-bit	CEO218.1			1-		1	11	11
10	hexadecimal numbers. Use successive addition and add and	CEO218.2	CO218	05/02/23	23/05				11
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		10	of Info	1		1	11	17
-	shift method. (use of 64-bit registers is expected).	CEO218.3	Julie	of Informal	A		ļ	Y_	y_
	Start of Semester	a 1	4		End of Semeste	2r	~		
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### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

Cou	rse Code: 210257 rse Name: Microprocessor Laboratory	Class: SE 2	2019	Faculty Na	me: Dr. Deepal	S. Uplaonkar		
Sr.		1	1	Batch: C		Teaching Scheme:	Pr : 2 Hrs	/ week
No.	Experiment / Assignment	CEO	co	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitor	ed by
l	Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.	CE0218.1 CE0218.2 CE0218.3	CO218.1	06/02/23 13/02/23 20/02/23	22/02 27/02 13/03		) CI	APMO
2	Write an X86/64 ALP to accept a string and to display its length.	CEO218.1 CEO218.2 CEO218.3		27/02/23	0.6)03		(Pr or	100
3	Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.	CEO218.1 CEO218.2 CEO218.3	CO218.1	06/03/23	20) 03			)
4	Write a switch case driven X86/64 ALP to perform 64-bit hexadecimal arithmetic operations $(+,-,*, /)$ using suitable macros. Define procedure for each operation.	CEO218.1 CEO218.2 CEO218.3	CO218.2	13/03/23	24104		26	
5	Write an X86/64 ALP to count number of positive and negative numbers from the array.	CEO218.1 CEO218.2 CEO218.3	C0218.1	20/03/23	12/05		an	
6	Write X86/64 ALP to convert 4-digit Hex number into its equivalent BCD number and 5-digit BCD number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).	CEO218.1 CEO218.2 CEO218.3	CO218,3	27/03/23	12/05			
7	Write X86/64 ALP to detect protected mode & display the values of GDTR, LDTR, IDTR, TR & MSW Registers also identify CPU type using CPUID instruction.	CEO218.1 CEO218.2 CEO218.3	CO218.4	03/04/23	14/05	ł	(A)	0
8	Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.	CEO218.1 CEO218.2 CEO218.3	CO218.5	10/04/23	14/05			
9	Write X86/64 ALP to perform overlapped block transfer with string specific instructions. Block containing data can be defined in the data segment.	CEO218.1 CEO218.2 CEO218.3	CO218.5	17/04/23	19)05			
10  1	Write X86/64 ALP to perform multiplication of two 8-bit hexadecimal numbers. Use successive addition and add and shift method. (use of 64-bit registers is expected).	CEO218.1 CEO218.2 CEO218.3	CO SHAL	21/10/03	12/05	)	M	)
	Start of Semester Signature Course Faculty : HoD :	Date • 7 02 23 10 22	* International	21/la/03 1 <sup>2</sup> IT waretLedu.in Une * 150	End of Semester	Signature	Date 2765	



### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

se Code: 210257	Class: SE 2	013	Faculty Nat	ne: Dr. Deepak				
se Name: Microprocessor Laboratory			Batch: D		Teaching Scheme:	Pr :	: 2 Hrs	/ week
Experiment / Assignment	CEO	co	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)			ed by
Write an X86/64 ALP to accept five 64 bit Hexadecimal	CE0218.1	-	08/02/23	15102		10	1	D.
numbers from user and store them in an array and display	CEO218.2	CO218.1	15/02/23	22 02		1	KI	1 - 0
the accepted numbers.	CEO218.3		22/02/23	01 03		1/14	X	12
	CEO218.1	2				4	12	1
	CEO218.2	CO219.1	01/03/23	60121		1 1 2	York 4	
rengui.	CEO218.3					$  \rangle$	τ φε.	ĸ
White a WOCKA ALDER End the land of since	CEO218.1					0	N	1
	CEO218.2	CO218.1	08/03/23	15/02			11	11
Byter word/Dword/64-bit numbers	CEO218.3					1/	19	
White a switch case driven X86/64 ALP to perform 64-bit	CEO218.1					10	N/	11
hexadecimal arithmetic operations (+,-,*, /) using suitable		CO218.2	15/03/23	Jalou		R	*	
macros. Define procedure for each operation.	CEO218.3			1.1.1.1		18		
	CEO218.1					1	11	11
	CEO218.2	CO218.1	29/03/23	nolale		1		11
negative numbers from the array.	CEO218.3			2610 9		I\	11	11
Write X86/64 ALP to convert 4-digit Hex number into its equivalent BCD number and 5-digit BCD number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).	CEO218.1 CEO218.2 CEO218.3	CO218.3	05/04/23	12/05	-	2		6
Write X86/64 ALP to detect protected mode & display the values of GDTR, LDTR, IDTR, TR & MSW Registers also identify CPU type using CPUID instruction.	CEO218.1 CEO218.2 CEO218.3	CO218.4	12/04/23	12/05		60)	FA	F
Write X86/64 ALP to perform non-overlapped block	CE0218.1					11	11	1
transfer without string specific instructions. Block	CEO218.2	CO218.5	19/04/23	14100		11		1
containing data can be defined in the data segment.	CEO218.3			14105				
Write X86/64 ALP to perform overlapped block transfer	CEO218.1							1
with string specific instructions. Block containing data can	CEO218.2	CO218.5	26/04/23	Jolo	-	11	$   \rangle$	11
be defined in the data segment.	CEO218.3			18107		1/		11
Write X86/64 ALP to perform multiplication of two 8-bit	CEO218.1	100	e of Ins			X		11
hexadecimal numbers. Use successive addition and add and	CEO218.2	20248.2	03/05/25	124/05		/	1/	1
shift method. (use of 64-bit registers is expected).	CEO218.3						Y	Y I
Start of Semester	a	tion	I <sup>2</sup> IT	31	er			
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Course Faculty :	04 02/22	2 markin	quareft.edu.in	Course Faculty :	: At	27	65	1
HoD:	120102		1.0 201	ROD :		1011	1	1
	Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.         Write an X86/64 ALP to accept a string and to display its length.         Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.         Write a switch case driven X86/64 ALP to perform 64-bit hexadecimal arithmetic operations (+,-,*, /) using suitable macros. Define procedure for each operation.         Write an X86/64 ALP to count number of positive and negative numbers from the array.         Write X86/64 ALP to convert 4-digit Hex number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).         Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.         Write X86/64 ALP to perform non-lapped block transfer with string specific instructions. Block containing data can be defined in the data segment.         Write X86/64 ALP to perform nultiplication of two 8-bit hexadecimal numbers. Use successive addition and add and shift method. (use of 64-bit registers is expected).	Experiment / AssignmentCEOWrite an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.CEO218.1 CEO218.1 CEO218.1 CEO218.3Write an X86/64 ALP to accept a string and to display its length.CEO218.1 CEO218.1 CEO218.2 CEO218.3Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.1 CEO218.2 CEO218.3Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.1 CEO218.2 CEO218.3Write a switch case driven X86/64 ALP to perform 64-bit hexadecimal arithmetic operations (+,-,*, /) using suitable macros. Define procedure for each operation.CEO218.1 CEO218.2 CEO218.3Write an X86/64 ALP to count number of positive and negative numbers from the array.CEO218.1 CEO218.2 CEO218.3Write X86/64 ALP to convert 4-digit Hex number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).CEO218.1 CEO218.2 CEO218.3Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.CEO218.2 CEO218.2 CEO218.3Write X86/64 ALP to perform overlapped block transfer with string specific instructions. Block containing data can be defined in the data segment.CEO218.2 CEO218.3Write X86/64 ALP to perform multiplication of two 8-bit 	Experiment / AssignmentCE0COWrite an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.CEO218.1 CEO218.2 CEO218.3CO218.1 CEO218.2 CEO218.3Write an X86/64 ALP to accept a string and to display its length.CEO218.1 CEO218.3CO219.1 CEO218.3Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.1 CEO218.2 CEO218.1 CEO218.2 CEO218.2 CEO218.3CO218.1 CEO218.1 CEO218.2 CEO218.2 CEO218.3Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.1 CEO218.2 CEO218.2 CEO218.2 CEO218.2 CEO218.2CO218.1 CEO218.2 CEO218.2 CEO218.3Write an X86/64 ALP to count number of positive and negative numbers from the array.CEO218.1 CEO218.2 CEO218.3CO218.1 CEO218.2 CEO218.2Write X86/64 ALP to convert 4-digit Hex number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user while accepting the input and displaying the result. (Wherever necessary, use 64-bit registers).CEO218.1 CEO218.2 CEO218.3Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.CEO218.1 CEO218.2 CEO218.1 CEO218.2Write X86/64 ALP to perform overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.CEO218.1 CEO218.1 CEO218.2Write X86/64 ALP to perform overlappe	Experiment / AssignmentCEOCODate of PlanWrite an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.CEO218.1 CEO218.208/02/23 C22/02/23Write an X86/64 ALP to accept a string and to display its length.CEO218.1 CEO218.2CO218.1 CEO218.201/03/23 CEO218.3Write an X86/64 ALP to accept a string and to display its length.CEO218.1 CEO218.2CO218.1 CEO218.201/03/23 CEO218.1Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.1 CEO218.2CO218.1 CEO218.308/03/23 CEO218.2Write an switch case driven X86/64 ALP to perform 64-bit negative numbers from the array.CEO218.1 CEO218.2CO218.215/03/23 CEO218.2Write an X86/64 ALP to count number of positive and negative numbers from the array.CEO218.1 CEO218.2CO218.1 CEO218.2CO218.1 CEO218.2Write X86/64 ALP to convert 4-digit Hex number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCD to HEX (c) EXIT. Display proper strings to prompt the user values of GDTR, LDTR, IDTR, TR & MSW Registers also identify CPU type using CPUID instruction.CEO218.1 CEO218.2CO218.4 CEO218.305/04/23Write X86/64 ALP to perform non-overlapped block transfer without string specific instructions. Block containing data can be defined in the data segment.CEO218.1 CEO218.2CO218.5 CEO218.319/04/23 CO218.5Write X86/64 ALP to perform multiplication of two 8-bit hexadecimal numbers. Use successive add	Experiment / AssignmentCEOCODate of PlanDate of ConductionWrite an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.CEO218.1CEO218.2CO218.1 $15^{10}$ (27) $2 \ge 10 \ge 2$ Write an X86/64 ALP to accept a string and to display its length.CEO218.1CCO218.2CCO218.1 $01/03/23$ $15^{10}$ (27)Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.2CCO218.1CCO218.1 $01/03/23$ $15^{10}$ (27)Write an X86/64 ALP to find the largest of given Byte/Word/Dword/64-bit numbers.CEO218.2CCO218.1CCO218.1 $08/03/23$ $15^{10}$ (27)Write as witch case driven X86/64 ALP to perform 64-bit hexadecimal arithmetic operations (+, *, *) using suitable CEO218.3CCO218.1CCO218.2CO218.1 $15/03/23$ $19^{10}$ (9)Write an X86/64 ALP to count number of positive and negative numbers from the array.CEO218.1CEO218.2CO218.1 $29/03/23$ $26^{10}$ (9)Write X86/64 ALP to convert 4-digit Hex number into its equivalent HEX number. Make your program user friendly to accept the choice from user for: (a) HEX to BCD b) BCDCEO218.2CCO218.3 $05/04/23$ $12^{10}$ (9)Write X86/64 ALP to detect protected mode & display the values of GDTR, LDTR, IDTR, TR & MSW Registers alsoCEO218.1CEO218.2CCO218.3 $05/04/23$ $12^{10}$ (9)Write X86/64 ALP to perform non-overlapped block containing data can be defined in the data segment.CEO218.1CEO218.2CO218.3 $12/04/23$ $12^{10}$ (9)Wri	Experiment / Assignment         CEO         CO         Date of Plan         Date of Conduction           Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.         CEO218.1         CEO218.2         CO218.1         CEO218.2         CO218.1         15/02/23         ts = [o - 2]           Write an X86/64 ALP to accept a string and to display its length.         CEO218.2         CO218.1         CEO218.2         CO218.1         CEO218.2         CO218.1         15/02/23         ts = [o - 2]         o = [o - 2]	Experiment / Assignment         CE0         C0         Date of Plan         Remarks of Paculty Conduction         Ac           Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.         CE0218.1 (CE0218.2         CO218.1 (C20218.1         15/02/23 (22/02/23         15/1-2 (22/02/23         1-2 (22/02/23         1-2 (2-2 (22/02/23         1-2 (2-2 (22/02/23	Experiment / Assignment         CEO         Co         Date of Plan         Remarks of Faculty (incase of variance)         Monitor           Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and display the accepted numbers.         CEO218.1 CO218.1         CO218.1         08/02/23 2/02/23         1/2 1 - 2 2 - 1 6 - 2         1/2 1 - 2

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## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester I

### THEORY TEACHING RECORD

Cour	se Coo	de: 310243	Class: TE	2019	Name of Facu	lty: Prof. Ary	a Chandrapal Sing	gh		
Cour	se Nar	me: System Progrmming & Operating System			Teaching Sche	me:	Th: 3 Hrs / week			
Lr.		Topics to be Delivourd	CEO	со	Date of Plan	Date of	Remarks of Faculty	M	Ionitore	d by
No.		Topics to be Delivered	CEO		Date of Fian	Conduction	(incase of variance)	AC	HOD	АРМС
		Ű	NIT 1 : Intr	oduction						
1	1.1	Introduction to System Programming, explaination of CEOs,COs, POs, PSOs, CO-PO Mapping			18/7/2022	18(7/2022		)	$\left( \right)$	
2	1.2	Need of Systems Programming, Software Hierarchy, Types of software: system software and application software	е - У.		19/7/2022	18/7/2022			ľ	
3	1.3	Evolution of components of Systems Programming: Text Editors, Assembler, Macros, Compiler, Interpreter			20/7/2022	19/7/2022				
4	1.4	Loader, Linker, Debugger, Device Drivers, Operating System	CEO303.1	CO303.1, CO303.2,	21/7/2022	20/7/2022		l		Con
5	1.5	Elements of Assembly Language Programming: Assembly Language statements	CE0505.1	CO303.2, CO303.3	25/7/2022	21/7/2022		(,		100
6	1.6	Benefits of Assembly Language, A simple Assembly scheme, Pass Structure of Assembler			28/7/2022	25/7/2022		MA	TH	A
7	1.7	Design of two pass Assembler: Processing of declaration statements, Assembler Directives and imperative statements			29/7/2022	28/7/2022				
8	1.8	Advanced Assembler Directives, Intermediate code forms, Pass I and Pass II of two pass Assembler			1/8/2022	29/7/2022				
				sor and Con	pilers			-		
9	2.1	Introduction to Macro, Features of a Macro facility	ational linge	Tormailon Techma	4/8/2022	1/8/2022		Zit	ł	
10	2.2	Macro instruction arguments, Conditional Macro expansion, Macro calls within Macros	nal In	Tecl	5/8/2022	4/8/2022			/	

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and neviewed by APMC Co-Ordinator (Biweekly)

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11	2.3	Macro instructions, Defining Macro, Design of two pass Macro processor		CO303.1,	8/8/2022	5/8/2022	8	2	-	,	
12	2.4	Concept of single pass Macro processor	- CEO303.2	CO303.2, CO303.3	11/8/2022	8/8/2022		+		<del>}</del>	1
13	2.5	Introduction to Compilers: Phases of Compiler with one example			12/8/2022	12/8/2022	si.	+	1	t.	
14	2.6	Comparison of Compiler and Interpreter			18/8/2022	22/8/2022			PA-	1	Der
		UNI	G3:Linkers	and Loaders		×					
15	3.1	Introduction to Loaders, Loader schemes			19/8/2022	25/8/2022		$\top$	T		
16	3.2	Compile and Go, General Loader Scheme			22/8/2022	26/8/2022					
17	3.3	Absolute Loaders, Subroutine Linkages	1	CO303.1,	25/8/2022	29/8/2022		+	+	1	
18	3.4	Relocating Loaders, Direct linking Loaders, Overlay structure	CEO303.3	CO303.2,	26/8/2022	1/9/2022		++		1	1
19	3.5	Design of an Absolute Loader		CO303.3	29/8/2022	2/9/2022			Jak		
20	3.6	Design of Direct linking Loader			1/9/2022	5/9/2022			p		1
21	3.7	Self-relocating programs, Static and Dynamic linking			2/9/2022	8/9/2022		11			1
		UNIT	4 : Operating	g System (OS	)			5			
22	4.1	Introduction to Operating Systems, Evolution of OS, Operating System Services			5/9/2022	12/9/2022		h			
23	4.2	Functions of Operating System			8/9/2022	12/9/2022		11		1	
24	4.3	Process Management: Process, Process States: 5 and 7 state model, Process control block			12/9/2022	14/9/2022				16	
25	4.4	Threads, Thread life cycle, Multithreading Model, Process control system calls	CEO303.4	CO303.4	15/9/2022	15/9/2022		$\downarrow$			
26	4.5	Process Scheduling: Uni-processor Scheduling, Scheduling: Preemptive, Non-preemptive			16/9/2022	16/9/2022	5	1	N	K	1
27	4.6	Longterm, Medium-term, Short term scheduling			19/9/2022	22/9/2022		1	7		1000
28	4.7	Scheduling Algorithms: FCFS, SJF, RR, and Priority			22/9/2022	23/9/2022					0
		UNIT 5 : Synchr	onization an	d Concurren	cy Control			1		1	
29	5.1	Concurrency: Principle and issues with Concurrency	to sti	nforman	23/9/2022	26/9/2022		2			
60	5.2	Mutual Exclusion, Hardware approach	La constructional Institution	Tion	26/9/2022	29/9/2022		16	N	1	
51	5.3	Software approach, Semaphore, Mutex and monitor	I II	1) ech	29/9/2022	30/9/2022		17	r	1	
12	5.4	Reader writer problem, Producer Consumer problem, Dining Philosopher	020303.5	009033	30/9/2022	12/10/2022			1		1

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33	5.5	Deadlocks: Principle of Deadlock, Deadlock prevention	]		3/10/2022	14/10/2022	2			
34	5.6	Deadlock avoidance, Deadlock detection, Deadlock recovery			6/10/2022	17/10/2022		+		<u>₿</u>
35	5.7	Case Study: Concurrency Mechanism: Unix/Linux/Windows			7/10/2022	17/10/2022		PAT	7	
		UNIT	6 : Memory	Managemen	t	\$0,		) – '	1	1
36	6.1	Introduction: Memory Management concepts, Memory Management requirements			10/10/2022	18/10/2022		)		
37	6.2	Memory Partitioning: Fixed Partitioning, Dynamic Partitioning, Buddy Systems Fragmentation, Paging, Segmentation, Address translation			13/10/2022	19/10/2022				
38	6.3	Placement Strategies: First Fit, Best Fit, Next Fit and Worst Fit	]		14/10/2022	3/11/2022			1	1000
39	6.4	Virtual Memory (VM): Concepts, Swapping, VM with Paging, Page Table Structure	CEO303.6	CO303.6	17/10/2022	4/11/2022		A	1	
40	6.5	Inverted Page Table, Translation Look aside Buffer, Page Size, VM with Segmentation, VM with Combined paging and segmentation			20/10/2022	7/11/2022	1	>	1	
41	6.6	Page Replacement Policies: First In First Out (FIFO)			21/10/2022	10/11/2022			1	
42	6.7	Last Recently Used(LRU), Optimal, Thrashing, Case Study: Memory management in Linux /Windows/Android			31/10/2022	10/11/2022		)		

Start of Semester			the of Infor	End of Semester
	Signature	Date	Stiller 12	Signature
Course Faculty :	1 and	18/7/22	I III	Course Faculty :
HoD :		208122	offer C ech	HoD:
	0		* Pune *	

The record shall be monitored by Academic Co-Ordinator	(weekly) by HoD (Riwookly) and raviowed by	ADMC Co. Ordinator (Diversity)
The record shall be monitored by Academic Co-Ordinator	(Meekiy), by hop (piweekiy) and leviewed by	APMU CO-Ordinator (Brweekiv

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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester I

_		PRACTIC	<u>CAL TEA</u>	CHING	RECORD			_	
Cou	rse Code: 310248	Class: TE	2019	Name of F	aculty: Prof.	Arya Chandrapal S	Singh		
Cou	rse Name: Laboratory Practice-I			Batch: A		<b>Teaching Scheme:</b>		2 Hrs	/ week
Sr. No.	Experiment / Assignment	CEO	СО	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	onitore	d by APMC
1	Design of Two Pass Assembler	CEO308.1	CO308.1	25/7/2022	1/7/2022		$\Big)$	1	
2	Design of Two Pass Macroprocessor	CEO308.1	CO308.1	8/8/2022	22/8/2022		1		
3	Design of Dynamic Link Library	CEO308.1	CO308.2	29/8/2022	5/9/2022				
4	Synchronization using Mutex and Semaphore			12/9/2022	19/9/2022		7	K	Der
5	Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round Robin	CEO308.2	CO308.3	19/9/2022	26/9/2022		W	0	
6	Simulation of Memory placement strategies – best fit, first fit, next fit and worst fit		-	26/9/2022	10/10/2022				
7	Simulation of Page replacement algorithm			10/10/2022	17/10/2022				)
	Start of Semester		te of	Infor	End of Sem	ester		/	
	Signature	Date	Silure	Malio	S	ignature	Da	ate	
	Course Faculty : HoD :	18/7/22	I21	Information Technolog	Course Facu HoD :	Ity:	-st	2/122	

### The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester I

## PRACTICAL TEACHING RECORD

se Code: 310248	Class: TE	2019	Name of F	aculty: Prof.	Arya Chandrapal S	Singh		
se Name: Laboratory Practice-I			Batch: B		<b>Teaching Scheme:</b>		2 Hrs	/ week
Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)		_	d by APMC
Design of Two Pass Assembler	CEO308.1	CO308.1	28/7/2022	2/8/2022		2	7	
Design of Two Pass Macroprocessor	CEO308.1	CO308.1	11/8/2022	17/8/2022			9	
Design of Dynamic Link Library	CEO308.1	CO308.2	18/8/2022	7/9/2022				
Synchronization using Mutex and Semaphore			8/9/2022	20/9/2022				
Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round Robin	CEO100 A	000000	22/9/2022	28/9/2022		1 m	A	
Simulation of Memory placement strategies – best fit, first fit, next fit and worst fit	CE0308.2	CU308.3	29/9/2022	12/10/2022				
Simulation of Page replacement algorithm			13/10/2022	19/10/2022		ノ		
Start of Semester		stitute	of Informs	End of Semo	ester	)	<u> </u>	
Signature	Date	al "	T2TT IS	S	ignature	Da	ite	
Course Faculty :	18/7/22	ation	Tec I	Course Facul	ty:	15/1	0/22	
HoD:	enha	Es www.is	quanit edu in	HoD :	al	3-112	22	
	Experiment / Assignment         Design of Two Pass Assembler         Design of Two Pass Macroprocessor         Design of Dynamic Link Library         Synchronization using Mutex and         Semaphore         Simulation of CPU Scheduling Algorithms:         FCFS, SJF, Priority and Round Robin         Simulation of Memory placement strategies         - best fit, first fit, next fit and worst fit         Simulation of Page replacement algorithm         Start of Semester         Signature         Course Faculty :	Experiment / AssignmentCEODesign of Two Pass AssemblerCEO308.1Design of Two Pass MacroprocessorCEO308.1Design of Dynamic Link LibraryCEO308.1Design of Dynamic Link LibraryCEO308.1Synchronization using Mutex and SemaphoreCEO308.1Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinCEO308.2Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitCEO308.2	Experiment / AssignmentCEOCODesign of Two Pass AssemblerCEO308.1CO308.1Design of Two Pass MacroprocessorCEO308.1CO308.1Design of Dynamic Link LibraryCEO308.1CO308.2Synchronization using Mutex and SemaphoreCEO308.1CO308.2Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinCEO308.2CO308.3Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitCEO308.2CO308.3	set Name: Laboratory Practice-IBatch: BExperiment / AssignmentCEOCODate of PlanDesign of Two Pass AssemblerCEO308.1CO308.128/7/2022Design of Two Pass MacroprocessorCEO308.1CO308.111/8/2022Design of Dynamic Link LibraryCEO308.1CO308.218/8/2022Synchronization using Mutex and SemaphoreAllow Algorithms: FCFS, SJF, Priority and Round RobinEEO308.28/9/2022Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinEEO308.222/9/2022Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitEEO308.222/9/2022Simulation of Page replacement algorithm13/10/202213/10/2022	See Name: Laboratory Practice-IBatch: BExperiment / AssignmentCEOCODate of PlanDate of ConductionDesign of Two Pass AssemblerCEO308.1CO308.128/7/20222/8/2022Design of Two Pass MacroprocessorCEO308.1CO308.111/8/202217/8/2022Design of Dynamic Link LibraryCEO308.1CO308.218/8/20227/9/2022Synchronization using Mutex and Semaphore8/9/202220/9/202220/9/2022Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinCEO308.2CEO308.28/9/202228/9/2022Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitCEO308.229/9/202212/10/2022Simulation of Page replacement algorithmCEO308.213/10/202219/10/2022Start of Semester Course Faculty :Y2 TY2Semester TSemester S Course Faculty :End of Semester S	se Name: Laboratory Practice-IBatch: BTeaching Scheme:Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)Design of Two Pass AssemblerCEO308.1CO308.128/7/20222/8/20222/8/2022Design of Two Pass MacroprocessorCEO308.1CO308.111/8/202217/8/20221Design of Dynamic Link LibraryCEO308.1CO308.218/8/20227/9/20221Synchronization using Mutex and SemaphoreEO308.1CO308.218/9/202220/9/20221Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinEO308.22/9/202228/9/202228/9/20222Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitEO308.213/10/202219/10/202219/10/20221	Batch: BTeaching Scheme:Pr:Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)MDesign of Two Pass AssemblerCEO308.1CO308.128/7/20222/8/20222/8/2022//Design of Two Pass MacroprocessorCEO308.1CO308.111/8/202217/8/2022////Design of Dynamic Link LibraryCEO308.1CO308.218/8/20227/9/2022////Synchronization using Mutex and SemaphoreEO308.2CO308.218/8/202220/9/2022////Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round RobinEO308.2CO308.228/9/202228/9/202228/9/2022//Simulation of Memory placement strategies - best fit, first fit, next fit and worst fitEO308.213/10/202219/10/202219/10/2022//Simulation of Page replacement algorithm13/10/202219/10/202219/10/202219/10/2022//	Batch: BTeaching Scheme:Pr: 2 HrsExperiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance) $M \cup InterestDesign of Two Pass AssemblerCEO308.1C0308.128/7/20222/8/20222/8/2022N \cup InterestM \cup InterestDesign of Two Pass MacroprocessorCEO308.1C0308.128/7/20222/8/202217/8/2022N \cup InterestN \cup InterestDesign of Dynamic Link LibraryCEO308.1CO308.218/8/20227/9/202217/8/2022N \cup InterestN \cup InterestSynchronization using Mutex andSemaphoreCEO308.1CO308.218/8/202220/9/202220/9/2022N \cup InterestN \cup InterestSimulation of CPU Scheduling Algorithms:FCFS, SJF, Priority and Round RobinCEO308.2CO308.328/9/202228/9/202228/9/2022N \cup InterestSimulation of Memory placement strategies- best fit, first fit, next fit and worst fitCEO308.429/9/202212/10/202212/10/2022N \cup InterestSimulation of Page replacement algorithmCEO308.229/9/202219/10/202219/10/2022N \cup InterestN \cup InterestSimulation of Page replacement algorithmCEO308.229/9/202219/10/202219/10/2022N \cup InterestN \cup InterestSimulation of Page replacement algorithmCEO308.219/10/202219/10/202219/10/2022N \cup InterestN \cup InterestSimulation of Page replacement algo$

he record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester I

# PRACTICAL TEACHING RECORD

_	rse Code: 310248	Class: TE	2019	Name of F	aculty: Prof.	Arya Chandrapal S	ingh		
	rse Name: Laboratory Practice-I			Batch: C		Teaching Scheme:		2 Hrs	/ week
Sr. No.	Experiment / Assignment	СЕО	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Mo	onitore HOD	
1	Design of Two Pass Assembler	CEO308.1	CO308.1	27/7/2022	4/8/2022		)		Arme
2	Design of Two Pass Macroprocessor	CEO308.1	CO308.1	10/8/2022	1/9/2022				
3	Design of Dynamic Link Library	CEO308.1	CO308.2	24/8/2022	15/9/2022				
4	Synchronization using Mutex and Semaphore			14/9/2022	22/9/2022		1		
5	Simulation of CPU Scheduling Algorithms: FCFS, SJF, Priority and Round Robin	GT 0 200 0	000000	21/9/2022	11/10/2022		h	J	/
6	Simulation of Memory placement strategies – best fit, first fit, next fit and worst fit	CEO308.2	CO308.3	28/9/2022	3/11/2022				
7	Simulation of Page replacement algorithm			12/10/2022	4/11/2022				
	Start of Semester		stitute of	Information Technolog	End of Seme	ester	J		
	Signature	Date	In Is	IT.	Si	gnature	Dat	te	
	Course Faculty :	18/12	High C	Chi	Course Facul		- 5	(11)	ZZ,
	HoD:	e applie	E unnu.isqu	IT Technoo	HoD :	- jy	Ballo	ho	
	U	<i>ii</i>	* PI	me *		10	0	1	

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)



Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING

Academic Year 2022-23 Semester II

### THEORY TEACHING RECORD

Cour	rse Ca	ode: 410252(A)	Class: BE 2	019	Name of Facul	ty: Prof. Depti	i Chaudhari			
Cour	se Na	me: Natural Language Processing			Teaching Sche	me:	Th: 3 Hrs / week			
Lr.		Topics to be Delivered	CEO	со	Date of Plan	Date of	Remarks of Faculty	N	ed by	
No.					Date of Flat	Conduction	(incase of variance)	AC	HOD	армс
		U	NIT 1 : Introe	duction to Na	tural Language P	rocessing				
1	1.1	What is natural language processing? Stages of NLP			01-02-2023	01/02/23		7	$\gamma$	)
2	1.2	Why NLP is hard?			06-02-2023	02/02/23			1/	
3	1.3	Programming languages Vs Natural Languages		12.2	07-02-2023	06/02/23		1. A	6	
4	1.4	Are natural languages regular? Finite automata for NLP	CEO412.1	CO412.1	08-02-2023	07/02/23		- pp		Den
5	1.5	Challenges and Issues(Open Problems) in NLP	- 1		13-02-2023	08/02/23		7		1
6	1.6	Basics of text processing: Tokenization, Stemming, Lemmatization, Part of Speech Tagging			14-02-2023	13/02/23				)
			UNIT 2 :	Language Sy	ntax and Semant	ics			1	
7	2.1	What is Morphology? Types of Morphemes, Inflectional morphology & Derivational morphology			15-02-2023	14/02/23				
8	2.2	Morphological parsing with Finite State Transducers (FST)			20-02-2023	15/02/23			L	F
9	2.3	Syntactic Representations of Natural Language. Parsing Algorithms			21-02-2023	20/02/23		4	16	Den
10	2.4	Probabilistic context-free grammars, and Statistical parsing	CEO412.2	CO412.2	22-03-2023	22/02/23		(asA		1
1	2.5	Lexical Semantic, Relations among lexemes & their senses –Homonymy, Polysemy, Synonymy, Hyponymy, WordNet, Word Sense Disambiguation (WSD)	La	T.	27-02-2023	22/02/23		TA		
2	2.6	Dictionary based approach, Catent Schantic Analysis	uoiteu mation	want which of	28-02-2025	27/02/23		)	11	5

			UN	IT 3 : Langua	ge Modelling	1				
13	3.1	Probabilistic language modeling, Markov models	1 2		01-03-2023	28/02/23		1	5	
14	3.2	Generative models of language, Log-Liner Models, Graph-based Models		4 3/	06-03-2023	01/03/23				
15	3.3	Simple n-gram models, Estimation parameters and smoothing		1	08-03-2023	06/03/23		MA		Joen
16	3.4	Evaluating language models, Word Embeddings/ Vector Semantics: Bag-of-words, TFIDF, word2vec, doc2vec	CEO412.2	CO412.3	13-03-2023	08/03/23		X	Y.	
17	3.5	Contextualized representations (BERT)			14-03-2023	14/03/23				11
18	3.6	Latent Dirichlet Allocation (LDA), Latent Semantic Analysis, Non Negative Matrix Factorization			15-03-2023	15/03/23				
			UNIT 4 :	Information R	tetrieval using N	LP			1	
19	4.1	Introduction to Informational Retrieval, Vector Space Model	_ * *		20-03-2023	26:03/23		$\left  \right\rangle$		
20	4.2	NER System Building Process			21-03-2023	22/03/23		last		
21	4.3	Evaluating NER System	CEO412.2	CO412.4	27-03-2023	27/03/23		(14	IM	1 Den
22	4.4	Entity Extraction, Relation Extraction	(10412.2	00412.4	28-03-2023	10/04/23	Dhriwa	Y	$\parallel D$	100
23	4.5	Reference Resolution			29-03-2023	11/04/23	Dhruva		10	11
24	4.6	Coreference resolution, Cross Lingual Information Retrieval	2.0		03-04-2023	12/04/23	Juscon	5		).
	-		UNIT	5 : NLP Tools	and Technique	s				
25	5.1	Prominent NLP Libraries: Natural Language Tool Kit (NLTK), spaCy, TextBlob, Gensim etc.			04-04-2023	17/04/23	Insem	7		
26	5.2	Lexical Knowledge Networks, WordNets			05-04-2023	18 04/23	Insem	16 mat		
27	5.3	Indian Language WordNet (IndoWordnet)	050413.3	course	10-04-2023	19/04/23		11		
28	5.4	VerbNets, PropBank, Treebanks, Universal Dependency Treebanks	CEO412.3	CO412.5	11-04-2023	24/04/23		P	1	Den
29	5.5	Word Sense Disambiguation		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	12-04-2023	25/04/23		/		1
30	5.6	Lesk Algorithm, Walker's algorithm, WordNets for Word Sense Disambiguation	12		17-04-2023	25704123				)



			UN	IT 6 : Applic	ations of NLP			
31	6.1	Machine Translation: Rule based techniques			18-04-2023	26104123		*
32	6.2	Statistical Machine Translation (SMT)			19-04-2023	26/04/25	A	)
33	6.3	Cross Lingual Translation			24-04-2023	28/04/23	Je p	/
34	6.4	Sentiment Analysis, Question Answering	CE0314.4	CO314,6	25-04-2023	28104125	( 123)	0.00
35	6.5	Text Entailment, Discourse Processing			26-04-2023	29/04/23		Den
36	6.6	Dialog and Conversational Agents, Natural Language Generation			02-05-2023	29104128		

### Start of Semester

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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF COMPUTER ENGINEERING Academic Year 2022-23 Semester II

Cour	rse Code: 410255	Class: BE	2019	Name of Fa	culty: Prof. f.	Deptii Chaudhari			
Cour	rse Name: Laboratory Practice VI			Batch: A		Teaching Scheme:	Pr:	2 Hrs	/ week
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	d by APMC
1	Perform tokenization (Whitespace, Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.	CEO415.1	CO415.1	09-02-2023	09/02/23			0	
2	Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.	CEO415.1	CO415.1	16-02-2023	16/02/23		Ç	-	Cers
3	Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.	CEO415.1	CO415.1	23-02-2023	23/02/23		(AD	6	~
4	Create a transformer from scratch using the Pytorch library	CEO415.2	CO415.2	02-03-2023	02/03/23				
5	Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts of morphology by the use of add delete table	CEO415.2	CO415.1	09-03-2023	c9/c3/23	attonation attont			

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	Import the legacy data from different sources such as (Excel, Sql Server, Oracle etc.) and load in the target system. (You can download sample database such as Adventure works, Northwind, foodmart etc.)	CEO415.4	CO415.5	16-03-2023	16103/23				
7	Perform the Extraction Transformation and Loading (ETL) process to construct the database in the Sql server.	CEO415.4	CO415.5	23-03-2023	23/03/23		MA		
8	Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model.	CEO415.4	CO415.5	30-03-2023	30/03/23		7		
9	Import the data warehouse data in Microsoft Excel and create the Pivot table and Pivot Chart	CEO415.4	CO415.5	06-04-2023	<b>9</b> 3  04   23	Insem		P	1
10	Perform the data classification using classification algorithm. Or Perform the data clustering using clustering algorithm.	CEO415.4	CO415.4	13-04-2023	20/04/73				Den
11	Mini Project on NLP	CEO415.3	CO415.3	20-04-2023	27/04/23			(2	
12	Mini Project on BI	CEO415.4	CO415.6	27-04-2023	27104/25			$\mathcal{O}$	

Start of Semester

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# End of Semester

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Hope Foundation's Internation & Institute of Information Technology, Pune

Pune \*

DEPARTMENT OF COMPUTER ENGINEERING

Academic Year 2022-23 Semester II

se Code: 410255	Class: BE 2	019	Name of Fac	ulty: Prof. D	eptii Chaudhari			
se Name: Laboratory Practice VI			Batch: D		Teaching Scheme:			
Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	d by APMC
Perform tokenization (Whitespace. Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.	CEO415.1	CO415.1	06-02-2023	oc/02/23		$\sum_{i=1}^{n}$	7	
Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.	CEO415.1	CO415.1	13-02-2023	13/02/23		14		Der
Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.	CEO415.1	CO415.1	20-02-2023	20/02/23		7	8	
Create a transformer from scratch using the Pytorch library	CEO415.2	CO415.2	27-02-2023	27/02/23				
Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts of morphology by the use of add delete table	CEO415.2	CO415.1	06-03-2023	06/03/23	I'IT.			
	See Name: Laboratory Practice VI         Experiment / Assignment         Perform tokenization (Whitespace, Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.         Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.         Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.         Create a transformer from scratch using the Pytorch library         Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts of	se Name: Laboratory Practice V1Experiment / AssignmentCEOPerform tokenization (Whitespace. Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.1Create a transformer from scratch using the Pytorch libraryCEO415.2Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts ofCEO415.2	se Name: Laboratory Practice VIExperiment / AssignmentCEOCOPerform tokenization (Whitespace, Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.1Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1CO415.1Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.2CO415.1Create a transformer from scratch using the Pytorch libraryCEO415.2CO415.2CO415.2Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts ofCEO415.2CO415.1	Se Name: Laboratory Practice VIBatch: DExperiment / AssignmentCEOCODate of PlanPerform tokenization (Whitespace, Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.1C0415.1Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1CO415.113-02-2023Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.2CO415.120-02-2023Create a transformer from scratch using the Pytorch libraryCEO415.2CO415.227-02-2023Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts ofCEO415.2CO415.106-03-2023	Batch: DBatch: DExperiment / AssignmentCEOCODate of PlanDate of ConductionPerform tokenization (Whitespace. Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.106-02-2023 $oc / 02 / 2.3$ Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1CO415.113-02-2023 $1.3 / o.2 / 2.3$ Perform text cleaning, perform lemmatization (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.1CO415.120-02-2023 $2.0 / o.2 / 2.3$ Create a transformer from scratch using the Pytorch libraryCEO415.2CO415.2CO415.2 $27 / o.2 / 2.3$ Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts ofCEO415.2CO415.1 $06-03-2023$ $o.6 / 0.3 / 2.3$	Batch: DTeaching Scheme:Experiment / AssignmentCEOCODate of PlanDate of ConductionExperiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)Perform tokenization (Whitespace, Punctuation-based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.106-02-2023oc / (o 2 / 2.3)Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1CO415.113-02-20231.3 / 02 / 2.3Perform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.2CO415.120-02-20232.2 / 0.2 / 2.3Create a transformer from scratch using the Pytorch libraryCEO415.2CO415.227-02-20232.7 / 0.2 / 2.3Morphology is the study of the way words are buil up from smaller meaning bearing units. Study and understand the concepts of mombology by the use of add delete tableCEO415.2CO415.106-03-20230.6 / 0.3 / 2.3	Batch: DTeaching Scheme:PrExperiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of FacultyMPerform tokenization (Whitespace. Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.1 $06-02-2023$ $oC/02/23$ $OC/02/23$ $OC/02/23$ $OC/02/23$ Perform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1 $CO415.1$ $13-02-2023$ $13/a2/23$ $A4$ Perform text cleaning, perform lemmatization (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.2 $CO415.1$ $20-02-2023$ $22/02/23$ $20/02/23$ Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts of morphology by the use of add delete tableCEO415.2 $CO415.1$ $06-03-2023$ $0 \in /03/23$ $OC/02/23$	Batch: DTeaching Scheme:Pr: 2 Hrs.Experiment / AssignmentCEOCODate of ConductionTeaching Scheme:Pr: 2 Hrs.Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)Monitore ACPerform tokenization (Whitespace. Punctuation- based, Treebank, Tweet, MWE) using NLTK library. Use porter stemmer and snowball stemmer for stemming. Use any technique for lemmatization.CEO415.1CO415.106-02-2023 0C /02/23 $OC /02/23$ Price Hold MonitorePerform bag-of-words approach (count occurrence, normalized count occurrence), TF- IDF on data. Create embeddings using Word2Vec.CEO415.1CO415.113-02-2023 $13/a2/2.3$ Price HoldPerform text cleaning, perform lemmatization (any method), remove stop words (any method), label encoding. Create representations using TF-IDF. Save outputs.CEO415.1CO415.120-02-2023 $2c/o2/2.3$ $V$ Create a transformer from scratch using the Pytorch libraryCEO415.2CO415.2 $27-02-2023$ $27/o2/2.3$ $V$ $V$ Morphology is the study of the way words are built up from smaller meaning bearing units. Study and understand the concepts ofCEO415.2CO415.1 $06-03-2023$ $0 \in /03/23$ $V$ $V$

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6	Import the legacy data from different sources such as (Excel, Sql Server, Oracle etc.) and load in the target system. (You can download sample database such as Adventure works, Northwind, foodmart etc.)	CEO415.4	CO415.5	13-03-2023	13/63/23		$\left \right\rangle$		
7	Perform the Extraction Transformation and Loading (ETL) process to construct the database in the Sql server.	CEO415.4	CO415.5	20-03-2023	20163/23		(p)		
8	Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model.	CEO415.4	CO415.5	27-03-2023	27/03/23			ŀ	
9	Import the data warehouse data in Microsoft Excel and create the Pivot table and Pivot Char	CEO415.4	CO415.5	03-04-2023	10/04/23	Insem		5	Den
10	Perform the data classification using classification algorithm. Or Perform the data clustering using clustering algorithm.	CEO415.4	CO415.4	10-04-2023	17/04/23				
11	Mini Project on NLP	CEO415.3	CO415.3	17-04-2023	24104/23				
12	Mini Project on BI	CEO415.4	CO415.6	24-04-2023	24/04/23				1

Start of Semester	
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### Hope Foundation's International Institute of Information Technology, Pune

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester II

Sr. No.	Format	DISCRIPTION		
1	Vision, Mission of Institute			
2	Vision Mission of Department			
3	Program Educational Objectives, Program Outcomes, and Program Specific Outcomes	A theory where the first		
4	Institute Academic Calendar	The Print of the P		
5	Department Academic Calendar	121T / ACAD / SP / 01		
6	Class wise Time Table	12IT / ACAD / TT / 01		
7	Faculty wise Time Table	12IT / ACAD / TT / 02		
8	Lab wise Time Table in case of Lab – In charge	I2IT / ACAD / TT / 04		
9	University Syllabus	dia mangina talah sa		
0	Lesson Plan Resources	12IT / ACAD / CP / 05		
1	Course Objectives and Outcomes (Theory)	12IT / ACAD / CP / 01		
2	Correlation of COs with POs (Theory)	12IT / ACAD / CP / 02		
3	CO-PO mapping Justification (Theory)	12IT / ACAD / CP / 02A		
4	Course Objectives and Outcomes (Laboratory)	12IT / ACAD / CP / 01		
5	Correlation of COs with POs (Laboratory)	I2IT / ACAD / CP / 02		
6	CO-PO mapping Justification (Laboratory)	12IT / ACAD / CP / 02A		
7	Theory Teaching Plan	12IT / ACAD / CP / 03		
8	Laboratory Teaching Plan	12IT / ACAD / CP / 04		
9	List of Laboratory Assignments	1211 / ACAD / CP / 04A		
20	Rubrics for Continuous evaluation	12IT / ACAD / CP / 06		
21	Previous University Question Papers			
2	Theory Question Bank	I2IT / ACAD / CP / 21		
3	Objective Question Bank			
.4	List of Theory Assignments	121Г / ACAD / CP / 18		
5	Class Test Question Papers with solutions	12IT / ACAD / CP / 07		
6	Class Test Attendance	J2IT / ACAD / CP / 08		
7	Course Outcomewise Class Test Marksheet	12IT / ACAD / CP / 08A		
8	Class Test Evaluation Record	12IT / ACAD / CP / 12		
9	Slow Learner and Advanced Learner Identification	12IT / ACAD / CP / 09		
0	Schedule of Slow Learner Activities	12IT / ACAD / CP / 10		
1	Assignments to Advanced Learners	12IT / ACAD / CP / 11		
2	List of Slow Learners	I2IT / ACAD / CP / 13		
3	List of Advanced Learners	I2IT / ACAD / CP / 14		
4	Slow Learner Attendance Record	I2IT / ACAD / CP / 15		
5	Performance Improvement of Slow Learner	J2IT / ACAD / CP / 16		
6	Innovative Practices in Teaching-Learning and ICT	121T / ACAD / CP / 19		

## **COURSE FILE INDEX**

Sr. No.	Format	DISCRIPTION
37	Content Beyond Syllabus (CBS)	1217 / ACAD / CP / 17
38	CBS Attendance Record	12IT / ACAD / CP / 17A
39	Previous University Result	I2(T / ACAD / CP / 21
40	TW Calculation Sheet	12IT / ACAD / CP / 20
41	Course End Survey (Theory & Laboratory)	121T / ACAƊ / CP / 22
42	Theory Attendance Record	I2IT / ACAD / BB / 01
43	Practical Attendance Record	I2IT / ACAD / BB / 02
44	Continuous Assessment Record	I2IT / ACAD / BB / 03
45	Assignment Assessment Record	[2]T / ACAD / BB / 04
46	Average University Result	I2IT / ACAD / AT / 01
47	CO Attainment through University Result	I2IT / ACAD / AT / 02
48	CO Attainment through Class Test & Theory Assignment	J2IT / ACAD / AT / 03
49	CO Attainment through Course End Survey	12IT / ACAD / AT / 04
50	CO Attainment through Continuous Evaluation	121'T / ACAD / AT / 05
51	PO & PSO Attainment through CO for Theory	12FT / ACAD / AT / 06
52	PO & PSO Attainment through CO for Practical	I2IT / ACAD / AT / 06





# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester I

# THEORY TEACHING RECORD

Course	o Cod	le: 204181	Class: SE 20	19	Name of Facult	y: Prof.Suvar	na Hande			la serence			
					Teaching Scher	ne:	Th: 3 Hrs / week						
ours	e Nar	ne: Electronic Circuits	1	and the second		Deter	Remarks of Faculty	N	lonitored	l by			
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	(incase of variance)	AC	HOD	APMC			
-			UNIT	1 : MOSFF	CT & its Analysis			1.5					
1	1.1	Enhancement MOSFET: Construction, Characteristics,			17-08-2022	22/8/22			$\Lambda$				
2	1.2	DC Load line, Numericals			18-08-2022	2318/22		1					
3	1.3	AC equivalent ckt, Parameters, Parasitics.			19-08-2022	2418122	•	l(		L.			
4	1.4	Non ideal characteristics: Finite output resistance, Body effect,	CEO202.1	CO202.1	24-08-2022	2418122		are		A			
5	1.5	Sub-threshold conduction, breakdown effects, Temperature effect, effect of W/L ratio	CEO202.2		25-08-2022	2918122			17	lypor			
6	1.7	Common source amplifier & analysis,			26-08-2022	1419/22				2011			
7	1.8	Source follower: circuit diagram, comparison with common source,						01-09-2022	1619122				
8	1.9	Frequency response for amplifier			02-09-2022	19)9/22		1	1	1			

9	2.	MOSFET as switch, CMOS inverter, MOSFET	<u> </u>	NIT 2 : MO	SFET Circuits		12.T/ACAL	D/CP.
10	2.2	i contra de diode.		1. A.	08-09-2022	2119122	1 h	1
11	2.3	rour types of			14-09-2022	2/19/22		1)
12	2.4	feedback amplifiers, Effects of feedback Voltage series & current series feedback CF	EO202.1 EO202.2	CO202.2	15-09-2022	2219122		+
13	2.5	Oscillators: Barkhausen criterion	E0202.2		16-09-2022	2319122	au	+
14	2.6	Wein bridge & phase shift oscillator.			20-09-2022	2819122		1
	1				21-09-2022	30)9122		1
15	3.1	Three terminal voltage regulators (317 & 337):	UN	IT 3 : Voltag	e Regulators			$\uparrow$
16		IC 317 and		-	22-09-2022	6110122	hl	Tt
17		IC337, Features and specifications, typical circuits,		ciconst -	23-09-2022	11110/22		4
17		Current boosting, Low Dropout Regulator (LDO)	1	CO202.3			1 and At	4
18	3.4	SMPS: Block diagram, Types,	1	1	27-09-2022	11110/22	au a	+
19	3.5	SMPS : features and specifications		I	28-09-2022	12/10/22		
20	3.6	Typical circuits buck and boost converter.	-	+	20.00 2000 1	18/10/22		
				1	20.00 ]	18/10/22		

THEORY DEACHING RECORD

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		The second	UNI	Γ4: Operatio	onal Amplifier			~
21	4.1	Block diagram of Op-amp			06-10-2022	1911022	h h	
22	4.2	Differential amplifier analysis for Dual input Balanced output mode - AC analysis (using r parameters)	2.		07-10-2022	20110122		
23	4.3	Differential amplifier analysis for Dual input Balanced output mode - DC analysis		- 00000 4	10-10-2022	20110/22	Taul	
24	4.4	Level shifter	CEO202.3	CO202.4	12-10-2022	2111/22		
25	4.5	Op amp parameters			13-10-2022	3111122		
26	4.6	Current mirror, Op-amp characteristics (AC & DC).	and walks		14-10-2022	4111/22		$\int$
27	4.7	Voltage series & voltage shunt feedback amplifier			19-10-2022	7110122	P 17	
28	4.8	Effect on Ri, Ro, gain & bandwidth.	1.		20-10-2022			
		· · · · · · · · · · · · · · · · · · ·	UNI	T 5: Op-Am	p Applications			01-00
29	5.1	Inverting amplifier, non-inverting amplifier,			21-10-2022	9111122		V VIII
30	5.2	Voltage follower, Summing amplifier,			02-11-2022	10111122		27/12
31	5.3	Differential amplifier, Practical integrator,			03-11-2022	10/11/22		
32	5.4	Practical differentiator, Instrumentation amplifier	CEO202.3 CEO202.4	CO202.5	04-11-2022	1111122	au	
33	5.5	Comparator, Schmitt trigger,			09-11-2022	1511122		
34	5.6	Square wave generator.			10-11-2022	16111122		
35	5.7	Triangular wave generator.			11-11-2022	17111122		
36	5.8	Numericals			16-11-2022	18111222	1 1	

			UNIT 6 : Conve	rters & PLL		
37	6.1	Voltage to Current, Current to Voltage converters.		17-11-2022	21111122	0 1 0
38	6.2	DAC & ADC: Resistor weighted and R-2R DAC		18-11-2022	22/11/22	
39	-6.3	SAR, Flash and dual slope ADC Types / CEO2	C()2026	18-11-2022	22/11/22	au
40	6.4	Characteristics, block diagrams, Circuits, CEO2 Specifications, Merits, Demerits, Comparisons.	202.6	23-11-2022	23111/22	At Allin
41		PLL: Block Diagram, Characteristics,	1	24-11-2022	24111/22	11/25/1
42	6.6	phase detectors, Details of PLL IC 565 Applications, Typical circuits.		25-11-2022	2411122	

Signature	Date
Course Faculty : And	H& CAME
HOD: Rhatlala	Po /

Signature	Date
Course Faculty : Tar	OSTITUS
10D: phateala	18412



### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION Academic Year 2022-23 Semester II

Cours	e Code	e: 204194	Class: SE 2	019	Faculty Name:	Prof. Shweta	Jain	1		
Cours	Nam	e: Object Oriented Programming	(Energy)	- Commence	Teaching Scher	me:	Th: 3 Hrs / week	-	1	
-		South State Constraining the second sec			60415018	122	Remarks of	Monitored by		
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
		UNI	T 1 : : Found	ation of Obje	ct Oriented Progr	amming				
1	1.1	Introduction to procedural, modular, object- oriented and generic programming techniques. Limitations of procedural programming, Need of	ECEN2 5	reauto	02-02-2023	13/2/23		1		And State
		object-oriented programming			5-12-1214	14/2/23				
2	1.2	Fundamentals of object-oriented programming: objects, classes, data members, methods, messages, data encapsulation			03-02-2023	15/2/23 20/2/23			A	It
3	1.3	Fundamentals of object-oriented programming: data abstraction and information hiding, inheritance, polymorphism.	CEO215.1	CEO215.1	08-02-2023	22/2/23	d	¥.		etti
4	1.4	Inline functions, Function overloading			09-02-2023	2712123				120
5	1.5	Call by value and call by reference, return by reference			10-02-2023	213123		12		
6	1.6	functions with default arguments, this pointer				813123				

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

Lr.							Remarks of	N	Ionitore	l by
No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
7	1.7	Dynamic initialization of variables, memory management operators				813123		1	7.	
8	1.8	Member dereferencing operators, operator precedence, typecast operators, Scope resolution operators, arrays.			15-02-2023	1513123		AS		27
	1	build a first the state of the	UN	IT 2 : Classes	& Objects	125/201-2		J	$\square$	12.15
9	2.1	Defining class, Defining member functions, static data members			16-02-2023	21/3/23				>
10	2.2	Static member functions, private data members, public member functions			17-02-2023	211363			In	6
11	2.3	Arrays of objects, objects as function arguments			22-02-2023	2313/23		1	Ar	X
12	2.4	Constructors: types of constructors, Constructors & Destructors: Constructors, Parameterized constructors,	CEO215.2	CO215.2	23-02-2023	23/3/23		125	.>	28/072
13	2.5	Multiple constructors in a class, Constructors with default arguments.	1	-des a rei	24-02-2023	23 13 123	(magazet)			
14	2.6	Handling of multiple constructors and destructors. (Complex Class & String Class)rectifiers	99	50	01-03-2023	11/3/23	, Banaria el Esculty			
			UNIT	3 : Operator	Overloading		18.1 States			
15	3.1	Fundamentals of Operator Overloading		1011 1011 I.V.	02-03-2023	21/3/23		25		1 6

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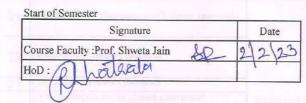
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Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
16	3.2	Restrictions on Operators Overloading		1.007	03-03-2023	11/3/23				
17	3.3	Operator Functions as Class Members vs. as Friend Functions,	CEO215.2	CO215.3	08-03-2023	12/3/23		(		
18	3.4	Overloading Unary Operators,		_	09-03-2023	12/3/23		1		
19	3.5	Overloading Binary Operators	15/22		10-03-2023	1713		25		
20	3.6	Overloading of operators using friend functions	D48		15-03-2023	1715	tonic Dire			
- 1		Carles and an and a second	UNIT 4 :	Inheritance	& Polymorphism	3412 122				>
21	4.1	Introduction to inheritance, base and derived classes, friend classes, types of inheritance, hybrid inheritance			16-03-2023	18/3		)		
22	4.2	member access control, static class, multiple inheritance ambiguity			17-03-2023	1813		1	$\geq$	IF
23	4.3	Virtual base class, Introduction to polymorphism,	CPS:075	1cmm	23-03-2023	1913	-		1.	1
24	4.4	Pointers to objects, virtual functions, pure virtual functions,	CEO215.2	CO215.4	24-03-2023	2013		Y.c	R	His
25	4.5	Abstract base class, Polymorphic class, virtual destructors, early and late binding			29-03-2023	1913		19		28/1012
26	4.6	container classes, Contained classes, Singleton class	i vi	a property	29-03-2023	203				11
27	1	Class Test II			Mark Some	1.21.2				
_			5: Templat	es, Namespac	es and Exception	handling		1		
28	5.1	Introduction, Function template and class template, function overloading vs. function templates	· 6454		30-03-2023	25/3				
29	5.2	Namespaces:Introduction, Rules of namespaces,Exception handling: Introduction, basics of exception handling			31-03-2023	26/3	(algents)	63		)
30	5.3	Exception handling mechanism, throwing and catching mechanism,	CEO215.2	CO215.5	05-04-2023	2713,2813	Farally			uk.

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

	1	The selected associated	1005143	1.503172		J=W-71	<b>Remarks</b> of	N	Ionitored	d by
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	APMC
31	5.4	Specifying exceptions, Multiple Exceptions			05-04-2023	2913/23		2		)
32	5.5	Exceptions with arguments C++ streams, stream classes			06-04-2023	414		Ç		(
33	5.6	Unformatted I/O, formatted I/O and I/O manipulators.		in a sector	12-04-2023	614 814			3	1.
1	1 13	STREET, STREET, STREET, STREET, STREET,	' UNI	T 6 : Workin	ig with files	190/2				10
34	6.1	Introduction, classes for file Stream Operations			13-04-2023	11/4/4				0
35	6.2	Opening and closing files, detecting End_Of_File (EOF)			19-04-2023	131214		29		-Hu
36	6.3	On-line and Off- line UPS, study of various selection criteria and performance parameters of batteries in battery operated power systems	CEO215.2	CO215.6	20-04-2023	22/4	1	T	TA	281
37	6.4	Modes f File Opening			21-04-2023	23/4 25/4			1	
38	6.5	File pointers and manipulators			26-04-2023	2614		1	F	10
39	6.6	Updating file, error handling during file operations			27-04-2023	2714			5	/
40		Class Test III	in the second	Converting and	2415/23	24/5/12		1	-	



L L	End of Semester Sign	ature Do	Date	
I	Course Faculty :Pr	of. Shweta Jain	2815123	-
	0		1	
	11/3/23			
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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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#### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION Academic Year 2022-23 Semester I

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#### THEORY TEACHING RECORD

Cours	se Co	de: 304183	Class: TE 20	019	Name of Facul	lty: Anjali Jag	gtap			
Cour	se Nai	me: Database Management			Teaching Sche		Th: 3 Hrs / week			
Lr.			1.2				Remarks of	M	Ionitore	d by
No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	нор	APM
	0.91		UNIT 1:	Introductio	n to DBMS					
1	1.1	Introduction to Database Management System, Purpose of Database Systems, Database System Applications	11000		18.07.2022	1817122		)	7	2
2	1.2	Data Abstraction and Database System Structure.		1010200	19.07.2022	19/2122	- 1	1		1
3	1.3	Structure of relational database, Domains, Relations	0000001	101020	20.07.2022	2017/22	-	(	~	
4	1.4	Relational Algebra - Oprators and syantax	CEO303.1 CEO303.2	CO303.1	21.07.2022	21/3/22	-	1	A	
5	1.5	Relational algebra queries, tuple relational calculus	CE0303.2	and Standard	22.07.2022	2217122		-	10p	
6	1.6	Entity Relational Model, Entity set, relationship sets and weak entity set, Mapping cardinalities, Keys		1014/202	25.07.2022	2573122		clu	>	
7	1.7	E-R diagram, E-R features, convertin E-R & EER diagram into tables		10101243	26.07.2022	2317122	adjustment	1		per
			UNIT 2 : R	elational Dat	abase Design	46.			1	1
8	2.1	Basic concepts, CODD's Rules			28.07.2022	1/8/22	-	1		
9	2.2	Relational Integrity: Domain, Referential Integrities, Enterprise Constraints	(cara)		01.08.2022	1/8/22	adjustment	)		
10	2.3	Database Design: Features of Good Relational Designs, Normalization	CE0303.1 CE0303.2	CO303.2	02.08.2022	218/22		(		
11	2.4	Atomic Domains and First Normal Form	CE0303.2		04.08.2022	2/8/22	adjustment	Que		
12	2.5	Decomposition using Functional Dependencies			08.08.2022	518122	adjustment.			
13	2.6	Algorithms for Decomposition, 2NF, 3NF, 4NF and BCNF.			11.08.2022	818122	addoncourse			
-		Class Test I	13.11-14	1 4 2 3	23.08.2022	23/8/22	-		1	

_	-		UN	IT 3 : Basics of	of SOL	Sauce Section of the	Press and a second second			
14	3.1	Creation, Alteration, Defining constraints - Primary key, Foreign key, Unique key			16.08.2022	16/8/22		1 1	h	0
15	3.2	Not null, Check, IN operator, Functions - Aggregate Functions	t CEO303.3	CO303.3	18.08.2022		adjustment-			1
16	3.3	Built-in FunctionsNumeric, Date, String Functions, Set operations			22.08.2022	22/3/22	Jiegne	/		
17	3.4	sub-queries, correlated subqueries, Use of group by, having, order by			23.08.2022	23/8/22	Aller	Tak		
18	3.5	join and its types, Exist, Any, All, view and its types.			25.08.2022	2518/22	-	-		
19	3.6	Commit, Rollback, Save-point PL/SQL Concepts: Cursors			29.08.2022	3018122	adjutment			Den
20	3.7	Stored Procedures, Stored Function, Database Triggers.			30.08.2022	30/8/22		24	7	( ser
		U	NIT 4 : Datah	ase Transacti	ons Mangemen		11.300	1		
21	4.1	Basic concepts of a Transaction, Transaction Management, Properties of Transactions		(and a later	01.09.2022	1249/22	adjustment	1	Ø	-
22	4.2	Concept of Schedule, serial Schedule	100		05.09.2022		1		AN	1
23	4.3	Serializability: Conflict and View		CO303.4		13/19/22	Add on came	/		
24	4.4	Cascaded Aborts, Recoverable and Non-recoverable Schedules	CEO303.4		06.09.2022 08.09.2022	13/09/22		du	1	1
25	4.5	Concurrency Control: Need, Locking Methods			10.00.0000			-		
26	4.6	Deadlock handling			12.09.2022	19/9/22				
27	4.7	Time-stamp based Protocols		-	13.09.2022	2019/22	-			
		Class Test II			15.09.2022	2219 22	-			1
		A contract of the second se			19.09.2022	28 9 22				/

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			UNIT	5: Parallel D	atabase					
28	5.1	Introduction to Database Architectures: Multi-user DBMS Architectures	CE0302 6	D303.5 CO303.5	19.09.2022	20/3/22	_	$\sum$	5	Ν
29	5.2	Case study- Oracle Architecture			20.09.2022	17/10/22	-	/	1	11
30	5.3	Performance Parameters for Parallel Databases Types of			22.09.2022	18/10/22	-	1	1	11
31	5.4				26.09.2022	18/10/22	-	Talk		1
32	5.5	Evaluating Parallel Query in Parallel Databases			27.09.2022	19/10/22	adjustment	ford		11-
33	5.6	Virtualization on Multicore processors			29.09.2022	19/10/22	adjustarol-			1/
			UNIT 6 :	Distributed	Databases			2		1
34	6.1	Distributed Database Management System, Factors Encouraging DDBMS			03.10.2022	20/10/22	10 sem	7	R	ber
35	6.2	Advantages of Distributed Databases, Types of Distributed Databases				04.10.2022	20/10/22	examination	/	-4
36	6.3	Architecture of Distributed Databases,			06.10.2022	22/10/22	TE,BE			1
37	6.4	Distributed Database Design,	CE0303.6	CO303.6	10.10.2022	31/10/22				11
38	6.5	Distributed Data Storage, and Distributed Transaction			11.10.2022	8/11/22		704		
39	6.6	Failure modes, Commit Protocols,			13.10.2022	2/11/22	~			11
40	6.7	Concurrency Control in Distributed Database			17.10.2022	3/11/22	-			1
		Class Test III			17.10.2022	211122	-	1		1

Start of Semester

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Course Faculty :	Hesti	1817/22
HoD: P	thata	18/2/22
1 yrs		

Signature	Date
Course Faculty : 782	8 3/1/22
HOD: 6 athala	3/11/22

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### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION Academic Year 2022-23 Semester II

#### THEORY TEACHING RECORD

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Course Code: 304192 Course Name: Cellular Networks			Class: TE 2019 Faculty Nan			e: Prof. Anjali Jagtap					
					Teaching Scheme:		Th: 3 Hrs / week		ALC: NO		
Lr.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitored		l by	
No.								AC	HOD	АРМС	
	auge -	The second s	UNIT 1 : Int	roduction of	Wireless Channel		1723				
1	1.1	Introduction, Free Space Propagation Model	- CEO311.1	CO311.1	01.02.2023	2223	- 1	1		1	
2	1.2	Ground-Reflection Scenario			02.02.2023	212123	adjustment	1		1	
3	1.3	Hata Model			03.02.2023	712123	-	F		1	
4	1.4	Receiver-Noise Computation			07.02.2023	9/2/23	-	40		-	
5	1.5	Channel Estimation techniques			09.02.2023	10/2/23	_		07		
6	1.6	Diversity in wireless communications			10.02.2023	1412123	-		A	1	
		UN	IT 2 : Orthogor	al Frequenc	y Division Multiple	exing			123		
7	2.1	Introduction, Motivation and Multicarrier basics			14.02.2023	15/2/23	adjustment		10	L	
8	2.2	OFDM example			16.02.2023	1512/23	extra lecture			Der	
9	2.3	bit error rate for OFDM	CEO311.2		17.02.2023	16/2/23	_	6		1 des	
10	2.4	Introduction to MIMO Wireless Communications		CO311.2	21.02.2023	16/2/23	extralecture	P1	212	195	
11	2.5	MIMO System Model			23.02.2023	21/2/23					
12	2.6	MIMO-OFDM			24.02.2023	21/2/23	adjustment				
		Class Test I	1	C PLANE	06.03.2023	06323			1		

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			1.1				Remarks of	M	onitored	l by
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
-		UN	IT 3 : Introdu	iction to Mol	bile Communicati	ion			1.10	
13	3.1	Introduction to Cellular Service Progression	1		28.02.2023	28/2/23		)	7	
	3.1	Cell Geometry			02.03.2023	24/2/23		1	1	
14 15	3.3	Overview of Cellular mobile and Network architecture			03.03.2023	24/2123	adjustment	F		Den
16	3.4	Cellular radio system design Frequency assignments	CEO311.3	CO311.3	09.03.2023	113/23	ालनाइट्र	P	A	1613
17	3.5	frequency reuse channels			10.03.2023	213/23				
1/	3.6	Concept of cell splitting			14.03.2023	3323	INTERNA L	_	1	
	3.7	Cell sectoring	141 m 1 m 12		16.03.2023	9323	- 34	123177		
19 20	3.8	Significance of Handover in cellular systems with Handoff algorithms and roaming.	1/48	A ST CHARMAN	17.03.2023	10/3/23			11	2
-	-	Handon argonamis and round g	UNIT 4:	Wireless Sys	stem Planning	The second second	141712		19	0
-	1				21.03.2023	14323		1-	15	1
21	4.1	and the standards		- Transition of	21.03.2023	161323	712 145		113	
22	4.2	Link-Budget Analysis,			23.03.2023	1613 23	512-12 10	P	1-1-14	-
23	4.3	Tele-traffic Theory	CEO311.4	CO311.4	24.03.2023	17323		4		4
24	4.4			Circle 1 1 P	28.03.2023	2113 23	-	4	F	Des
25	4.5	Tele-traffic System Model Steady State Analysis			28.03.2023	23 3 23	-	T	-	100
26	4.6	or 77 . 17			27.03.2023	0 123	-			-
		UNIT 5 : Wireless and	Mobile Techn	ologies and F	rotocols and thei	r performance o	valuation	-	-	-
07	1.51	Wireless and mobile technologies,			30.03.2023	23 3 23	entry session	2	-	-
27	5.1				31.03.2023	291323	-	2	-	-
28	5.2	LTE- advanced		0001115	06.04.2023	31323	-	1	-	-
29	5.3	5G - Architecture	CEO311.5	CO311.5	11.04.2023	11/4/23	extra session	MAS.		
30	5.4				11.04.2023	11/4/22		T	-	1
31	5.5		1	-	13.04.2023	214/23	erch scision		-	

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Lr.	1	Topics to be Delivered	CEO		Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitored by		
No.				со				AC	HOD	APMC
			UNIT 6:1	Performance A	Analysis Issues				1	
33	6.1	Introduction to Network coding			18.04.2023	13 4 23		1		6
34	6.2	basic hamming code	1	·	18.04.2023	and the second se	extra session	1-		
35	6.3	significance of Information Theory	1	1.1	20.04.2023	20/4/23	Congsassin	1	-	-
36	6.4	The Contract of the Contract o	1		21.04.2023	21/4/22		1		
37	6.5	-Interference suppression and Power control	CEO311.6	CO311.6	25.04.2023	214/22		-	1	
38	6.6		-	00011.0	25.04.2023			AS		Den
39	6.7	MAC layer scheduling and connection admission				25/4/22	webry seen a	P-		-
40	6.8	in mobile communication		1	27.04.2023	27/4/23				
av	0.0	Class Test III			28.04.2023	28/4/23				)
-		Class Test III			24.04.2023	Idd22				

#### Start of Semester

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	Signature	Date
/	Course Faculty: 1 Jastur	12123
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#### End of Semester

Signature	Date
Course Faculty : MHW	12/5/23
HOD: Phatealer	12/5/22

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# Hope Foundation's International Institute of Information Technology, Pune

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester I

	_		THE	CORY TEA	ACHING REC	ORD				
Cour	se Co	de: 404182	Class: BE 2	019	Name of Facul	ty: Prof. Ashv	ini Kulkarni			
Cour	se Na	me: VLSI Design & Technology			Teaching Sche	me:	Th: 3 Hrs / week			
Lr.		Topics to be Delivered	CEO		DIED	Date of	Remarks of	N	Aonitore	d by
No.		Topics to be benvered	CEU	CO	Date of Plan	Conduction	Faculty (incase of variance)	AC	HOD	APMC
				UNIT 1 : H	DL Design	1			1	
1	1.1	Design Flow, Language constructs			19-07-2022	10/7/22		0	h ·	N
2	1.2	Data objects, Data types			20-07-2022	2017/22		1		
3	1.3	Entity, Architecture & types of modeling			21-07-2022	21/11/22				5
4	1.4	Sequential statements, Concurrent statements	CEO401.1	CO401.1	25-07-2022	2217122		due		Ir
5	1.5	Packages, Sub programs, Attributes, HDL modeling of Combinational, Sequential circuits and FSM			25-07-2022	20/17/22		Cut	A	Typin
6	1.6	Simulations, Synthesis, Efficient coding styles, Hierarchical and flat designs			,26-07-2022	2617122				28/10/3
7	1.7	Partitioning for synthesis, Pipelining, Resource sharing			01-08-2022	2717122				
			UNIT	2 : Digital d	lesign and Issues				4	
8	2.1	Sequential synchronous machine design, Moore and Mealy machines			02-08-2022	218122				
9	2.2	HDL code for Machines, FIFO. Metastability and solutions			02-08-2022	218/22				
10	2.3	Noise margin. Fan-out, Skew, Timing considerations, Hazards			08-08-2022	918122				



## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester I

THEORY TEACHING RECORD

Cours	se Coo	de: 404182	Class: BE 20	)19	Name of Facult	y: Prof. Ashv	ini Kulkarni			
Cours	se Nai	me: VLSI Design & Technology			Teaching Scher	ne:	Th: 3 Hrs / week			
		5 5					Remarks of	M	Ionitorea	l by
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	APMC
11	2.4	Clock distribution, Clock jitter, Supply and ground bounce	CEO401.1	CO401.2	09-08-2022,	918/22		$\mathbf{)}$		
12	2.5	Power distribution techniques, Power optimization			18/08,2022	10/8/22		au	Top	
13	2.6	Interconnect routing techniques; Wire parasitic, Signal integrity issues. I/O architecture.			23.08.2022	1618/22			124	$\geq$
		Class Test I						)	2	10
			UNIT 3 : P	LD Architec	tures and applicat	ions				
14	3.1	Design Flow.			23.08.2022	1818122		2	2	11.
15	3.2	CPLD Architecture, Features, Specifications, Applications		8	25.08.2022	1818/22				20101
16	3.3	FPGA Architecture, Features, Specifications, Applications	CEO401.2	CO401.3	30-08-2022	22/8/22				
17	3.4	The Simulation and Synthesis Tools	CE0401.2	CO401.5	30-08-2022	2318/22		Car	200	
18	3.5	FPGA synthesis and implementation			01-09-2022	2518/22		(	14	-
19	3.6	FPGA synthesis and implementation			08-09-2022	2918/22	SL leave.			
			UNI	T 4 : Digital	CMOS circuits					
20	4.1	N-MOS, P-MOS and CMOS, MOSFET parasitic			06-09-2022	119122				



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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester I

THEORY TEACHING RECORD

Cours	se Coo	de: 404182	Class: BE 20	)19	Name of Facult	y: Prof. Ashv	ini Kulkarni			
Cours	se Nai	me: VLSI Design & Technology			Teaching Scher	me:	Th: 3 Hrs / week			
							Remarks of	T N	Ionitore	d by
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
21	4.2	Technology scaling, Channel length modulation			06-09-2022	619122		$\mathcal{D}$		7
22	4.3	Hot electron effect, Velocity saturation			13-09-2022	1219122		1		
23	4.4	CMOS Inverter, Device sizing, CMOS combinational logic design	CEO401.2	CO401.4	13-09-2022	1319/22		(		
24	4.5	Power dissipations, Power delay product			15-09-2022	1519/22		au	1 pr	
25	4.6	Body Effect, Rise and fall times, Latch Up effect			20-09-2022	1919/22		1 che	A	
26	4.7	Transmission gates			20-09-2022	2019/22			1	1
		Class Test II						1		1 210-2
			UNIT 5 : Ap	plication Spe	cific Integrated C	ircuit		-	9	28/1012
27	5.1	Design Flow			22-09-2022	2219122		2	1	28101
28	5.2	Cell design specifications, Spice simulation, AC and DC analysis, Transfer Characteristics, Transient responses, Noise analysis			27-09-2022	2619/22		$\langle$	1	
29	5.3	Lambda rules, Design rule check, Fabrication methods of circuit elements	Decision		27-09-2022	2619122		au	À	
30	5.4	Layout of cell, Library cell designing for NAND & NOR, Circuit Extraction, Electrical rule check	CEO401.4	CO401.5	29-09-2022	1619122				

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# Hope Foundation's International Institute of Information Technology, Pune

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester I

THEORY TEACHING RECORD

Cours	e Coo	de: 404182	Class: BE 20	)19	Name of Facult	ty: Prof. Ashv	ini Kulkarni		11	
Cours	e Nai	me: VLSI Design & Technology			Teaching Scher	me:	Th: 3 Hrs / week			
							Remarks of	N	Ionitore	d by
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	APMO
31	5.5	Layout Vs. Schematic, Post-layout Simulation and Parasitic extraction			04-10-2022	2919122		$\mathcal{D}$		)
32	5.6	Design Issues like Antenna effect, Electro migration effect			04-10-2022	2919/22				
33	5.7	Cross talk and Drain punch through, Timing analysis			06-10-2022	12/10/22		au	4	5
			UNIT	6 : VLSI Tes	ting and Analysis			7	9	
34	6.1	Types of fault			11-10-2022	12/10/22		D		D. D. D.
35	6.2	Need of Design for Testability (DFT), DFT Guideline			11-10-2022	13/10/22				- the
36	6.3	Testability, Fault models	7		13-10-2022	17/10/22		1		28/15
37	6.4	Path sensitizing Test pattern generation,Sequential circuit test	CEO401.4	CO401.6	18-10-2022	1710/22		lau	4	
38	6.5	Built-in Self Test, JTAG & Boundary scan			18-10-2022	23:110122	_	1-012	17	
39	6.6	TAP Controller	C. Centre	per la constante de	20-10-2022	18/10/22				
		Class Test III	]							

Course Faculty :	all	1817122
HOD: Phrate	aber	
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Course Faculty :	ave	5/11/22
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# Hope Foundation's International Institute of Information Technology, Pune

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Academic Year 2022-23 Semester II

# THEORY TEACHING RECORD

Cours	se Coo	le: 404190	Class: BE	2019	Faculty Name	: Prof. Bhagy	ashri Thorat			
Cours	se Nar	ne: Fiber Optics Communication			Teaching Sche		Th: 3 Hrs / week	Ţ		- Har
Lr.	1	the state of the second s				Data of	Remarks of	Monitored by		d by
No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	APMC
1	9.54	UNI	Γ1: Optical	Fibers for Te	lecommunication	n (8 Hrs.)				
		Fundamentals of Optical Communication: EM spectrum - Optical Spectral			50510659	S PRIVE		) .		)' l'
1	1.1	bands, advantages of optical fibers Shannon channel capacity, power units (watts, dB &dBm) Block diagram of optical fiber communications link Related Problems/Numericals	Capetors	CONICS"	2/2/2023	212-12-12-12-13				
2	1.2	Optical Fiber Waveguides: Introduction, Total internal reflection, acceptance angle,	CEO410.1	CO410.1,	3/2/2023	3122023		3		17
3	1.3	Transmission characteristics of optical fibers: attenuation - material absorption, scattering		CO410.2, CO410.3	8/2/2023	6/2/2023	Time Table	F	A	28 TIOI
4	1.4	signal distortion - intermodal delay, intramodal dispersion or chromatic dispersion, modal delay,			9/2/2023	812	VPbr			
5	1.5	bit rate-distance product, plot of material & waveguide			10/2/2023	g12.	_	)		

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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14	3.2	types: p-n, pin, Avalanche photodiode, photo		S Year 21	3/3/2023	3-3		19		
13	3.1	Introduction, requirements from optical detectors, material considerations,		RALLYC	2/3/2023	2:3	and Thorne	)		
		e Film Optic Segurade for	U	NIT 3 : Photo	detectors		U. S. Bra Mad			
		Class Test I						)		
15	2.7	Bias point and amplitude modulation range for analog applications of LEDs & laser diodes, comparison of LEDs & Lasers		60	1/3/2023	1-3.	Faculty (Inexu) of	YC	AV	Sam
14	2.6	concept of population inversion and optical feedback, output power characteristics of LASER;	i obeins	NAK (PL 201	contraito (regal	24-2		12	In	- 28/10
13	2.5	Semiconductor Laser Diodes: absorption, spoi			24/2/2023	124-2.		1 4		How
12	2.4	analog modulation, digital modulation, LED	CE0410.2	CO410.2, CO410.3	23/2/2023	22-2		10		0.0.0
11	2.3	spectral width, effect of temperature on charac		CO410.1,	22/2/2023	212				11
10	2.2	LED: principle of working, quantum efficiency, optical output power characteristics,			17/2/2023	20-2				IF
9	2.1	Optical Sources: Introduction, wavelength and material consideration (direct & indirect bandgap semiconductors); requirements from optical sources for telecommunication.	cilorie	CON POS CON POS CON POS	16/2/2023	14-2	an Age	)		
	-		UN	VIT 2 : Optica	l Sources	19	A CONTRACTOR	3		1
8	1.8	Numerical Solving on unit 1			01213433	1		1		
7	1.7	dispersions for standard single mode, dispersion shifted and dispersion flattened fibers;			19/2/2022	14-2		as		
6	1.6	optical fibers for 5G networks, comparison.			15/2/2023	10-2		12	T T	X

The record shall be monitored by Academic Co-Ordinator (weekly, y HoD (Biweekly) and reviewed by APMC Co-Or ator (Biweekly)

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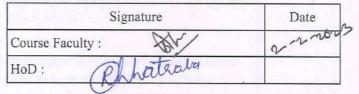
16	3.4	long cutoff wavelength, detector response time, comparison of photodetectors,	CEO410.3		9/3/2023	18-3	- Jugunan		1		
17	3.5	thermal noise, dark current noise, quantum no		CO410.1, CO410.2, CO410.3	10/3/2023	20-3.	2	25	# F.		
18	3.6	Numericals on Photodetectors			15/3/2023	21-3		P	Hor		
		UN	IT 4 : Fiber (	Optic Link D	esign & WDM	Systems			)		
19	4.1	Point to point optical link: Choice of components, system design considerations,			16/3/2023	2553	(Same				
20	4.2	optical power budget, rise time budget, bit rate for RZ and	0.0		17/3/2023	2025-3	(Sector)				
21	4.3	Optical Power Numericals solving	CEO410.4	CEO410.4	CO410.1	23/3/2023	17-3				
22	4.4	WDM Concepts & Components: Overview of WDM, WDM components: 2 x 2 fiber coupler,			CEO410.4	CO410.1, CO410.4, CO410.5	24/3/2023	28-3			
23	4.5	basics of fiber grating filters, optical add/drop multiplexer, architecture of optical amplifiers (SOA, EDFA & FRA),			сонит	29/3/2023	31-3		12		
24	4.6	Noise figure, OSNR & system impact of ASE		CONTRACT	29/3/2023	31-3.					
		Class Test II	SCHOOL STR						PRANT		
1 m	2.00	when the local called the property objects to see	UNI	T 5 : Optical	Networks	1284			Thans		
25	5.1	Optical Network concepts: fundamentals, network terminology, desirable properties,	(1,242). 9	Distantes	30/3/2023	3-4		)	A 2811		
26	5.2	elements of an optical network, optical network topology types, advantages of optical network.	CEO410.5		31/3/2023	4-4		ps			
27	5.3	Overview of Optical Networks: FDDI,		CO410.6	5/4/2023	414	~	1-1			

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28	5.4	PON, GPON,			5/4/2023	10-9		1	1 ~	
29	5.5	Long haul, Metro, Access, Submarine optical networks, role of fiber optic network in the 5G networks.		CONTRACTO	6/4/2023	11-4				
30	5.6	Current technology trends, standards and chal			12/4/2023	17-4				
			UNIT 6:	<b>Optical Fibe</b>	r Measurement	s		1		
31	6.1	Test Equipments for field work: Test support lasers, visual fault indicator, optical power meter,	2020	a observe	13/4/2023	18-4				
32	6.2	Optical Time Domain Reflectometry (OTDR), optical spectrum analyzer (OSA),	CEO410.6	CO410.1,	19/4/2023	21-4		1	A	(f
33	6.3	BER test equipment		CO410.1, CO410.6	20/4/2023	24-4	1.1.1	25	/ /	Stur.
34	6.4	fiber attenuation (cutback			21/4/2023	ntr4		F		201012
35	6.5	macrobending loss, fiber dispersion			26/4/2023	281-4				14111
36	6.6	System performance evaluation: Eye Diagram Test, study of OTDR		COMOR	27/4/2023	28-4.				
		Class Test III			a state of the second					5

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#### Start of Semester



Signature	Date
Course Faculty :	27-4-102
HoD: phateala	

Conclusion of Teaching: 28/04/2023



# Class: SE 2019Course Name: Logic Design & Computer OrganizationCourse Code: 214442Name of Faculty: Sayali Sabale

#### COURSE EDUCATIONAL OBJECTIVES

Course Objective	Description
CEO202.1	To make undergraduates, aware of different levels of abstraction of computer systems from hardware perspective.
CEO202,2	To make undergraduates, understand the functions, characteristics of various components of Computer& in particular processor & memory.

#### **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO202.1	Perform basic binary arithmetic & simplify logic expressions.
CO202.2	Grasp the operations of logic ICs and Implement combinational logic functions using ICs.
CO202.3	Comprehend the operations of basic memory cell types and Implement sequential logic functions using ICs.
CO202.4	Elucidate the functions & organization of various blocks of CPU.
CO202.5	Understand CPU instruction characteristics, enhancement features of CPU.
CO202.6	Describe an assortment of memory types (with their characteristics) used in computer systems and basic principle of interfacing input, output devices.

# **CLASS TEST- COURSE OUTCOME MAPPING**

Question	CLASS 7	rest - 1	CLASS '	TEST-/I	CLASS TEST - III	
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks
Q1 - Q15	CO202.1	15	CO202.3	15	CO202.5	15
Q16 - Q30	CO202.2	15	CO202.4	15	CO202.6	15

### THEORY ASSIGNMENT- COURSE OUTCOME MAPPING

Question	ASSIGN	MENT-I	ASSIGN	MENT-EI	ASSIGNMENT-III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks	
Q1	CO202.1	10	CO202.3	10	CO202.5	10	
Q2	CO202.2	10	CO202.4	10	CO202.6	10	

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Sayali Sabale Signature of Faculty

Dr. Jvoti Surve Head of Department



Sign of Faculty: JB2 ball

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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

### **CORRELATION BETWEEN CO, PO & PSO**

CO.PO MATDIX

Course Name: Logic Design & Computer Organization Name of Faculty: Sayali Sabale

Course Code: 214442 Class: SE 2019

Course	Program Outcomes (POs)												
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO202.1	2	2	2	15	7	-	15	-	85	5		-	
CO202.2	2	1	1	19		-	975		-	-	-	~	
CO202.3	2	1	1	<u>12</u>	÷	i.	3		-		-		
CO202.4	3	2	1		-	-	14		i j	æ	(77)	-	
CO202.5	2	1	1	-	-	÷	02	÷	2	E	4	-	
CO202.6	2	1	1	14	-	-	12	2	2	14	-		

Course	Program Specific Outcomes (PSOs)								
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4					
CO202.1	]	-	÷						
CO202.2	2	-	( <del>4</del> )	3 <del>5</del>					
CO202.3	2	-	-						
CO202.4	2	1	-						
CO202.5	2	÷	щ. 						
CO202.6	2	-	-						

Sayali Sabale Signature of Faculty

Dr. Jyoti Surve **Head of Department** 



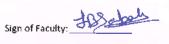
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#### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester 1

Class; SE 2019	Course Name: Logic Design & Computer Organization
Course Code: 214442	Name of Faculty: Sayali Sabale

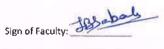
	CO-PO mapping Justification (Theory)					
CO code		Justification				
CO202.1	Perform basic binary arithmetic & simplify logic expressions.	This outcome key parameters Construction and characteristics of Logic families i.e. TTL and CMOS, Logic gate circuits addresses the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. And also correlate moderately with PO2 as it covers Signed Binary number representation and Arithmetic operation(addition, subtraction, multiplication, and division), subtraction using 2's complement, Codes System: Binary, BCD, octal, hexadecimal, Excess-3, Gray code & their conversions and Logic minimization technique. Students are able to define a problem and provide a systematic solution with the help of conducting experiments, analyzing the problem and interpreting the data. It correlates low with PSO1 as it addresses the understanding of engineering fundamentals.				
CO202.2		This outcome key parameters Student gain knowledge of designing SSI chips i.e. Code converters, Half-Adder, Full Adder, Half Subtractor, Full Subtractor, n bit Binary adder. Student understand concept of MSI chips: Multiplexer (IC 74153), Demultiplexer (IC 74138), Decoder (74238), Encoder (IC 74147), Binary adder (IC 7483) And learn to design MSI chips: BCD adder & subtractor using IC 7483, Implementation of logic functions using IC 74153 & 74138 address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with POL As the Performance parameters of MSI chips helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the solutions for complex engineering problems and design system components or processes by using combinational circuits. It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with design skills.				
CO202.3	hasic memory cell types and Implement sequential logic functions using ICs.	This outcome key parameters Students will learn about Single bit memory cell, latch, flip flop Register and counter that addresses the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. As the Sequential circuits used in the different problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the data storage and processing techniques. It correlates moderately with PSO1 as student learns about sequential circuits and it addresses the understanding of engineering fundamentals with design skills, identify and define the computing infrastructure and operations requirements appropriate to its solution.				





CO code	Course Outcomes	Justification
CO202.4	Elucidate the functions & organization of various blocks of CPU.	This outcome key parameters Knowledge of basic concepts of Computer organization & computer architecture will help the students to formulate solutions for engineering problems correlate high with PO1.
		Knowledge of various design techniques of memory (Types & their uses in computer), 10 (types & functions) & system bus (Address, data & control, Typical control lines, Multiple-Bus Hierarchies), Von Neumann & Harvard architecture, Instruction cycle will help the students to apply the same to identify and analyze engineering problems, it correlates moderate with PO2.
		Correlate low with PO3 as student gains knowledge of Processor: Single bus organization of CPU; ALU( ALU signals, functions & types); Register (types & functions of user visible, control & status registers such as general purpose, address registers, data registers, flags, PC, MAR, MBR, IR)& control unit ( control signals & typical organization of hard wired & microprogrammed CU) this will help the students to apply to design the solutions for complex engineering problems,
		It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals i.e. student learn about fundamentls of computer organization and computer architecture with design skills.
		It correlates low with PSO2 as in this student learn about processor and computer organization and architecture so they can analyze problem, and identify, define the computing infrastructure and operations requirements appropriate to its solution.
CO202.5	Understand CPU instruction characteristics, enhancement features of CPU.	This outcome key parameters Use of different elements of machine instruction, instruction representation (Opcode & mnemonics, Assembly language elements), Instruction Format & 0-1-2-3 address formats, RISC& CISC processor usage will help the students to apply the same to formulate solutions for engineering problems, correlate moderately with PO1 Study of analyzing different Addressing mode, Multiprocessor systems: Taxonomy of Paraflel Processor Architectures, two types of MIMD clusters & SMP (organization & benefits) & multicore processor contribute to analyze the problem and interpreting the data correlates low with PO2 Analyzing different types of Interrupt, instruction pipelining contribute to design, implement, and evaluate a software or a software/hardware system, component, or process to meet desired needs within realistic constraints and that correlates low with PO3 Knowledge of RISC & CISC Processor, Intruction set, multicore intel core i7, 8086 Assembly language programming help the students in the development and management of information processing systems and applications in the interdisciplinary domain so correlates moderately with PSO1
CO202.6	Describe an assortment of memory types (with their characteristics) used in computer systems and basic principle of interfacing input, output devices.	This outcome key parameters Use of different Memory Systems, Cache Memory, Input/Output Systems will help the students to apply the same to formulate solutions for engineering problems, correlates moderately with PO1. Knowledge of Memory & Input / Output Systems will help the students to apply the same to analyzing the problem and interpreting the data, it correlates low with PO2. Knowledge of Memory Hierarchy, signals to connect memory to processor, characteristics of semiconductor memory: SRAM, DRAM & ROM, I/O Module, Programmed I/O, Interrupt Driven I/O, Direct Memory Access (DMA) will help to design, implement, and evaluate a software or a software/hardware system, component, or process to meet desired needs within realistic constraints, it correlates low with PO3
		Knowledge of Memory, Principle of Locality, Organization, Mapping functions, write policies, Replacement policies, Multilevel Caches, Cache Coherence, help the students in the development and management of information processing systems and applications in the interdisciplinary domain so correlates moderately with PSO1







Class: SE 2019Course Name: Logic Design & Computer Organization LabCourse Code: 214446Name of Faculty: Sayali Sabale

#### **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description
CEO206.1	To design & implement combinational and sequential circuits.
CEO206.2	To learn simulation of digital systems.
010200.2	

# **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO206.1	Use simplification method i.e. KMap and design Combinational circuits for Code Converters using various logic gates.
CO206.2	Apply the principles of number system, binary codes, K-map and implement BCD Adder.
CO206.3	Design various combinational circuits such as full adder, full substractor or different logic equations using multiplexers and decoders.
CO206.4	Design and implement Up and Down Synchronous Counters, Asynchronous Counters using master slave JK flip-flop IC 7476
CO206.5	Design Sequential Logic circuits: MOD counters using synchronous counters.
CO206.6	Understand the basics of simulator tool & to simulate basic blocks such as ALU & memory.

# **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course Outcome No	Assignment	Course Outcome No
1	CO206.1	6	CO206.4
2	CO206 2	7	CO206.4
3	CO206.3	8	CO206.5
4	CO206.3	9	CO206.6
5	CO206.3	10	CO206.6

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Sayali Sabale Signature of Faculty



Dr. Jyoti Surve Head of Department



# **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Logic Design & Computer Organization LabCourse Code: 214446Name of Faculty: Sayali SabaleClass: SE 2019

Course		CO-PO MATRIX Program Outcomes (POs)													
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POTT	PO12			
CO206.1	2	1	1	1	Ξ.	3.		ŧ.			×.	-			
CO206.2	2	1	1	÷.,	-	-	-	-		-	94 C				
CO206.3	2	1	1	-	12	a.	-	*	-	-	-	-			
CO206.4	2	1	1	1	(e	~	-	-	-	-	-	E			
CO206.5	1	1	1	-		-	4	4		-	ä	5			
CO206.6	1	1	1	1	1	-	-	-	-		-				

Course	Program Specific Outcomes (PSOs)									
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4						
CO206.1	1	.e.	*	2						
CO206.2	1	<u>u</u>	2							
CO206.3	t	2 -	-	-						
CO206.4	1	-	-	2						
CO206.5	1	-	-	2						
CO206.6	1	-	-							

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Sayali Sabate Signature of Faculty



Dr. Jyoti Surve **Head of Department** 



Class: SE 2019Course Name: Logic Design & Computer Organization LabCourse Code: 214446Name of Faculty: Sayali Sabale

CO code	Course Outcomes	Justification
CO206.1	Use simplification method i.e. K-Map and design Combinational circuits for Code Converters using various logic gates.	This outcome key parameters Construction and characteristics of Logic families, Design K-map to get more simplified equation for implementation of combinational circuits address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. It correlate low with PO2 because this provides systematic solution using K-map, Correlate low with PO3 because it has ability to design, implement, and evaluate software or a software/hardware system, Correlate low with PO4 because provide essay schematic solutions to complex engineering /Technology problems. It correlates low with PSO1 as it addresses the understanding of engineering fundamentals.
CO206.2	Apply the principles of number system, binary codes, K-map and implement BCD Adder.	This outcome key parameters Concept of Number System, Binary Codes, and BCD Adder, K-map address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. From the K-map we can find out equation to implement BCD Adder that helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the implementation of software or hardware techniques. It correlates low with PSO1 as it addresses the understanding of engineering fundamentals with design skills.
CO206.3	Design various combinational circuits such as full adder, full substractor or different logic equations using multiplexers and decoders.	This outcome key parameters we implement full adder and full substractor using multiplexer and Design table which address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. AS the multiplexer and decoder helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the Design Table Techniques in multiplexer. It correlateslow with PSO1 as it addresses the understanding of engineering fundamentals with design skills.

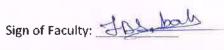
# **CO-PO mapping Justification (Laboratory)**



Sign of Faculty:

CO code	Course Outcomes	Justification
CO206.4	Design and implement	This outcome key parameters Up and Down Synchronous Counters.
	Up and Down	Asynchronous Counters using master
	Synchronous Counters,	slave JK flip-flop IC 7476 address the basics of mathematics,
	Asynchronous Counters using master	engineering fundamentals, complex problems correlate moderately with PO1.
	slave JK flip-flop IC 7476.	AS the Synchronous and asynchronous counter helps in the problem analysis, it correlates low with PO2.
		This outcome correlates low with PO3 as it addresses the State
		Table, State Diagram, Excitaion Table, Characteristic Table Techniques in Counters.
		It correlates low with PSO1 as it addresses the understanding of
		engineering fundamentals with design skills.
CO206.5	Design Sequential Logic	This outcome key parameters
	circuits: MOD counters	Desiging Modulo counter/ripple counter addresses the basics of
	using synchronous counters.	mathematics, engineering fundamentals, complex problems correlate low with PO1.
		As the specifications of Modulo counters helps in the problem analysis, it correlates low with PO3.
		It correlates low with PSO1 as it addresses the understanding of engineering fundamentals with design skills.
CO206.6	Understand the basics of	This outcome key parameters
	simulator tool & to	Working Principle of basics of simulator tool addresses the basics of
	simulate basic blocks such as ALU & memory.	mathematics, engineering fundamentals, complex problems correlate low with PO1.
		Design & simulate single bit ALU with four functions(AND, OR,
34		XOR, AD) helps in the problem analysis, it correlates low with PO2.
		This outcome correlates low with PO3 as it addresses single bit
		RAM cell design.
		This outcome correlates low with PO4 as it addresses working of
		simulation tool which helps to provide solution for complex
		problems.
		This outcome correlates low with PO5 as it addresses working of
		simulation tool which helps to provide solution for complex problems.
		It correlates low with PSOI as it addresses the understanding of engineering fundamentals with design skills







# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR : 2022-23, SEM - I

			Lesson	Plan						
Cours	se Code : 214442 C	lass: SE IT	A	Name of Faculty: Prof. Sayali B. Sabale						
Cours	se Name: Logic Design & Computer Organization			Teaching Sch	eme:	Th: 3 Hrs / week				
Lr.		CEO	со	Date of Plan	Date of	Remarks of	M	lonitored	i by	
No.		CLO		Date of I fail	Conduction	Faculty (incase of	AC	HOD	APMC	
		Unit I : Intro	duction To	<b>Digital Electro</b>	nics					
1	Digital Logic families: Digital IC Characteristics; TTL: Standard TTL characteristics, Operation of TTL NAND gate,CMOS: Standard CMOS characteristics, operation of CMOS NAND gate; Comparison of TTL & CMOS.			17-8-2022	17/08/2022		2			
2	Signed Binary number representation and Arithmetic Sign Magnitude, 1's complement & 2's complement representation, Unsigned Binary arithmetic (addition, subtraction, multiplication, and division)	e	3	18-8-2022	18/08/2022		BX 1019	-38 T	Cers In	
3	Subtraction using 2's complement; IEEE Standard 754 Floating point number representations.	CEO202.1	CO202.1	22-8-2022	22/08/2022					
4	Codes: Binary, BCD, octal & their conversions			23-8-2022	23/08/2022					
5	Codes: Hexadecimal, Excess-3, Gray code & their conversions	and Inst	the To	24-8-2022	24/08/2022				)	

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6	Logic minimization: Representation of logic functions: logic statement, truth table, SOP form,		5 5	24-8-2022	29/08/2022	2
7	POS form; Simplification of logical functions using K-Maps up to 4 variables			29-8-2022	30/08/2022	de la
		Unit II : C	ombination	al Logic Desi	gn	100
8	Design using SSI chips: Code converters, Half- Adder, Full Adder,			30-8-2022	06 09 2022	
9	Half Subtractor, Full Subtractor, n bit Binary adder.	CEO202.1		5-9-2022	12/09/2022	
10	Design using MSI chips: Binary adder and Subtractor (IC 7483) BCD adder using IC 7483		C0000 0	6-9-2022	13/09/2022	
11	Introduction to MSI chips: Multiplexer (IC 74153), Demultiplexer (IC 74138),		CO202.2	7-9-2022	14/09/2022	Gry Storm
12	Implementation of logic functions using IC 74153 & 74138.				19-9-2022	15/09/2022
13	Decoder (74238) Encoder (IC 74147), Look ahead carry generator and comparator			20-9-2022	20/09/2022	
		Unit III	: Sequential	Logic Design		
14	Introduction to sequential circuits: Difference between combinational circuits and sequential circuits; Memory element-latch & Flip-Flop.			21-9-2022	26/09/2022	
15	Flip- Flops: Logic diagram, truth table & excitation table of SR, JK, D, T flip flops;	Stal Inst	st or the	26-9-2022	29/09/2022	
16	Conversion from one FF to another	Internal	E Teas	27-9-2022	28/03/2022	

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17	Study of flip flops with regard to asynchronous and synchronous, Preset & Clear, Master Slave configuration, Study of 7474, 7476 flip flop ICs.	CEO202.1	CO202.3	28-9-2022	3/10/2022	$\frac{1}{2}$
18	Application of flip-flops: Counters - asynchronous, study of 7490 modulus n counter ICs & their applications to implement mod counters; .			3-10-2022	4/10/2022	2 Ders
19	Registers- shift register types (SISO, SIPO, PISO & PIPO) & applications, Ring Counter using Flip Flops			10-10-2022	10/10/2022	
	U:	nit IV : Com	puter Organ	ization & Pro	cessor	
20	Computer organization & computer architecture, organization, functions & types of computer units- CPU(typical organization, Functions, Types)			11-10-2022	11/10/2022	20112
21	Memory ( Types & their uses in computer), IO( types & functions)			12-10-2022	12/10/2022	
22	system bus( Address, data & control , Typical control lines, Multiple-Bus Hierarchies ); Von Neumann & Harvard architecture; Instruction cycle			17-10-2022	18/10/2022	Zoin Devy
23	Processor: Single bus organization of CPU; ALU( ALU signals, functions & types)	CEO202.2	CO202.4	18-10-2022	18/10/2022	
24	Register (types & functions of user visible, control & status registers such as general purpose, address registers, data registers, flags, PC, MAR, MBR, IR)& operations.	tematic	st a FE	19-10-2022	7/11/2022	

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25	control unit ( control signals & typical organization of hard wired & microprogrammed CU). Micro Operations (fetch, indirect, execute, interrupt) and control signals for these micro			31-10-2022	7/11/2022	2		Devo
	Unit V :	Processor In	nstructions (	&Processor En	hancements			
26	Instruction : elements of machine instruction: instruction representation (Opcode & mnemonics, Assembly language elements ) ; Instruction Format & 0-1-2-3 address formats, Types of operands			1-11-2022	9/11/2022			
27	Addressing modes; Instruction types based on operations (functions & examples of each);			2-11-2022	14/11/2022	2014	F (	
28	key characteristics of RISC& CISC; Interrupt: its purpose, types , classes & interrupt handling ( ISR , multiple interrupts), exceptions; instruction pipelining( operation & speed up )	CEO202.2	CO202.5	7-11-2022	16/11/2022			tolla
29	Multiprocessor systems: Taxonomy of Parallel Processor Architectures,			9-11-2022	16/11/2022			Devo
30	two types of MIMD clusters & SMP (organization & benefits)			14-11-2022	17/11/2022			
31	Multicore processor (various Alternatives & advantages Of multicores), typical features of multicore intel core i7.	Internetion of the	anio. Tech	15-11-2022	21/11/2022			

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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	- t	Jnit VI : Mei	mory & Inpu	it / Output Sys	stems	
32	Memory Systems: Characteristics of Memory Systems, Memory Hierarchy, signals to connect memory to processor, memory read & write cycle,	a	-	16-11-2022	22/11/2022	8
33	characteristics of semiconductor memory: SRAM, DRAM & ROM			21-11-2022	23/11/2022	
34	Cache Memory – Principle of Locality, Organization, Mapping functions,	CEO202.2	CO202.6	22-11-2022	24/11/2022	BAL
35	write policies, Replacement policies, Multilevel Caches, Cache Coherence,		1.0	23-11-2022	24/11/2022	20/12 24/12
36	Input / Output Systems: I/O Module, Programmed I/O, Interrupt Driven I/O,Direct Memory Access (DMA).			24-11-2022	25/11/2022	Dev
37	Virtual Memory and Paging			25 <b>-</b> 11-2022	25/11/2022	

#### Start of Semester

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Course Faculty :	Babah	17 08 202
HoD :	11 /	

#### End of Semester

Signature	Date
Course Faculty : JB3000	25/11/2022
HoD:	
20/12	





Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR : 2022-23, SEM - 1

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			Lesson 1	Plan					
Cours	e Code : 214442 Cl	ass: SE IT	B	Name of Facu	lty: Prof. Saya	li B. Sabale			
Cours	e Name: Logic Design & Computer Organization		- NASA	Teaching Sch	eme:	Th: 3 Hrs / week	Suppose a		
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Ne.		CEO.	CO	Date of Plan	Conduction	Faculty (incase of	AC	HOD	APMC
		Unit I : Intro	duction To	Digital Electro	nics				
1	Digital Logic families: Digital IC Characteristics; TTL: Standard TTL characteristics, Operation of TTL NAND gate,CMOS: Standard CMOS characteristics, operation of CMOS NAND gate; Comparison of TTL & CMOS.			17-8-2022	17/8/2022	grifes pinto		)	Dev
2	Signed Binary number representation and Arithmetic Sign Magnitude, 1's complement & 2's complement representation, Unsigned Binary arithmetic (addition, subtraction, multiplication, and division)			18-8-2022	18/8/2022		3018	31	
3	Subtraction using 2's complement; IEEE Standard 754 Floating point number representations.	CEO202.1	CO202.1	22-8-2022	22/08/2022				
4	Codes: Binary, BCD, octal & their conversions	- State	Inst. or into	a state when the state of the s	23/08/2022				
5	Codes: Hexadecimal, Excess-3, Gray code & their conversions	Interne	CU S	24-8-2022	24/08/2022	4 () () () () () () () () () () () () ()			

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6	Logic minimization: Representation of logic functions: logic statement, truth table, SOP form,			24-8-2022	30/08/2022	ALL R	
7	POS form; Simplification of logical functions using K-Maps up to 4 variables			29-8-2022	30/08/2022	2	
	·	Unit II : C	ombination	al Logic Desi	gn	1 An	
8	Design using SSI chips: Code converters, Half- Adder, Full Adder,			30-8-2022	06/09/2022 07/09/2022	Pins	Devo
9	Half Subtractor, Full Subtractor, n bit Binary adder.			5-9-2022	07/09/2022	3	
10	Design using MSI chips: Binary adder and Subtractor (IC 7483) BCD adder using IC 7483	CEO202.1	CO202.2	6-9-2022	12 09 2022		83
11	Introduction to MSi chips: Multiplexer (IC 74153), Demultiplexer (IC 74138),	CE0202.1	0202.2	7 <b>-9-</b> 2022	19/09/2022	BY-	
12	Implementation of logic functions using IC 74153 & 74138.			19-9-2022	14 09 2022	20118	
13	Decoder (74238) Encoder (IC 74147), Look ahead carry generator and comparator			20-9-2022	19/09/2022		
		Unit III	: Sequential	Logic Design	1		
14	Introduction to sequential circuits: Difference between combinational circuits and sequential circuits; Memory element-latch & Flip-Flop.			21-9-2022	20/09/2022		
15	Flip- Flops: Logic diagram, truth table & excitation table of SR, JK, D, T tlip flops;		Inst or he	26-9-2022	26/09/2022		
16	Conversion from one FF to another	Interna	Pine *	27-9-2022	28/09/2022		

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17	Study of flip flops with regard to asynchronous and synchronous, Preset & Clear, Master Slave configuration, Study of 7474, 7476 flip flop ICs.	CEO202.1	CO202.3	28-9-2022	3/10/2022	
18	Application of flip-flops: Counters - asynchronous, study of 7490 modulus n counter ICs & their applications to implement mod counters; .			3-10-2022	4/10/2022	
19	Registers- shift register types (SISO, SIPO, PISO & PIPO) & applications, Ring Counter using Flip Flops			10-10-2022	10/10/2022	D
	U	nit IV : Com	puter Organ	ization & Pro	cessor	BK
20	Computer organization & computer architecture, organization, functions & types of computer units- CPU(typical organization, Functions, Types)			11-10-2022	11/10/2022	20114
21	Memory ( Types & their uses in computer), IO( types & functions)			12-10-2022	12/10/2022	2012
22	system bus( Address, data & control , Typical control lines, Multiple-Bus Hierarchies ); Von Neumann & Harvard architecture; Instruction cycle			17-10-2022	13/10/2022	Den
23	Processor: Single bus organization of CPU; ALU( ALU signals, functions & types)	CEO202.2	CO202.4	18-10-2022	17/10/2022	
24	Register (types & functions of user visible, control & status registers such as general purpose, address registers, data registers, flags, PC, MAR, MBR, IR)& operations.	Conalins Deman	a To Toch	19-10-2022	18/10/2022	

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25	control unit ( control signals & typical organization of hard wired & microprogrammed CU). Micro Operations (fetch, indirect, execute, interrupt) and control signals for these micro			31-10-2022	20/10/2022	
	Unit V :	Processor In	nstructions &	2Processor En	hancements	
26	Instruction : elements of machine instruction: instruction representation (Opcode & mnemonics, Assembly language elements ) ; Instruction Format & 0-1-2-3 address formats, Types of operands			1-11-2022	31/10/2022	for m
27	Addressing modes; Instruction types based on operations (functions & examples of each);			2-11-2022	2/11/2022	20/14 20/12
28	key characteristics of RISC& CISC; Interrupt: its purpose, types, classes & interrupt handling (ISR, multiple interrupts), exceptions; instruction pipelining( operation & speed up )	CEO202.2	CO202.5	7-11-2022	7/11/2022	
29	Multiprocessor systems: Taxonomy of Parallel Processor Architectures,			9-11-2022	9/11/2022	
30	two types of MIMD clusters & SMP (organization & benefits)			14-11-2022	14/11/2022	
31	Multicore processor (various Alternatives & advantages Of multicores), typical features of multicore intel core i7.		sal inst of	15-11-2022	15/11/2022	

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32	Memory Systems: Characteristics of Memory Systems, Memory Hierarchy, signals to connect memory to processor, memory read & write cycle,			16-11-2022	16/11/2022	angradin Loop Life dip kijins San Juli Life dip kijins Life dit Lijins
33	characteristics of semiconductor memory: SRAM, DRAM & ROM			21-11-2022	16/11/2022	
34	Cache Memory – Principle of Locality, Organization, Mapping functions,	CEO202.2	CO202.6	22-11-2022	21/11/2022	2014 As Den
35	write policies, Replacement policies, Multilevel Caches, Cache Coherence,		23-11-2022 23/11	23/11/2022	Zalip-	
36	Input / Output Systems: I/O Module, Programmed I/O, Interrupt Driven I/O,Direct Memory Access (DMA).			24-11-2022	24/11/2022	
37	Virtual Memory and Paging			25-11-2022	28/11/2022	

### Start of Semester

Signature	Date
Course Faculty : JBLobell	17/08/2022
HoD:	

Signature	Date
Course Faculty : JBS about	2/12/2022
HoD :	



Div. -A



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

### PRACTICAL TEACHING RECORD

	rse Code: 214446 rse Name: Logic Design & Computer Organiza	Class: SE 2 tion Lab	1017	Batch: B	ulty: Sayali S	Teaching Scheme:	Pr	2 Hrs /	/ week
Sr.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	<b>Remarks of Faculty</b>	I	Ionitore	d by
<u>No.</u> 1	Design and implement 4-bit BCD to Excess-3 code		CO206.1	26-8-2022	26/08/2024	(incase of variance)	AC -	HOD	APMO
2	Design and implement 1 digit BCD adder using IC7483	Test to an and the second seco	CO206.2	2-9-2022	02/09/2022				
3	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.3	16-9-2022	16/09/2022		for the	-/	De
4	Design and implement Any three variable function using multiplexer IC 74153		CO206.3	23-9-2022	23/09/2022		2011	10	em
5	Design and implement full subtractor using decoder IC 74138		CO206.3	30-9-2022	30/09/2022				
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476		CO206.4	14-10-2022	07/10/2022				
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476	CEO206.1	CO206.4	21-10-2022	14/10/2022				-
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)	anal Inst. o	206.5	4-11-2022	04/11/2022				)

	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.6	11-11-2022	11/11/2022	for Der
10	Design & simulate single bit RAM cell		CO206.6	18-11-2022	18/11/2022	10/10
	Start of Semester				End of Semester	
	Signature	Date			Signature	Date
	Course Faculty : 182	26/08/202	2		Course Faculty : 100-25	25/11/2022
	HoD:				HoD:	





Div A

		PRACTI	CAL TE	ACHING R	ECORD					
Cour	se Code: 214446	Class: SE 2	2019	Name of Fac	ulty: Sayali S	abale				
Cour	Course Name: Logic Design & Computer Organizat			Batch: C		<b>Teaching Scheme:</b>	Pr: 2 Hrs / week			
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	fonitore HOD		
1	Design and implement 4-bit BCD to Excess-3 code		CO206.1	26-8-2022	02/09/202	-	2			
2	Design and implement 1 digit BCD adder using IC7483		CO206.2	2-9-2022	16/09/2022				0	
3	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.3	16-9-2022	23/09/2022	-	BY.		st	
4	Design and implement Any three variable function using multiplexer IC 74153		CO206.3	23-9-2022	30/09/2022				201 12	
5	Design and implement full subtractor using decoder IC 74138		CO206.3	30-9-2022	07/10/2022					
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK. flip-flop IC 7476		CO206.4	14-10-2022	14/10/2022					
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476	CEO206.1	THECO-96.4	21-10-2022	4/11/2022					
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)	* Intern	1030Ê	4-11-2022	11 11/2022		1		/	

9	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.6	11-11-2022	18/11/2022	Br	las Dero
10	Design & simulate single bit RAM cell		CO206.6	18-11-2022	25/11/2022	Trasil .	20112
	Start of Semester				End of Semester	9	
	Signature	Date			Signature	Date	
	Course Faculty: Isabah	17/08/22			Course Faculty : -Beabab	25/11/22	

HoD:

20112

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nternau	r'r	No. Tec
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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

HoD :

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Div. - B



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

## PRACTICAL TEACHING RECORD

	se Code: 214446	Class: SE 2	2019		ulty: Sayali S				
Cour	se Name: Logic Design & Computer Organiza		Batch: A		Teaching Scheme:	Pr:2 Hrs/week			
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	d by APMC
1	Design and implement 4-bit BCD to Excess-3 code	CEO206.1	CO206.1	25-8-2022	25/08/2022		ļ		
2	Design and implement 1 digit BCD adder using IC7483		CO206.2	1-9-2022	01/09/2022		BY		
3	Design and implement full adder using multiplexer IC 74153		CO206.3	8-9-2022	08/09/2022				0
4	Design and implement Any three variable function using multiplexer IC 74153		CO206.3	15-9-2022	19/09/2022				
5	Design and implement full subtractor using decoder IC 74138		CO206.3	22-9-2022	22/09/2022		0.		2011
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476		CO206.4	13-10-2022	2_9/09/2022		22/23/	r I	
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476		CO206.4	20-10-2022	6/10/2022				
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)		South UKs(Do)	3-11-2022	20/10/2022				

### I2IT/ACAD/CP/04 Ver01

1 9	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.6	10-11-2022	3/11/2022,		PRN /	4 Dens									
10	Design & simulate single bit RAM cell											CO206.6	17-11-2022	17/11/2022	X	2014	20112

### Start of Semester

Date
17/8/22

### End of Semester

	Date
Course Faculty : Josephi	25/11/22
HoD:	



Div. B.



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

### PRACTICAL TEACHING RECORD

Cour	rse Code: 214446	Class: SE 2	019	Name of Fac	ulty: Sayali S	abale			
Cou	se Name: Logic Design & Computer Organiza	tion Lab	on Lab			<b>Teaching Scheme:</b>	Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	СО	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	fonitore HOD	d by APMC
1	Design and implement 4-bit BCD to Excess-3 code		CO206.1	24-8-2022	24/08/2022		Roce		
2	Design and implement 1 digit BCD adder using IC7483	CEO206.1	CO206.2	7-9-2022	07/00/2022		T		
3	Design and implement full adder using multiplexer IC 74153		CO206.3	14-9-2022	14/09/2022	( t	T		
4	Design and implement Any three variable function using multiplexer IC 74153		CO206.3	21-9-2022	21/09/202	L	for		0
5	Design and implement full subtractor using decoder IC 74138		CO206.3	28-9-2022	30/09/202	-	20112		82/12
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476	CEO206.1	CO206.4	12-10-2022	12/10/2022				
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476		CO206.4	19-10-2022	19/10/2022				
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)		62011T	2-1-2022	02/11/2022		/		

### I2IT / ACAD / CP / 04 Ver 01

I 4	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.6	9-11-2022	09/11/2022	Plen Joen
10	Design & simulate single bit RAM cell		CO206.6	16-11-2022	16/11/2022	Frain )
	Start of Semester		0		End of Semester	5
	Signature	Date			Signature	Date
	Course Faculty: 18 Sabach	17 8 22			Course Faculty : Jesteh	25/11/2022
	HoD:				HoD: Ye	
	- YN				20112	





# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

Div. B

Course Code: 214446 Class: SE 2019			Name of Fac	_					
Course Name: Logic Design & Computer Organization Lab				Batch: D		Teaching Scheme:	Pr:2 Hrs/week		
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	AC	lonitore HOD	d by APMC
1	Design and implement 4-bit BCD to Excess-3 code		CO206.1	22-8-2022	22/08/2022	C	20		
2	Design and implement 1 digit BCD adder using IC7483		CO206.2	29-8-2022	29/08/2022		- ASA	-1	
3	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.3	5-9-2022	05/09/2022		101		
4	Design and implement Any three variable function using multiplexer IC 74153		CO206.3	19-9-2022	12/09/2022	(	7		75
5	Design and implement full subtractor using decoder IC 74138		CO206.3	26-9-2022	19/09/2022	-	0		No
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476		CO206.4	3-10-2022	26/09/2022	-	2011	E	201
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476	CEO206.1	CO206.4	10-10-2022	03/10/2022			1	
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)		Inst or 6.5	17-10-2022	10/10/2022				J

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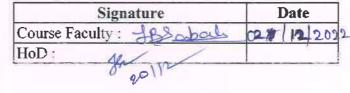
u	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	- CEO206.2	CO206.6	31-10-2022	17/10/2022	Rev 14 ben
10	Design & simulate single bit RAM cell	CEO200.2	CO206.6	7-11-2022	11/11/2022 29/11/2022 28/11/2022	Pool 12 - Doing
					2.5111	

#### Start of Semester

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# End of Semester







## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

Class: SE 2019Course Name: Logic Design & Computer Organization LabCourse Code: 214446Name of Faculty: Kamna Sahu

### **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description
CEO206.1	To design & implement combinational and sequential circuits.
CEO206.2	To learn simulation of digital systems.

## **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO206.1	Understand working of digital electronic circuits.
CO206.2	Apply the knowledge to appropriate IC as per design specification.
CO206.3	Analyze the basic logic gates and various reduction techniques of digital logic circuit
CO206.4	Analyze, design and implement combinational logic circuits.
CO206.5	Design Sequential Logic circuits: MOD counters using synchronous counters.
CO206.6	Understand the basics of simulator tool & to simulate basic blocks such as ALU & memory.

## **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course Outcome No	Assignment	Course Outcome No
1	CO206.1, CO206.2 CO206.3, CO206.4	5	CO206.1, CO206.2 CO206.3, CO206.5
2	CO206.1, CO206.2 CO206.3, CO206.4	6	CO206.1, CO206.2 CO206.3, CO206.5
3	CO206.1, CO206.2 CO206.3, CO206.4	7	CO206.1, CO206.2 CO206.3, CO206.5
4	CO206.1, CO206.2 CO206.3, CO206.4	8	CO206.6
5	CO206.1, CO206.2 CO206.3, CO206.5	10	CO206.6

alu Kamna Sahi Signature of Faculty



Dr. Jyoti Surve Head of Department



## Hope Foundation's International Institute of Information Technology, Pune

## DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

## **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Logic Design & Computer Organization Lab	Course Code: 214446
Name of Faculty: Kamna Sahu	Class: SE 2019

Course	Program Outcomes (POs)													
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
CO206.1	2	-	-	æ	=	2	-	-	-			1		
CO206.2	2	1	1	5	14	-	-	-	-		-	1		
CO206.3	2	1	1	20	12	141	14 1 1	-		-		1		
CO206.4	2	1	1	-	-	-	-		-	-	æ	1		
CO206.5	2	-	26	-	-	÷	*	=	-	Ξ	æ	1		
CO206.6	2	1	1	æ	-			-	Ħ		-	1		

Course		Program Specific O	utcomes (PSOs)	
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4
CO206.1	1	-	-	
CO206.2	2	-		-
CO206.3	2	-	-	()#)
CO206.4	2	17 (F)	-	irai
CO206.5	2	-	÷	1
CO206.6	2	2 <b>7</b> 2	-	-

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Dr. Jyoti Surve Head of Department



Hope Foundation's International Institute of Information Technology, Pune

## DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year : 2022-23, Semester - I

## PRACTICAL TEACHING RECORD

Cubicot	Code : 214446 Class: SE IT (A-D	Class: SE IT (A-Division)				u			_
	000000000000000000000000000000000000000		Batch: A		<b>Teaching Scheme:</b>	Pr : 2 Hrs / week			
Subject Name: Logic Design & Computer Organization Laboratory					Date of	Remarks of Faculty	Monitored by		
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	АРМС
1	Design and implement 4-bit BCD to Excess-3 code			25-8-2022	25-8-2022		7	200	
2	Design and implement 1 digit BCD adder using IC7483			1-9-2022	1-9-2022			382	600
3	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.1 CO206.3	8-9-2022	8-9-2022		BX	-	Der
4	Design and implement Any three variable function using multiplexer IC 74153			15-9-2022	15/9/2022				
5	Design and implement full subtractor using decoder IC 74138			22-9-2022	22/9/2022				



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6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476			29-9-2022	29/14/222		2		
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip- flop IC 7476	CEO206.1	CO206.2 CO206.3	6-10-2022	6/10/2022-	ιŝ.	1		1
8	Design and implement Modulo 'N' counter using IC7490. (N= 100 max)			13-10-2022	13/10/2022				15
9	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.3	20-10-2022	3/11/2022		TAL		
10	Design & simulate single bit RAM cell			27-10-2022	24/11/2022		1)9113	1	

#### Start of Semester

Signature	Date
Course Faculty : Kaly	
HoD:	

#### End of Semester

Date									
		Alahy	Course Faculty :						
1	Man		loD :						
4	MAN		IOD :						



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			PRACTICA	L TEACHING RE	CORD				
Subject C	Code : 214446 Class: SE IT (B-Divi	sion)		Name of Faculty:	Kamna Sahu				
Subject Name: Logic Design & Computer Organization Laboratory Batch: B						Teaching Scheme:	Pr	: 2 Hrs / v	week
					an Date of Conduction	Remarks of Faculty	Monitored by		
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan		(incase of variance)	AC	нор	АРМС
1	Design and implement 4-bit BCD to Excess-3 code			26-8-2022	26-8-2022		2	7.2	)
	Design and implement 1 digit BCD adder using IC7483			2-9-2022	2-9-2022			Ym/2	Low
	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.1 CO206.3	16-9-2022	14/9/2022		br		
	Design and implement Any three variable function using multiplexer IC 74153		-	23-9-2022	23/9/2021				
	Design and implement full subtractor using decoder IC 74138			30-9-2022	30/9/2022				



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	Course Faculty: Kaluy HoD:				Course Faculty :	hy	
	Signature	Date			Signature	Date	
	Start of Semester				End of Semester		
10	Design & simulate single bit RAM cell			4-11-2022	2/12/2022		μ_
9	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.3	28-10-2022	2/12/2022	Me	
8	Design and implement Modulo 'N' counter using IC7490. ( N= 100 max)			21-10-2022	25/11/2022	Rot	Fam
7	Design and implemer t 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip- flop IC 7476	CEO206.1	CO206.2 CO206.3	14-10-2022	11/11/2022		Der
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip- flop IC 7476			7-10-2022	14/10122	2	



The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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Institute of Information Technology, Pune

DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year : 2022-23, Semester - I

Subject	Code : 214446 Class: SE IT (	(A-Division)		Name of Faculty: Kamna Sahu							
Subject	Name: Logic Design & Computer Organization L	Batch: D		Teaching Scheme:	Pr	: 2 Hrs /	week				
<b>C</b> N			60	Date of Plan	Date of	Remarks of Faculty	N	lonitored	by		
Sr. No.	Experiment / Assignment	CEO	CO	Date of Flan	Conduction	(incase of variance)	AC	HOD	АРМС		
1	Design and implement 4-bit BCD to Excess-3 code			24-8-2022	24-8-2022		l				
2	Design and implement 1 digit BCD adder using IC7483			7-9-2022	1419/2022			1	Joen		
3	Design and implement full adder using multiplexer IC 74153	CEO206.1	CO206.1 CO206.3	14-9-2022	21/9/2022		BN	1832			
4	Design and implement Any three variable function using multiplexer IC 74153			28-9-2022	28/9/2022						
5	Design and implement full subtractor using decoder IC 74138		Inst of	5-10-2022	12/10/0022				/		

#### 12IT / ACAD / CP / 04 Ver 01

	Signature       Course Faculty :       HoD :	Date			Signature Course Faculty : Kenny HoD :	Date
	Start of Semester				End of Semester	
10	Design & simulate single bit RAM cell			9-11-2022	23/11/2022	
9	Design& simulate single bit ALU with four functions(AND, OR, XOR, ADD).	CEO206.2	CO206.3	2-11-2022	16/11/2022	13/11
8	Design and implement Modulo 'N' counter using IC7490. ( N= 100 max)			26-10-2022	9/11/2022	love 187
7	Design and implement 3 bit Up and 3 bit Down Synchronous Counters using master slave JK flip-flop IC 7476	CEO206.1	CO206.2 CO206.3	19-10-2022	2/11/2022	
6	Design and implement 3 bit Up and 3 bit Down Asynchronous Counters using master slave JK flip-flop IC 7476			12-10-2022	19/10/2022	





Class: SE

**Hope Foundation's** International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Aademic Year : 2022-23, Semester - II

**Course: Computer Graphics** 

Course Code: 214453

Faculty Name: Prof. Megha R.Mehar

#### **COURSE EDUCATIONAL OBJECTIVES**

Course Education al Objective	Description
CEO214.1	Understand the foundations of computer graphics: hardware systems, math basis, light and color.
CEO214.2	Understand the complexities of modeling realistic objects through modeling complex scenes using a high- level scene description language.
CEO214.3	Become acquainted with some advanced topics in computer graphics. The student should gain an expanded vocabulary for discussing issues relevant to computer graphics (including both the underlying mathematics and the actual programming).
CEO214.4	The student should gain an appreciation and understanding of the hardware and software utilized in constructing computer graphics applications.
CEO214.5	The student should gain a comprehension of windows, clipping and view-ports in relation to images displayed on screen.
CEO214.6	The student should gain an understanding of geometric, mathematical and algorithmic concepts necessary for programming computer graphics.

#### **COURSE OUTCOME - DETAILS**

Course Outcome	Description								
CO214.1	Apply mathematical and logical aspects for developing elementary graphics operations like scan conversion of points, lines, circle, and apply it for problem solving.								
CO214.2	Employ techniques of geometrical transforms to produce, position and manipulate Objects in 2 dimensional space.								
CO214.3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output device.								
CO214.4	Apply concepts of rendering and shading using computer graphics tools in design, development and testing of 2D, 3D modeling applications.								
CO214.5	Apply concepts of animation, curves and fractals using computer graphics tools in design, development and testing of 2D, 3D modeling applications.								
CO214.6	Perceive the concepts of virtual reality.								

### CLASS TEST- COURSE OUTCOME MAPPING

Quanting	CLASS T	EST - I	CLASS	TEST-II	CLASS TEST - III		
Question No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks	
Q1 To Q12	o Q12 CO214.1 15		CO214.3 15		CO214.5		
Q13 To Q14 CO214.2 15		15	15 CO214.4 15		CO214.6	15	

#### THEORY ASSIGNMENT- COURSE OUTCOME MAPPING

Ouestion	ASSIGN	MENT-I	ASSIGNM	IENT-II	ASSIGNMENT-III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks	
01	CO214.1	10	CO214.3	10	CO214.5	10	
02	CO214.2	* 10	CO214.4	10	CO214.6	10	

Prof.Mcgha Mehar **Signature of Faculty** 



Ø Dr.Jyoti surve

**Head of Department** 

Sign of Faculty:



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR : 2022-23, SEM - II

## **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Computer Graphics	Course Code:214453	
Faculty Name: Prof. Megha R.Mehar	Class: SE	

					CO-PO	MATI	<u>RIX</u>						
Course		Program Outcomes (POs)											
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO214.1	3	3	3	1	3	2	-	-	-	-	-	1	
CO214.2	3	3	2	2	2	2	-	-	-	-	-	1	
CO214.3	3	3	2	3	2	2	_	-	-	-	-	1	
CO214.4	3	3	3	3	3	3	-	-	-	-	-	1	
CO214.5	3	3	3	3	3	3	-	-	-	-	-	1	
CO214.6	1	1	1	1	+-	2	-	-	-	-		1	
1-LOW, 2-	MEDIU	J <b>M</b> , 3 -	HIGH										

Course Outcome	Program Specific Outcomes (PSOs)									
(Cos)	PSO1	PSO2	PSO3	PSO4						
CO214.1	3	3	· -	-						
CO214.2	3	3	-	-						
CO214.3	3	3	-	-						
CO214.4	3	3	-	-						
CO214.5	3	3	-	-						
CO214.6	3	3	-	-						

Signature of Faculty





#### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

Class: SE 2019 Course Name-Computer Graphics Name of Faculty-Prof.Megha Mehar Course Code-214453

CO code	Course Outcomes	PO/PSO	Worzywaw objektor
eotut	Apply mathematical and logical aspects for developing elementary graphics operations	PO1	Justification Moderately mapped as students learn to model complex objects and use various graphics concepts to build graphics packages. This can be used to provide solution for various engineering problems.
CO214.1	like scan conversion of points, lines, circle, and apply it for problem solving.	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorith and implement those using appropriate tools and software packages.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments.
		PSO1	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
	Employ techniques of geometrical transforms to produce, position	PO1	Moderately mapped as students learn to fill the polygons using various attributes and 2D geometric transformations.
	and manipulate Objects in 2 dimensional and 3- dimensional space respectively.	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
CO214.2		PO3	Moderately mapped as students will be able to design and implement graphics packages to provide solutions for various problems
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments
		PSOI	Moderately mapped as students understand the basics of OpenGL, transformations polygon filling etc. in writing programs to build applications.
	Describe mapping from a world coordinates to device coordinates,	<b>PO</b> 1	Moderately mapped as students learn to perform 3D geometric transformations, 2D clipping and color models.
	clipping, and projections in order to produce 3D images on 2D output device,	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
CO214.3		PO3	Moderately mapped as students will be able to design and implement graphics packages to provide solutions for various problems.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments
		PSO1	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
	Apply concepts of rendering, shading, animation, curves and	<b>P</b> O1	Moderately mapped as students learn to view the objects in different projections like perspective and parallel.
CO214.4	fractals using computer graphics tools in design, development and testing of 2D, 3D modeling applications.	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with - computer in professional developments.
	2	PSO1	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
	Apply concepts of rendering,	PO1	Moderately mapped as students learn to use IO interactions.
	shading, animation, curves and fractals using computer graphics tools in design, development and testing of 2D, 3D	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algoritht and implement those using appropriate tools and software packages.
00214.5	modeling applications.	PO3	Slightly mapped as students will be able to design and implement IO interactions.
		POrsona	2
		PSEI	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.

CO code	Course Outcomes	PO/PSO	Justification
	Perceive the concepts of virtual reality.	PO1	Moderately mapped as students learn to model complex objects and use various graphics concepts to build graphics packages. This can be used to provide solutions for various engineering problems.
CO214.6		P02	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithm and implement those using appropriate tools and software packages.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments.

Signature of Faculty Prof. Megha Mehar

Head of Department Dr. Jyoti Surve



Sign of Faculty:



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year: 2022-23, Semester - II

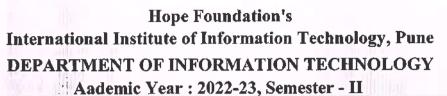
## THEORY TEACHING RECORD

Course	e Code	e: 214453 Class: SE			Name of Facult	y: Prof. Megh	a R. Mehar			
Course	e Nam	e: Computer Graphics			Teaching Schen	ne:	Th : 3 Hrs /Week			
Lr.			<b>CT</b> -0			Date of	Remarks of Faculty	Monitored by		
No.		Topics to be Delivered	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	АРМС
		Unit I: Con	ıputer Graph	ics Basic, Op	enGL and Line, C	ircle Drawing				
1	1.1	Introduction CG :Introduction to computer graphics, basics of graphics systems, raster and random scan, basic display			08-02-2023	08 02 2023, 09 02 2023, 16 02 2023,		2	)	
2	1.2	OpenGL – Introduction – Graphics function, OpenGL Interface, primitives and attributes, Control functions, programming events.	CEO214.1 CEO214.2		10-02-2023	15 0 2 2023 15 0 2 2023 16 0 2 2023		0.		Dev
3	1.3	Line Drawing: DDA Line drawing algorithm	CEO214.3 CEO214.4	CO214.1	14-02-2023	20/02/2023	Prof. Mandar Data	- all	K	
4	1.4	Bresenham Line drawing algorithm	CEO214.5 CEO214.6		16/02/2023	28 02 2023		7.10	TID	
5	1.5	Bresenham circle drawing algorithm.			17-02-2023	3 03 2023				
6	1.6	Character Generation: Stroke principle, starburst principle, bitmap method. Introduction to aliasing and anti- aliasing.	smatto	a Inst of Alto	21-2-2023	8 03 2023				
			Unit I		Transformation		~			
7	2.1	Polygons: Polygons and its types, inside test		Pure	22-2-2023	14/03/2023	Oh leave	fr.	-	

_			1				121T / ACAD / CP / 03 VER 01
8	2.2	Polygon filling methods: Seed Fill – Flood fill and Boundary Fill, Scan-line Fill algorithms	CEO214.1 CEO214.2		24-2-2023	1513/2023	
9	2.3	2D Transformations: Translation, Scaling, Rotation	CEO214.3 CEO214.4	CO214.2	28-2-2023	17/03/202	
10	2.4	2D Transformations: Reflection and Shearing	CEO214.5 CEO214.6		1-3-2023	17/3/23	br the Dely
11	2.5	Matrix representation and homogeneous coordinate system			3-3-2023	71713/23	515)
12	2.6	Composite transformations			8-3-2023		
		Unit III	Windowing,	Clipping, 3D	Transformation,	Projections	
13	3.1	Windowing: Concept of window and viewport, viewing transformations			10-3-2023	31/3/23	$\left[ \begin{array}{c} 2 \\ \end{array} \right]$
14	3.2	Line Clipping: Cohen Sutherland method of line clipping			14-3-2023	11/4/23	Que
15	3.3	Polygon Clipping: Sutherland Hodgeman method for convex and concave polygon clipping.	CEO214.1 CEO214.2		15-3-2023	12/4/23	2519 For
16	3.4	3D Transformation: Translation, scaling, rotation about X, Y, Z & arbitrary axis, and reflection about XY, YZ, XZ & arbitrary plane.	CEO214.3 CEO214.4 CEO214.5 CEO214.6	CO214.3	17-3-2023	2014/25	frip class Room Activity
17	3.5	Projections: Types of projections- Parallel, Perspective			21-3-2023	20/4/23	the 1
18	3.6	Parallel: oblique – Cavalier, Cabinet, Orthographic – isometric, diametric, trimetric	Stalling	L of 126	24-3-2023	20/4/23	5
		Unit IV: S	egments Illi	mil atig mod	els, Color models	s and Shading	1
19	4.1	Segments: Introduction, Segment table, segment creation, closing, deleting, renaming, and visibility.	and and a second	A STREET	28-3-2023	13 14/2023	June )

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20	4.2	Illumination models: Light sources, ambient light, diffuse light, specular reflection, the Phong model, combined diffuse and specular reflections with multiple light sources.	CEO214.1		31-3-2023	18/14/23-			)		
21	4.3	Illumination models: The Phong model, combined diffuse and specular reflections with multiple light sources.	CEO214.1 CEO214.2 CEO214.3 CEO214.4 CEO214.5	CO214.4	5-4-2023	19/4/2023	×		Lu	Con	
22	4.4	Color Models: CIE Chromaticity Diagram, Color Gamut, RGB, CMY, YCbCr,HSVcolor models.	CEO214.6		11-4-2023	257412023		flore 0015	For	0	
23	4.5	Color Models: RGB, CMY, YCbCr,HSVcolor models.			12-4-2023	2.5/4/2023				-	- [
24	4.6	Shading Algorithms: Constant intensity shading, Halftone, Gourand and Phong Shading.		14	18-4-2023	25 [9] 202					
		1	Unit V: C	urves, Fractal	s and Animation			1	P		
25	5.1	Curves: Introduction, interpolation and approximation, Spline Interpolation Methods – hermite interpolation, Bezier curves, B-Splines.			19-3-2023	261412023					
26	5.2	Fractals: Introduction, Classification, fractal Dimension, Fractal dimension and surfaces, Hilbert curve, Koch Curve.	CEO214. CEO214.2		21-4-2023	28/04/2028 28/4/2028	8.30 am to 10.30 am	61ET	8	Der	-
27	5.3	Animation: Basics of animation, types of animation, principles of animation, design of animation sequences	CEO214.2 CEO214.3 CEO214.4 CEO214.5 CEO214.6	CO214.5	25-4-2023	03/05/2023					

				_				AD / CP / P	<del>3 VER 0</del> 1
28	5.4	Animation languages, key frame, morphing, motion specification.			26-4-2023	97 512023	4	)	)
29	5.5	Methods of controlling animation, frame by-frame animation techniques, real- time animation techniques.			28-4-2023	10152023		$\sum$	Den
30	5.6	Real-time animation techniques.			2-5-2023	12/5/2023			
			U	nit VI: Virtual	Reality	1		1 7	/
31		Introduction of Virtual Reality: Fundamental Concept, Three I's of virtual reality and Classic Components of VR systems, Applications of VR systems.			2-5-2023	15 5 2023 15 5 2023			
32		Multiple Modals of Input and Output Interface in Virtual Reality: Input – 3D position Trackers and its types, Navigation and Manipulation Interfaces, Gesture Interfaces	CEO214.2		2-5-2023	1615ho23	- AL	8-16	
33		Graphics Displays – HMD and CAVE, Sound Displays, Haptic Feedback	CEO214.3 CEO214.4 CEO214.5 CEO214.6	CO214.6	2-5-2023	16/5/2028	15.1		000
34		Rendering Pipeline: Graphics rendering Pipeline, Haptics Rendering Pipeline			3-5-2023	1815 hozz			
35		Modeling in Virtual Reality: Concepts of Geometric Modeling, Kinematic Modeling.			3-5-2023	18/5/2023			
36		Physical modeling and Behavior modeling.		Jonal Inst of	3-5-2023	19/5/2023			/
		Start of Semester		E ITT :		End of Semester		Date	1
		Signature Course Faculty :	Date 24 4 2025	Puns		Signature Course Faculty :			
		HoD :				HoD:	101	0	



 Class: SE
 Course: Computer Graphics Laboratory

 Course Code: 214457
 Faculty Name: Prof. Megha R.Mehar

## **COURSE EDUCATIONAL OBJECTIVES**

Course Educational Objective	Description
CEO218.1	To acquaint the learners with the concepts of OpenGL.
CEO218.2	To acquaint the learners with the basic concepts of Computer Graphics.
CEO218.3	To implement the various algorithms for generating and rendering the objects.
CEO218.4	To get familiar with mathematics behind the transformations.
CEO218.5	To understand and apply various methods and techniques regarding animation.

## **COURSE OUTCOME - DETAILS**

Course	Description							
Outcome								
CO218.1	Explore the OpenGL Library							
CO218.2	Apply line & circle drawing algorithms to draw the objects.							
CO218.3	Apply polygon filling methods for the object.							
CO218.4	Apply polygon clipping algorithms for the object.							
CO218.5	Apply the 2D transformations on the object.							
CO218.6	Implement the curve generation algorithms & Demonstrate the animation of any object using animation principles.							

### **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course Outcome No	Assignment	Course Outcome No		
1	CO218.1	5			
2	CO218.2	5	CO218.4		
11	00218.2	6	CO218.4	00210.4	
3	CO218.3	7			
4	CO218.3	/	CO218.6		
9	CO218.5	8	0218.0		

Prof.Megha Mehar Signature of Faculty



Dr.Jyoti Surve **Head of Department** 



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY ACADEMIC YEAR : 2022-23, SEM - I

# **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Computer Graphics Lab	Course Code: 214448	
Faculty Name: Megha Mehar	Class: SE	

Course Outcome (COs)	Program Outcomes (POs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
CO218.1	1	1		-		-		-	-	-	.4	<u> </u>		
CO218.2	3	3	2	2	2	2	1	-	-	-	-			
CO218.3	3	3	2	3	2	2		-	-	-	-	-		
CO218.4	3	3	3	3	3	3		-	-	-	-	-		
CO218.5	3	3	3	3	3	3	-	-		-	-	-		
CO218.6	3	3	3	3	-	-	-	-	1.141	-	-	-		

Course		Program Specific	Outcomes (PSOs)	
Outcome (COs)	PSO1	PSO2	PSO3	PSO4
CO218.1	1	1		
CO218.2	3	3		
CO218.3	3	3		-
CO218.4	3	3	-	
CO218.5	3	3	~	-
CO218.6	3	3	<u>~</u>	
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Signature of Faculty

Head of Department





## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

ass: SE 2019 ourse Code-2			Course Name-Computer Graphics La Name of Faculty-Prof.Megha Meha
		CO-PO ma	apping Justification (Lab)
60d.	C 01		Justification
CO code CO218.1	Course Outcomes Explore the OpenGL Library	PO/PSO POI	Moderately mapped as students learn to model complex objects and use various graphics concepts to build graphics packages. This can be used to provide solutions for various engineering problems.
	a and the second second second	POI	Moderately mapped as students learn to fill the polygons using various attributes and 2D geometric transformations.
		PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels, Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
CO218.2	Apply line & circle drawing algorithms to draw the objects.	PO3	Moderately mapped as students will be able to design and implement graphics packages to provide solutions for various problems
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments
		PSO1	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
		POI	Moderately mapped as students learn to perform 3D geometric transformations, 2D clipping and color models.
	A have been filled a state for	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels, Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
CO218.3	Apply polygon filling methods for the object.	PO3	Moderately mapped as students will be able to design and implement graphics packages to provide solutions for various problems.
		POJ2	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments
		PSOI	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
	Apply polygon clipping	POI	Moderately mapped as students learn to view the objects in different projections like perspective and parallel.
CO218.4		PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms and implement those using appropriate tools and software packages.
	algorithms for the object.	PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments.
	-	PSÓI	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
		POI	Moderately mapped as students learn to use IO interactions.
		PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms an implement those using appropriate tools and software packages.
CO218.5	Apply the 2D transformations on the object.	PO3	Slightly mapped as students will be able to design and implement IO interactions.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments.
		PSOI	Moderately mapped as students understand the basics of OpenGL, transformations, polygon filling etc. in writing programs to build applications.
17		POI	Moderately mapped as students learn to model complex objects and use various graphics concepts to build graphics packages. This can be used to provide solutions for various engineering problems.
CO218.6	Implement the curve generation algorithms & Demonstrate the animation of any object using animation principles.	PO2	Moderately mapped as students can build a graphics project which needs the ability to understand the problem at various levels. Analyzing the need of various algorithms ar implement those using appropriate tools and software packages.
		PO12	Slightly mapped as students apply the concepts of GUI and Interaction with computer in professional developments.

Signature of Faculty Prof. Megha Mehar



Head of Department Dr. Jyoti Surve

Sign of Faculty:

# For each batch, different record is to be m\_intained



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year : 2021-22, Semester - II

Subje	ect Code : 214457 Class: SH	C		Name of Faculty: Prof. Megha R.Mehar							
Subje	ect Name: Computer Graphics Laboratory			Batch: A Teaching Scheme:			Pr: 2 Hrs / week				
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty		fonitored by			
140.					Conduction	(incase of variance)	AC	HOD	APMC		
1	Install and explore the OpenGL	CEO218.1	CO218.1	02/09/2023	13 2 2023		}	2			
2	Implement DDA line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	02/16/2023	02(03/2023		AX IND	- (R. 113	Dens		
3	Implement Bresenham's line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	23-2-2023	23 3 2023		fr.				
4	Implement Bresenham circle drawing algorithm to draw any object. The object should be displayed in all the quadrants with respect to center and radius ord shall be monitored by Academic Co-Ordinator (w	CEO218.1 CEO218.2 CEO218.3	CO218	Unst 0/ 100 100/2002 100/200 10	13/4/2023			- Je			

	r							D/CP	104 Vor Q1
5	Implement the following polygon filling methods : i) Flood fill / Seed fill ii) Boundary fill ; using mouse click, keyboard interface and menu driven programming	CE0218.1 CE0218.2 CE0218.3	CO218.3	03/09/2023	17/4/2023	prof. Deepali B.	21		
6	Implement Cohen Sutherland polygon clipping method to clip the polygon with respect the viewport and window. Use mouse click, keyboard interface	CEO218.1 CEO218.2 CEO218.3	CO218.4	16-4-2023	<b>29</b>  4)2028 ,		2512	So (	Deep
7	Implement following 2D transformations on the object with respect to axis : – i) Scaling ii) Rotation about arbitrary point iii) Reflection	CEO218.1 CEO218.2 CEO218.3 CEO218.4	CO218.5	23-4-2023	27/4/23		$\left \right\rangle$	×	
8	Generate fractal patterns using i) Bezier ii) Koch Curve	CEO218.1 CEO218.2 CEO218.3	CO218.6	04/06/2023	11/5/23		for y	~	
9	Implement animation principles for any object	CEO218.1 CEO218.2 CEO218.3 CEO218.5	CO218.6	13-4-2023	11152003		1976		Ders
10	Revision			20/04/2023 27/04/2023 04/05/2023	-				

## Start of Semester

Signature	Date	
Course Faculty :		isonal Inst or
HoD:		
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# End of Semester

Signature	Date
Course Faculty : 12	
HoD:	1916131



Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year : 2021-22, Semester - II

Subjec	t Code : 214457 Class: SE	Name of Faculty: Prof. Megha R. Mehar								
Subjec	ubject Name: Computer Graphics Laboratory					Teaching Scheme:	Pr: 2 Hrs / week			
Sr.				Date of	Remarks of Faculty	Monitored by				
No.	Experiment / Assignment	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	APMC	
1	Install and explore the OpenGL	CEO218.1	CO218.1	02/08/2023	08/02/2023		l			
2	Implement DDA line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	02/15/2023	14 02 2023 11 02 2023 01 03 2023		ATL INS	fer This	den	
3	Implement Bresenham's line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	22-2-2023	14 03 2025 23 03 2023	prof Niffn bt.	AIK	je je	Den	
4	Implement Bresenham circle drawing algorithm to draw any object. The object should be displayed in all the quadrants with respect to center and radius	CEO218.1 CEO218.2 CEO218.3	CO2100 Inst	03/01/2023	12/4/2023		A north	Je-		

					-	F			
5	Implement the following polygon filling methods : i) Flood fill / Seed fill ii) Boundary fill ; using mouse click, keyboard interface and menu driven programming	CEO218.1 CEO218.2 CEO218.3	CO218.3	03/08/2023	18/4/2023	prof. prach? N.	RN	Car	
6	Implement Cohen Sutherland polygon clipping method to clip the polygon with respect the viewport and window. Use mouse click,	CEO218.1 CEO218.2 CEO218.3	CO218.4	15-3-2023	19/4/2023		2,15	U U	
7	Implement following 2D transformations on the object with respect to axis : – i) Scaling ii) Rotation about arbitrary point iii) Reflection	CEO218.1 CEO218.2 CEO218.3 CEO218.4	CO218.5	29-3-2023	26/4/23	Ĩ			Deep
I X	Generate fractal patterns using i) Bezier ii) Koch Curve	CEO218.1 CEO218.2 CEO218.3	CO218.6	04/05/2023	10/5/2023		All	18/10	7
9	Implement animation principles for any object	CEO218.1 CEO218.2 CEO218.3 CEO218.5	CO218.6	12-4-2023	10/5/2023		1.1.2	1 per	
10	Revision		<u>^</u>	19/04/2023 26/04/2023 03/05/2023	-				)

Signature	Date
Course Faculty :	
loD:	

Signature	Date
Course Faculty :	
HoD:	1916123





Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year : 2021-22, Semester - II

Subjec	t Code : 214457 Class: SE			Name of Faculty: Prof. Megha R.Mehar						
Subjec	t Name: Computer Graphics Laboratory			Batch: C		Teaching Scheme:	Pr:2 Hrs/week			
Sr.					Date of	Remarks of Faculty	N	<b>Ionitore</b>	d by	
No.	Experiment / Assignment	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	APMC	
1	Install and explore the OpenGL	CEO218.1	CO218.1	02/14/2023	13 02 2028 144	-	9	1		
2	Implement DDA line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse	CEO218.1 CEO218.2	CO218.2	02/21/2023	15 02/2023 28 02/2023		Br	Jen	Dero	
	interface Divide the screen in four quadrants with center as $(0, 0)$ . The line should work for all the slopes positive as well as negative.	CEO218.3			14   93   2023		TIL	צוור	)	
3	Implement Bresenham's line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	28-2-2023	F7 (03)2023	prof. Manday Datas	Sr. TI	The	Den	
4	Implement Bresenham circle drawing algorithm to draw any object. The object should be displayed in all the quadrants with respect to center and radius	CEO218.1 CEO218.2 CEO218.3	CO21	03/4 2023	2/4/2023	prof. Deepali B	BN -2515	đ.		

5	Implement the following polygon filling methods : i) Flood fill / Seed fill ii) Boundary fill ; using mouse click, keyboard interface and menu driven programming	CEO218.1 CEO218.2 CEO218.3	CO218.3	03/21/2023	12/4/2023	prof. peepali B ,	7	), (	
6	Implement Cohen Sutherland polygon clipping method to clip the polygon with respect the viewport and window. Use mouse click, keyboard interface	CEO218.1 CEO218.2 CEO218.3	CO218.4	28-3-2023	18/4/2025		2315	Ja	Ders
7	Implement following 2D transformations on the object with respect to axis : – i) Scaling ii) Rotation about arbitrary point iii) Reflection	CEO218.1 CEO218.2 CEO218.3 CEO218.4	CO218.5	11-4-2023	25/4/23	Ĩ	ka	la	
8	Generate fractal patterns using i) Bezier ii) Koch Curve	CEO218.1 CEO218.2 CEO218.3	CO218.6	04/18/2023	9/5/2023		1916	Files	
9	Implement animation principles for any object	CEO218.1 CEO218.2	CO218.6	25-04-2023					
10	Revision			05/02/2023	10/5/2028			)	

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Signature	Date
Course Faculty :	
HoD:	1916 -





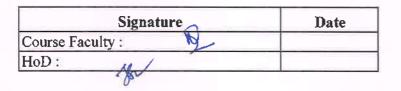
Hope Foundation's International Institute of Information Technology, Pune

**DEPARTMENT OF INFORMATION TECHNOLOGY** 

Academic Year : 2021-22, Semester - II

Subjec	t Code : 214457 Class: SE			Name of Facul	ty: Prof.Megha	R.Mehar			
Subjec	t Name: Computer Graphics Laboratory			Batch: D Teaching Scheme:			Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction			Monitor HOD	ed by APMC
1	Install and explore the OpenGL	CEO218.1	CO218.1	02/13/2023	15 2 2023, 20 02	3	2		
2	Implement DDA line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	02/20/2023	13/3/2003 17/3/2023	prof. Mandar Datar	67		
3	Implement Bresenham's line drawing algorithm to draw: i) Simple Line ii) Dotted Line iii) Dashed Line iv) Solid line ;using mouse interface Divide the screen in four quadrants with center as (0, 0). The line should work for all the slopes positive as well as negative.	CEO218.1 CEO218.2 CEO218.3	CO218.2	27-2-2023	17 3 2023 <del>23 3 2023</del>	Prof. Mandar Datar	dr. 515	Jon Jon	Toes
4	Implement Bresenham circle drawing algorithm to draw any object. The object should be displayed in all the quadrants with respect to center and radius	CEO218.1 CEO218.2 CEO218.3	CO2	03/06/2023	23/3/2023		fre 5	Ja.	

5	Implement the following polygon filling methods : i) Flood fill / Seed fill ii) Boundary fill ; using mouse click, keyboard interface and menu driven programming	CEO218.1 CEO218.2 CEO218.3	CO218.3	03/13/2023	23/3/2023	the 2
6	Implement Cohen Sutherland polygon clipping method to clip the polygon with respect the viewport and window. Use mouse click, keyboard interface	CEO218.1 CEO218.2 CEO218.3	CO218.4	20-3-2023	17/4/2023	Bry Ders
7	Implement following 2D transformations on the object with respect to axis : – i) Scaling ii) Rotation about arbitrary point iii) Reflection	CEO218.1 CEO218.2 CEO218.3 CEO218.4	CO218.5	27-3-2023	24/4/23	
8	Generate fractal patterns using i) Bezier ii) Koch Curve	CEO218.1 CEO218.2 CEO218.3	CO218.6	04/03/2023	8105/2025	the fair
9	Implement animation principles for any object	CE0218.1	CO218.6	10-4-2023	915/2023	
10	Revision			17/4/2023 24/04/2023	915/2023	



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#### Hope Foundation's International Institute of Information Technology, Pune

### DEPARTMENT OF INFORMATION TECHNOLOGY

#### Academic Year 2022-23 Semester I

 Class: TE 2019
 Course Name: Operating System

 Course Code: 314442
 Name of Faculty: Dr. Bhavana Kanawade

#### **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description
CEO302.1	To introduce basic concepts and functions of modern operating systems.
CEO302.2	To understand the concept of process, thread management and scheduling.
CEO302.3	To learn the concept of concurrency control.
CEO302.4	To study various Memory Management techniques.
CEO302.5	To know the concept of I/O and File management.
CEO302.6	To learn concept of system software.

### **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO302.1	Explain the role of Modern Operating Systems.
CO302,2	Apply the concepts of process and thread scheduling.
CO302.3	Illustrate the concept of process synchronization, mutual exclusion and the deadlock.
CO302.4	Implement the concepts of various memory management techniques.
CO302.5	Make use of concept of I/O management and File system.
CO302.6	Understand Importance of System software.

## **CLASS TEST- COURSE OUTCOME MAPPING**

Question	CLASS	ASS TEST - I CLASS TEST-II			CLASS TEST - III		
No	CO Mapping	Marks	CO Mapping	Marks	CO	Marks	
Q1 - Q2	CO302.1	15	CO302.3	15	CO302.5	15	
Q3 - Q4	CO302.2	15	CO302.4	15	CO302.6	15	

# THEORY ASSIGNMENT- COURSE OUTCOME MAPPING

Question	ASSIGNMENT-I		tion ASSIGNMENT-I ASSIGNMENT-II				ASSIGNMENT-III		
No	CO Mapping	Marks	CO Mapping	Marks	CO	Marks			
1	CO302.1	10	CO302.3	10	CO302.5	10			
2	CO302.2	10	CO302.4	10	CO302.6	10			

Dr. Bhavana Kanawade Signature of Faculty



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Head of Department

Sign of Faculty:



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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

# **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Operating System	Course Code: 314442
Faculty Name: Dr. Bhavana Kanawade	Class: TE 2019

Course	Program Outcomes (POs)											
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12
CO302.1	3	2	2	1	1	-	122	-	-	-	-	2
CO302.2	. 3	2	2	1	1	-	12	-	-	-	-	2
CO302.3	3	2	2	1	1		್ಷ	-	5 <b>–</b>	-	-	2
CO302.4	3	2	- 2	1	1		-	4	22	-		2
CO302.5	3	2	2	1	1	<u>्</u> य	-	-	-	4	-	2
CO302.6	2	-	-	-	84		-	-		-	-	2

Course	Program Specific Outcomes (PSOs)								
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4					
CO302.1	2	1	-	- 1					
CO302.2	2	1	-	- 5					
CO302.3	2	1	<b>1</b>						
CO302.4	2	1	-	· · · · ·					
CO302.5	2	1	¥						
CO302.6	2	1	-	-					

Dr. Bhavana Kanawade Signature of Faculty

X Dr. Jyoti Surve Head of Department





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## Hope Foundation's International Institute of Information Technology, Pune

## DEPARTMENT OF INFORMATION TECHNOLOGY

#### Academic Year 2022-23 Semester I

Class: TE 2019Course Name: Operating System LaboratoryCourse Code: 314446Name of Faculty: Dr. Bhavana Kanawade

## **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description
CEO306.1	To introduce and learn Linux commands required for administration.
CEO306.2	To learn shell programming concepts and applications.
CEO306.3	To demonstrate the functioning of OS basic building blocks like processes, threads under the LINUX.
CEO306.4	To demonstrate the functioning of OS concepts in user space like concurrency control (process synchronization, mutual exclusion), Memory Management, CPU Scheduling and Disk Scheduling in LINUX.
CEO306.5	To demonstrate the functioning of Inter Process Communication under LINUX.
CEO306.6	To study the functioning of OS concepts in kernel space like embedding the system call in

## **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO306.1	Will be able to apply the basics of Linux commands.
CO306.2	Will be able to build shell scripts for various applications.
CO306.3	Will be able to implement basic building blocks like processes, threads under the Linux
CO306.4	Will be able to develop various system programs for the functioning of OS concepts in user space like CPU Scheduling, concurrency control, Memory Management and Disk Scheduling in Linux.
CO306.5	Will be able to develop system programs for Inter Process Communication in Linux
CO306.6	Will be able to embed a system call in kernel

# **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course Outcome No	Assignment	Course Outcome No		
1	2010	8			
2	306.3	9			
3	306,1	10	306.4		
4	306.2	11			
5	306.4	12			
6	306.5	13	306.6		
7	500.5				

r Dr. Bhavana Kanawade

Signature of Faculty



Dr. Jyoti Surv **Head of Department** 



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2023-23 Semester I

**CORRELATION BETWEEN CO, PO & PSO** 

Course Name: Operating System Laboratory	Course Code: 314446
Faculty Name: Dr. Bhavana Kanawade	Class: TE 2019

		240		(	со-ро	MATE	UX							
Course		Program Outcomes (POs)												
Outcome (COs)	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
CO306.1	3	2	2	1	1	÷	+	-	-	-		2		
CO306.2	3	2	2	1	1	-	÷.	æ	-	-	-	- 2-		
CO306.3	3	2	2	1	1	-	-	-	-	-	-	2		
CO306.4	3	2	2	1	1	-	h-	-		-	-	2		
CO306.5	3	2	2	1	1	-	÷ .		-	-		-2		
CO306.6	2		-		-		=	87	-	-	-	2		
1 - LOW , 2	- MED	IUM,3	- HIGH	I.										

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Course		Program Specific	Outcomes (PSOs)	
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4
CO306.1	2	1	-	بید مراده داد ب
CO306.2	2	1	-	
CO306:3	2	1	-	-
CO306,4	2	1	-	-
CO306.5	2	1	-	-
CO306.6	2	1	-	-

Dr. Bhavana Kanawade Signature of Faculty

Dr. Jyoti Surve Head of Department

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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

THEORY TEACHING RECORD

Cou	se C	ode: 314442	Class: TE 2019		Name of Faculty: Dr. Bhavana Kanawade							
Cour	se Na	ame: Operating System		14	Teaching Sche	me:	Th: 3 Hrs / week					
Lr.			CIII CIII C	2000 PC		Deter	Remarks of	M	Ionitore	d by		
No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС		
	П		UNIT 1 : OVE	RVIEW OF	OPERATING SY	STEM						
1	1.1	Operating System Objectives and Functions			18/7/2022	1817		ey.		I)		
2	1.2	The Evolution of Operating Systems	]		19/7/2022	1917						
3	1.3	The Evolution of Operating Systems	(THE P	DOM: NY	20/7/2022	2017			)			
4	1.4	Developments Leading to Modern Operating Systems	CEO302.1	CO302.1	21/7/2022	2117		R.L.	18	Der		
5	1.5	Virtual Machines			25/7/2022	2512		151812	1318	4		
6	1.6	Introduction to Linux OS, BASH Shell scripting: Basic shell commands.			26/7/2022	2617						
	13	المحالية معتقدة ويعي المصريات طري	UNIT 2	PROCESS	MANAGEMENT	[				4 .		
7	2.1	Process: Concept of a Process, Process States, Process Description, Process Control		Inst or	28/7/2022	2817				)		
ć		present the state of the second states of the secon	Interneto	B	1.189.)	(1)+	atter inter	/	1			

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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8	2.2	Process: Concept of a Process, Process States, Process Description, Process Control	interior.	GB y	1/8/2022	2817-	Due to Fop Time table rescheduled	}		)
9	2.3	Processes and Threads, Concept of Multithreading		Zant "	2/8/2022	318			1	
10	2.4	Types of Threads, Thread programming Using Pthreads	CEO302.2	CEO302.2	4/8/2022	218		AX.	lin	Den
11	2.5	Scheduling: Types of Scheduling, Scheduling Algorithms, First Come First Served			8/8/2022	418		1318	Vas	
12	2.6	Shortest Job First, Priority, Round Robin	10000		16/8/2022	818		Province and	.,	1
		The second second second	<b>UNIT 3 :</b>	CONCURRE	NCY CONTRO	0L		,		
13	3.1	Process/thread Synchronization and Mutual Exclusion: Principles of Concurrency, Requirements for Mutual Exclusion			22/8/2022	1618			2	$\int$
14	3.2	Mutual Exclusion: Operating System Support (Semaphores and Mutex).	-41.1 - 05	012,002 (0)	23/8/2022	1818		2718	Star Nav	
15	3.3	Classical synchronization problems: Readers/Writers Problem, Producer and Consumer problem	CEO302.3	CEO302.3 -	25/8/2022	2218				Den
16	3.4	Interprocess communication (Pipes, shared memory: system V).		CE0302.3	29/8/2022	2418	ML class swap adjust-	•		3 
17	3.5	Deadlock: Principles of Deadlock, Deadlock Modeling, and Strategies to deal with deadlock: Prevention, Avoidance, Detection and Recovery.	inst o	1000	30/8/2022	2518		J		
18	3.6	Example: Dining Philosophers Problem / Banker's Algorithm.	T	a la	1/9/2022	2-9)8;	-Pube		)	

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			UNIT 4	:MEMORY	MANAGEME	NT									
19	4.1	Memory Management: Memory Management Requirements, Memory Partitioning: Fixed Partitioning, Dynamic Partitioning		( Fai	5/9/2022	1/9	2	)							
20	4.2	Buddy System, Relocation	CEO302.4	Stat of	6/9/2022	519	dr-		1						
21	4.3	Paging, Page table structure, Segmentation		CEO302.4	8/9/2022	619	104	50	81						
22	4.4	Virtual Memory: Background, Demand Paging		iets- Alfalle-	13	12/9/2022	819		1	lom.					
23	4.5	Page Replacement (FIFO, LRU, Optimal)			/hten/d	· · ·	13/9/2022	1319	,		1				
24	4.6	Allocation of frames, Thrashing		÷	19/9/2022	131 9			Der						
_		UNI	5: INPUT/	OUTPUT AN	ND FILE MAN	AGEMENT									
25	5.1	I/O Management and Disk Scheduling: I/O Devices, Organization of the I/O Function, I/O Buffering	8			20/9/2022	15/9	4							
26	5.2	Disk Scheduling (FIFO, SSTF, SCAN, C- SCAN, LOOK, C-LOOK)											22/9/2022	1919	
27	5.3	Disk Scheduling (FIFO, SSTF, SCAN, C- SCAN, LOOK, C-LOOK)	CE0202.5	CEO302.5	26/9/2022	2019	L.	(2	8 111						
28	5.4	File Management: Overview-Files and File Systems, File structure	CEO302.5	CE0302.5	CE0302.5 -	27/9/2022	269	- 101		e					
29	5.5	File Organization and Access, File Directories		info	3/10/2022	2819		1	x						
30	5.6	File Sharing, Record Blocking, Secondary Storage Management		anation,	Cornetione	in attor	ionation.	in attom	ornatione	S act	6/10/2022	15/10			$\uparrow$

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31	6.1	Need of System Software, study of various components of system software.	in ange	Contrary 1	10/10/2022	17110	2	
32	6.2	Assemblers: Elements of Assembly Language Programming	. (14		11/10/2022	19)10	7	
33	6.3	A simple Assembly Scheme and pass structure of Assemblers.		4 X	13/10/2022	20110	152	1000
34	6.4	Introduction to compilers: Phase structure of Compiler and entire compilation process	CEO302.6	CEO302.6	17/10/2022	20110	300	( solver
35.	6.5	Introduction to Macro processors, Macro Definition and call, Macro Expansion Loaders and Linkers			18/10/2022	7-jn		
36	6.6	General Loader Scheme, Subroutine Linkages, Relocation and linking Linkages, Relocation and linking			20/10/2022	71)		

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Course Faculty: Dr. Bhowark	1810712
HoD: ANA	1517

Signature	Date
Course Faculty :	Umalina
HoD:	



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### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

# PRACTICAL TEACHING RECORD

	rse Code: 314446	Class: TE 20	19	Name of Faculty: Dr. Bhavana Kanawade						
Cou	rse Name: Operating System Laboratory			Batch: A		Teaching Scheme:	Pr: 2 Hrs / week			
Sr. No.	Experiment / Assignment	СЕО	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)		lonitore		
1	Process control system calls: The demonstration of FORK and WAIT system calls along with zombie and orphan states.	CEO306.3	CO306.3	25/7/2022 29/7/2022	2517	GFG LETTOD Conducted on 2917	a	nob		
2	Process control system calls: The demonstration of EXECVE system calls along with zombie and orphan states.	CEO306.3	CO306.3	1/8/2022 5/8/2022	818 218		1318	1		
}	To understand the significance of shell commands	CEO306.1	CO306.1	8/8/2022 19/8/2022	12/8		fr.	248	1	
1	Write a program to implement an address book using shell programming	CEO306.2	CO306.2	22/8/2022 26/8/2022	22/8		2718	/	>	
5	Implement the C program for CPU Scheduling Algorithms: Shortest Job First (Preemptive) and Round Robin with different arrival time.	CEO306.4	CO306.4	29/8/2022 2/9/2022	2319		1 bri	1	(:Dev	
5	Inter process communication in Linux using FIFO	CEO306.5	CO306.5	5/9/2022 12/9/2022	1619,1919		9	$\left[ \right]$	84.	
	Inter process communication in Linux using Shared Memory	CEO306	CO306.5	16/9/2022 19/9/2022	1319	10 I	ł	$\mathcal{T}$	)	
	א איז אין איז אין איז אין	amain	+ Pure	a.	7.K.		(#)			

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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8	Thread synchronization using counting semaphores. Application to demonstrate: producer- consumer problem with counting semaphores and mutex.	CEO306.4	CO306.4	23/9/2022	2618		- Bin	
9	Thread synchronization and mutual exclusion using mutex. Application to demonstrate: Reader- Writer problem with reader priority.	CEO306.4	CO306.4	26/9/2022	29)8 2/9		Jierg	Just -
10	Implement the C program for Deadlock Avoidance Algorithm: Bankers Algorithm.	CEO306.4	CO306.4	30/9/2022 3/10/2022	2819		5.	) . De
11	Implement the C program for Page Replacement Algorithms: FCFS, LRU, and Optimal for frame size as minimum three.	CEO306.4	CO306.4	7/10/2022	17/10		3011	1 Me
12	Implement the C program for Disk Scheduling Algorithms: SSTF, SCAN, C- Look considering the initial head position moving away from the spindle.	CEO306.4	CO306.4	10/10/2022	21/10	The second second		
13	To embed system call in kernel	CEO306.6	CO306.6	14/10/2022 17/10/2022	21/10		1	

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Signature	Date
Course Faculty :	1817-122
HoD:	1817

#### **End of Semester**

Signature A Date m 07/11/20 Course Faculty : HoD : 1/301

The record shall be monitored by Academic Co-Ordinator (weekly, HoD (Biweekly) and reviewed by APMC Co-Orons for (Biweekly)



Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

#### PRACTICAL TEACHING RECORD

Cou	rse Code: 314446	Class: TE 20	19	Name of Faculty: Dr. Bhavana Kanawade					
Cou	rse Name: Operating System Laboratory	Sugar International	count!	Batch: B		Teaching Scheme:	Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	d by APMC
1	Process control system calls: The demonstration of FORK and WAIT system calls along with zombie and orphan states.	CEO306.3	CO306.3	26/7/2022 29/7/2022	2617 218	Conducted on 2917			
2	Process control system calls: The demonstration of EXECVE system calls along with zombie and orphan states.	CEO306.3	CO306.3	2/8/2022 5/8/2022	1218		RX 1318		0010
3	To understand the significance of shell commands	CEO306.1	CO306.1	16/8/2022 19/8/2022	5)8		6115 1318	2718	
4	Write a program to implement an address book using shell programming	CEO306.2	CO306.2	23/8/2022 26/8/2022	15)8 23)8		SX - 2718	)	
5	Implement the C program for CPU Scheduling Algorithms: Shortest Job First (Preemptive) and Round Robin with different arrival time.	CEO306.4	CO306.4	30/8/2022 2/9/2022	2319 2719		<b></b>		1
6	Inter process communication in Linux using FIFO	CEO306.5	G83865	6/9/2022 13/9/2022	2019				

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) are viewed by APMC Co-Ordinator (Biweekly)

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7	Inter process communication in Linux using Shared Memory	CEO306.5	CO306.5	16/9/2022 20/9/2022	1319	5	-
8	Thread synchronization using counting semaphores. Application to demonstrate: producer- consumer problem with counting semaphores and mutex.	CEO306.4	CO306.4	23/9/2022	2618 3078	2 Ar	
9	Thread synchronization and mutual exclusion using mutex. Application to demonstrate: Reader- Writer problem with reader priority.	CEO306.4	CO306.4	27/9/2022	219	10	5 10
10	Implement the C program for Deadlock Avoidance Algorithm: Bankers Algorithm.	CEO306.4	CO306.4	30/9/2022 4/10/2022	11/10	l a	
11	Implement the C program for Page Replacement Algorithms: FCFS, LRU, and Optimal for frame size as minimum three.	CEO306.4	CO306.4	7/10/2022	18/10	301	11 181
12	Implement the C program for Disk Scheduling Algorithms: SSTF, SCAN, C- Look considering the initial head position moving away from the spindle.	CEO306.4	CO306.4	11/10/2022	21/10		
13	To embed system call in kernel	CEO306.6	CO306.6 <sup>-</sup>	14/10/2022 18/10/2022	21)10		J

 Start of Semester

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 Date

 Course Faculty :
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 HoD :
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End of Semester	/
Signature	Date
Course Faculty :	lui 07/11
HoD :	14 Jun

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester I

PRACTICAL TEACHING RECORD

	rse Code: 314446	Class: TE 20	19	Name of Faculty: Dr. Bhavana Kanawade						
Cou	rse Name: Operating System Laboratory			Batch: C		Teaching Scheme:	Pr: 2 Hrs / week			
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	d by APMO	
1	Process control system calls: The demonstration of FORK and WAIT system calls along with zombie and orphan states.	CEO306.3	CO306.3	27/7/2022 29/7/2022	27-17-518	GFG services conducted on 2912	AC	IOD		
2	Process control system calls: The demonstration of EXECVE system calls along with zombie and orphan states.	CEO306.3	CO306.3	3/8/2022 5/8/2022	30)8	-0.4	BIP	-}		
3	To understand the significance of shell commands	CEO306.1	CO306.1	10/8/2022 17/8/2022	1718		0.,	52		
4	Write a program to implement an address book using shell programming	CEO306.2	CO306.2	19/8/2022 24/8/2022	1918		LANP.	2	Del	
5	Implement the C program for CPU Scheduling Algorithms: Shortest Job First (Preemptive) and Round Robin with different arrival time.	CEO306.4	CO306.4	26/8/2022 2/9/2022	23) 9		2	1		
5	Inter process communication in Linux using FIFO	CEO306.5	CO306.5	7/9/2022 14/9/2022	1619	•	AN I			
7	Inter process communication in Linux using Shared Memory	CEO306.5	CONCINST	16/9/2022 /9/2022	1519					

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

0 Implem Avoida	nutex. Application to demonstrate: - Writer problem with reader priority. ment the C program for Deadlock nce Algorithm: Bankers Algorithm.	CEO306.4 CEO306.4	CO306.4	28/9/2022	219 719				
Avoida Implen		CEO306.4						1	11
			CO306.4	30/9/2022 7/10/2022	2819		2	1 2	
	enent the C program for Page ement Algorithms: FCFS, LRU, and al for frame size as minimum three.	CEO306.4	CO306.4	12/10/2022	12/10		32111	18	M
12 Schedu Look c	ent the C program for Disk ling Algorithms: SSTF, SCAN, C- onsidering the initial head position g away from the spindle.	CEO306.4	CO306.4	14/10/2022	19/10	7			
13 To emb	ed system call in kernel	CEO306.6	CO306.6	19/10/2022	21/20	Copyryw House Person Copyryw House Person Copyryw House Person	1	J	H

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year. 2022-23 Semester I

### PRACTICAL TEACHING RECORD

Cou	rse Code: 314446	Class: TE 20	19	Name of Faculty	Dr. Bhavana	Kanawade	2		
Cou	rse Name: Operating System Laboratory	Deter 1		Batch: D		Teaching Scheme:	Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)		lonitore HOD	
1	Process control system calls: The demonstration of FORK and WAIT system calls along with zombie and orphan states.	CEO306.3	CO306.3	28/72022 29/7/2022	818 418	afa sension conducted on egy z-	Y	100	
2	Process control system calls: The demonstration of EXECVE system calls along with zombie and orphan states.	CEO306.3	CO306.3	4/8/2022 5/8/2022	1818		21	Jan .	
3	To understand the significance of shell commands	CEO306.1	CO306.1	· 18/8/2022 19/8/2022	518		2218	298	•
4	Write a program to implement an address book using shell programming	CEO306.2	CO306.2	25/8/2022 26/8/2022	1918		)		D
5	Implement the C program for CPU Scheduling Algorithms: Shortest Job First (Preemptive) and Round Robin with different arrival time:	CEO306.4	CO306.4	1/9/2022 2/9/2022	23919		Bat	1	8
5	Inter process communication in Linux using FIFO	CEO306.5	CO306.5	8/9/2022 15/9/2022	2219		902		350
7	Inter process communication in Linux using Shared Memory	CEO306.5	A. 0706.5	16/9/2022 22/9/2022	81219	21 - 24		7	)

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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3	To embed system call in kernel	CEO306.6	CO306.6	20/10/2022		
12	Implement the C program for Disk Scheduling Algorithms: SSTF, SCAN, C- Look considering the initial head position moving away from the spindle.	CEO306.4	CO306.4	13/10/2022	21/10	
11	Implement the C program for Page Replacement Algorithms: FCFS, LRU, and Optimal for frame size as minimum three.	CEO306.4	CO306.4	7/10/2022	18)10	100 - 100
10	Implement the C program for Deadlock Avoidance Algorithm: Bankers Algorithm.	CEO306.4	CO306.4	30/9/2022 6/10/2022	13/10	() (jee
9	Thread synchronization and mutual exclusion using mutex. Application to demonstrate: Reader- Writer problem with reader priority.	CEO306.4	CO306.4	29/9/2022	119 219	troig be
8	Thread synchronization using counting semaphores. Application to demonstrate: producer- consumer problem with counting semaphores and mutex.	CEO306.4	CO306.4	23/9/2022	26)8	

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# Hope Foundation's International Institute of Information Technology, Pune

# INFORMATION TECHNOLOGY

Academic Year 2022-23 Semester II

Class: TE 2019 Course Code: 314453 Course Name: Web Application Development Faculty Name: Prof. Monali Bansode

#### **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description			
CEO313.1	To familiarize students with Web Programming basic concepts			
CEO313.2	To learn and understand Web scripting languages.			
CEO313.3	To explore the Front end web programming skills.			
CEO313.4	To explore the Back end web programming skills.			
CEO313.5	To understand and learn Mobile web development.			
CEO313.6	To understand and learn Web application deployment.			

# **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO313.1	Develop Static and Dynamic website using technologies like HTML, CSS, Bootstrap.
CO313.2	Demonstrate the use of web scripting languages.
CO313.3	Develop web application with Front End Technologies.
CO313.4	Develop web application with Back End Technologies.
CO313.5	Develop mobile website using JQuery Mobile.
CO313.6	Deploy web application on cloud using AWS.
	Develop web application with Back End Technologies.         Develop mobile website using JQuery Mobile.

# **CLASS TEST- COURSE OUTCOME MAPPING**

	CLASS	TEST - I	CLASS	CLASS TEST - III			
Question No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks	
Q1 - Q15	CO313.1	15	CO313.3	15	CO313.5	15	
Q16 - Q30	CO313.2	15	CO313.4	15	CO313.6	15	

# THEORY ASSIGNMENT- COURSE OUTCOME MAPPING

	ASSIGN	IMENT-I	ASSIGN	ASSIGNMENT-II		
Question No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks
Q1	CO313.1	10	10st 0313.3	10	CO313.5	10
Q2	CO313.2	10	5 TD 91 4	10	CO313.6	10

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#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

#### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Web Application Development	Course Code: 314453
Faculty Name: Prof. Monali Bansode	Class: TE 2019

	CO-PO MATRIX											
Course		Program Outcomes (POs)										
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO313.1	3	-	-	-	-	-			-			1
CO313.2	3	2	1	1	-	-			-	-	-	1
CO313.3	3	3	1	1	2	-	2 <b>4</b> 5	ji ji	-	-	-	1
CO313.4	3	-	1	1	-	-	-	-	-	-	-	1
CO313.5	3	2	1	1	-	-	-		-	-	-	1
CO313.6	3	-	1		-	-	-	22	240		-	1
1 - LOW , 2 -	- MEDIL	JM,3-	HIGH	111								

Course	Program Specific Outcomes (PSOs)								
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4					
CO313.1	3	1	-	-					
CO313.2	3	2	-	-					
CO313,3	3	2	-	-					
CO313.4	3	2	-	-					
CO313.5	3	-	-	•					
CO313.6	3	-	1	-					

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Prof. Monali Bansode Signature of Faculty

Dr. Jyoti Surve Head of Department





#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY

Academic Year 2022-23 Semester II

# Class: TE 2019 Course Name: Laboratory Practice-II Course Code: 314458 Faculty Name: Prof. Monali Bansode

#### **COURSE EDUCATIONAL OBJECTIVES**

Course Objective	Description
CEO318.1	To understand basic concepts of web programming and scripting languages.
CEO318.2	To learn Version Control Environment.
CEO318.3	To learn front end technologies.
CEO318.4	To learn back end technologies.
CEO318.5	To understand mobile web development.
CEO318.6	To comprehend web application deployment.

#### **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO318.1	Develop Static and Dynamic responsive website using technologies HTML, CSS, Bootstrapand AJAX.
CO318.2	Create Version Control Environment.
CO318.3	Develop an application using front end technologies.
CO318.4	Develop an application using backend technologies.
CO318.5	Develop mobile website using JQuery Mobile.
CO318.6	Deploy web application on cloud using AWS.

#### ASSIGNMENT- COURSE OUTCOME MAPPING

Assignment	Course Outcome No	Assignment	Course Outcome No
1	CO318.1	6	CO318.4
2	• CO318.1	7	CO318.4
3	CO318.2	8	CO318.5 .
4	CO318.4	9	CO318.6
5	CO318.3		



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#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

#### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Laboratory Practice-II	Course Code: 314458	
Faculty Name: Prof. Monali Bansode	Class: TE 2019	

CO-PO MATRIX

Course		Program Outcomes (POs)												
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	<b>PO1</b> 1	PO12		
CO318.1	3	2	-	-	-	-	ж.	-	-	1	-	1		
CO318.2	3	3	1	1	-	-	-	-	245	1	-	1		
CO318.3	3	2	2	2	2	-	iπ.	-	-	1	1	1		
CO318.4	3	2	2	1	-	-	141	-	-		æ	-		
CO318.5	3	2	1	1	-	-		-	-	-	÷	-		
CO318.6	3	2	2	1	-	-		-	-	1	-	1		
1 - LOW , 2	2 - MEC	NUM, 3	- HIGH											

Program Specific Outcomes (PSOs)										
PSO1	PSO2	PSO3	PSO4							
3	2	-	-							
3	2	-	-							
3	2		-							
3	3	<u>=</u>								
3	2	-	-							
3	3	-	-							
	PSO1 3 3 3 3 3 3 3 3 3 3		Program Specific Outcomes (PSOs)           PSO1         PSO2         PSO3           3         2         -           3         2         -           3         2         -           3         2         -           3         2         -           3         2         -           3         2         -           3         3         -           3         3         -           3         3         -							

Prof. Monali Bansode Signature of Faculty

1gr Dr. Jyoti Surve **Head of Department** 





### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY

Academic Year 2022-23 Semester II

#### THEORY TEACHING RECORD

Course	Code	e: 314453	Class: TE 2019		Faculty Name: Prof. Monali Bansode					
Course	Nam	e: Web Application Development		Teaching Scheme:		Th: 3 Hrs / week		2	-	
T.	-							3	Ionitored	t by
Lr. No.	41	Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМО
		UNTI	1: INTROD	UCTION TO	WEB TECHNO	LOGIES			-	-
1	1.1	HTML: Getting started with HTML. Why HTML, Tags and Elements, Attributes			2/1/2023	01/02		7		
2	1.2	Properties, Headings list, Links, Tables, Images, HTML Form, Media (Audio, Video), Semantic HTML5 Elements.			2/6/2023	06 02		5		
3	1.3	CSS: Why CSS, Types of CSS, How to use CSS, Properties, Classes, Child-Class (Nested CSS),			2/7/2023	07 02			Ļ	5
4	1.4	Colors, Text, Background, Border, Margin, Padding, Positioning (flex, grid, inline, block), Animation, Transition		CO313.1	2/8/2023	68 02		Ar.	10/2	2 De
5	1.5	BOOTSTRAP: Why Bootstrap, CSS over Bootstrap, How to Use Bootstrap, Bootstrap Grid System, Bootstrap Responsive			2/13/2023	15/02	Hackathon			
6	1.6     Bootstrap Classes, Bootstrap Components (i.e., Button, Table, List, etc.), Bootstrap as a Cross Platform. W3C: What is W3C, How W3C handles/Supports Web Technologies.		2/14/2023	20 02	Hackathon					

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Lr. No.	5	Topics to be Delivered	CEO	CO	. Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
	E	1 1 A 4	<b>UNIT 2 : W</b>	EB SCRIPTI	NG LANGUAGI	ES	si uus			
7	2.1	JavaScript: Introduction to Scripting languages, Introduction to JavaScript (JS), JS Variables and Constants,			2/15/2023	22/02		2		
8	2.2	JS Variable Scopes, JS Data Types, JS Functions, JS Array, JS Object, JS Events.			2/20/2023	24/02	107		7	-
9	.2.3	Advanced JavaScript: JSON - JSON Create, Key-Value Pair, JSON Access, JSON Array	- 2-1		2/21/2023	28/02	105	R	Y	
10	2.4	JS Arrow Functions, JS Callback Functions, JS Promises, JS Async-Await Functions, JS Error Handling.	CEO313.2	CO313.2	2/22/2023	01 03	145	4	NE	3 Dev
11	2.5	AJAX: Why AJAX, Call HTTP Methods Using AJAX, Data Sending, Data Receiving, AJAX Error Handling.			2/27/2023	06/03	1 er	$\left \right\rangle$		
12	2.6	JQUERY :Why JQuery, How to Use, DOM Manipulation with JQuery, Dynamic Content Change with JQuery. UI Design Using JQuery.			2/28/2023	08 03	(lere		191	) .
		Class Test I							-	
			UNIT 3 : F	RONT END 1	TECHNOLOGI	CS				
13	3.1	Front-End Frameworks: What is web framework? Why Web Framework? Web Framework Types.	н		3/1/2023	13/03		484	1	
14	3.2	MVC: What is MVC. MVC Architecture, MVC in Practical, MVC in Web Frameworks. TypeScript: Introduction to TypeScript (TS). Variables and Constants. Modules in TS.	CEO313.3	CO313.3	3/6/2023	14]03			fr	( Devo
15	3.3	AngularVersion 10+: Angular CLI, Angular Architecture, Angular Project Structure, Angular Lifecycle, Angular Modules	internation of	PT P	3/8/2023	15 03				)

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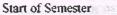
The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweek), and reviewed by APMC Co-Ordinator (Biweekly)

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Lr.				-		Date of	Remarks of	Monitored by		
No.		Topics to be Delivered	CEO	CO	Date of Plan	Conduction	Faculty (incase of variance)	AC	HOD	APMO
16	3.4	Angular Components. Angular Data Binding, Directives and Pipes. Angular Services and Dependency, Injections (DI). Angular Routers, Angular Forms.	R.		3/13/2023	20 03		300	)	
17	3.5	ReactJS: Introduction to ReactJS, React Components, Inter Components Communication.	CEO313.3	CO313.3	3/14/2023	21/03	8 . I topor	P	- K	5 Der
18	·3.6	Components Styling, Routing, Redux- Architecture, Hooks- Basic hooks, useState() hook, useEffect() hook useContext() hook.			3/15/2023	124			)"	
		*	UNIT 4 : B	BACK END T	<b>ECHNOLOGIE</b>	S				1
19	4.1	Node.JS: Introduction to Node.JS, Environment Setup, Node.JS Events, Node.JS Functions, Node.JS Built in modules,			3/20/2023	17/04		ł	C.	
20	4.2	File System, NPM, Install External Modules, Handling Data I/O in Node.JS, Create HTTP Server, Create Socket Server, Microservices- PM2.			3/21/2023	17/04		Si	7	
21	4.3	ExpressJS: Introduction to ExpressJS, Configure Routes, Template Engines, ExpressJS as Middleware, Serving Static Files,	CEO313.4	CO313.4	3/27/2023	18 04	-		m	Der
22	4.4	REST HTTP Method APIs, Applying Basic HTTP Authentication, Implement Session Authentication.			3/28/2023	19/04	e Paraterials.		1	
23	4.5	MongoDB: NoSQL and MongoDB Basics, MongoDB-Node.JS Communication,			3/29/2023	20104	1			
24	4.6	CRUD Operations using Node.JS, Mongoose ODM for Middleware, Advanced MongoDB.		ist or	4/3/2023	22/04				
		Class Test II	and a	36				1.1		/

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Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
			UNIT 5: M	<b>OBILE WEH</b>	B DEVELOPME	NT				
25	5.1	Mobile-First: What is Mobile-First? What is Mobile Web?			4/4/2023	24104	it nui	2		
26	5.2	Understanding Mobile Devices and Desktop. JQuery Mobile: Introduction to the jQuery Mobile Framework,		2	4/5/2023	26 04	i lej	10-	2	
27	5.3	Set-up jQuery Mobile, Pages,	CEO313.5	CO313.5	4/10/2023	21 04		at		100
28	5.4	Icons, Transitions, Layouts Widgets,			4/11/2023	305	and the second second second	1-	m	1.
29	5.5	Events, Forms, Themes. Formatting Lists, Header and Footer.			4/12/2023	08 05	14		1	purt
30	5.6	CSS Classes, Data Attributes, Building a Simple Mobile Webpage.			4/17/2023	03105				
		t	NIT 6 : WEE	APPLICAT	ION DEPLOYM	ENT	d dep	$\mathbf{J}$	_	,
31	6.1	Cloud: AWS Cloud, AWS Elastic Compute,			4/18/2023	08 05		h		1
32	6.2	AWS Elastic Load Balancer and its types,			4/19/2023	08/05		1	2	ji ji
33	6.3	AWS VPC and Component of VPC,			4/24/2023	09105		10.		
34	6.4	AWS storage			4/25/2023	09/05		HAF	ph	Ine
35	6.5	Deploy Website or Web Application on AWS,	CEO313.6	CO313.6	4/26/2023	12/05		P	10	.5
36	6.6	Launch an Application with AWS Elastic Beanstalk.			5/2/2023	12/05	44	1 1.28	1	
		Class Test III		A PARTY PROPERTY	10.22		1 St. 1 St. 1	J		



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The record shall be monitored by Academic Co-Ordinator (weekly), by Hoti (Biweeking and reviewed by APMC Co-Ordinator (Biweekly)



#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

#### PRACTICAL TEACHING RECORD

Cour	se Code: 314458	Class: TE	2019	Faculty Nan	ne: Prof. Mo	nali Bansode		1	
Cour	se Name: Laboratory Practice-II			Batch: CC3		Teaching Scheme:	Pr :	2 Hrs	/ week
Sr. No.	Experiment / Assignment	СЕО	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	fonitore HOD	d by APMC
1	Create a responsive web page which shows the ecommerce/college/exam admin dashboard with sidebar and statistics in cards using HTML, CSS and Bootstrap.	CEO318.1	CO318.1	06/02/2023 - 13/02/2023	06/02		2		
2	Write a JavaScript Program to get the user registration data and push to array/local storage with AJAX POST method and data list in new page.	CEO318.1	CO318.1	2/20/2023	20 02		65		
3	Create version control account on GitHub and using Git commandsto create repository and push your code to GitHub	CEO318.2	CO318.2	2/27/2023	27/02		7	17	1300
4	Create Docker Container Environment (NVIDEIA Docker or any other).	CEO318.4	CO318.4	3/6/2023	13 03				
5	Create an Angular application which will do following actions: Register User, Login User, Show User Data on Profile Component	CEO318.3	CO318.3	3/13/2023	10/04				



Date

6	Create a Node.JS Application which serves a static website.	CEO317.3	CO317.4	3/27/2023	17/04	7		
7	Create four API using Node.JS, ExpressJS and MongoDB for CURD Operations on assignment 2	CEO318.4	CO318.4	03/04/2023 - 10/04/2023	17/04	0.	1 m	Den
8	Create a simple Mobile Website using jQuery Mobile.	CEO318.5	CO318.5	4/17/2023	08/05	9	- pas	
9	Deploy/Host Your web application on AWS VPC or AWS Elastic Beanstalk.	CEO318.6	CO318.6	4/24/2023	08/05		/	

#### Start of Semester

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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Prinekly) and reviewed by APMC Co-Ordinator (Biweekly)



#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

#### PRACTICAL TEACHING RECORD

_	rse Code: 314458	Class: TE 2	2019			nali Bansode			
Cour	se Name: Laboratory Practice-II			Batch: CC2		Teaching Scheme:	Pr:	2 Hrs	/ week
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)			
1	Create a responsive web page which shows the ecommerce/college/exam admin dashboard with sidebar and statistics in cards using HTML, CSS and Bootstrap.	CEO318.1	CO318.1	07/02/2023 - 14/02/2023	07/02		<u> </u>	A	Alme
2	Write a JavaScript Program to get the user registration data and push to array/local storage with AJAX POST method and data list in new page.	CEO318.1	CO318.1	2/21/2023	28/02		BY	t	
3	Create version control account on GitHub and using Git commandsto create repository and push your code to GitHub	CEO318.2	CO318.2	3/14/2023	21]3			8	150
4	Create Docker Container Environment (NVIDEIA Docker or any other).	CEO318.4	CO318.4	3/21/2023	1814				
5	Create an Angular application which will do following actions: Register User, Login User, Show User Data on Profile Component	CEO318.3	CO318.3	3/28/2023	2514				
6	Create a Node.JS Application which serves a static website.	CEO317.3	CO317.4	4/4/2023	3 5				5

7	Create four API using Node JS, ExpressJS and MongoDB for CURD Operations on assignment 2	CEO318.4	CO318.4	4/11/2023	815			
8	Create a simple Mobile Website using jQuery Mobile.	CEO318.5	CO318.5	4/18/2023	815	13	BO (1)	is Der
9	Deploy/Host Your web application on AWS VPC or AWS Elastic Beanstalk.	CEO318.6	CO318,6	4/25/2023	915			

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#### End of Semester

Signature )	Date
Course Faculty : Mo	
HoD:	
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#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

### PRACTICAL TEACHING RECORD

Cour	se Code: 314458	Class: TE 2	2019	Faculty Nan	ne: Prof. Mo	nali Bansode		1.76	
	se Name: Laboratory Practice-II	ame: Laboratory Practice-II		Batch: CC1		<b>Teaching Scheme:</b>	Pr:2 Hrs/week		
Sr.	Experiment / Assignment.	CEO	со	Date of Plan	Date of	Remarks of Faculty		Ionitore	
No.	Experiment / Rosignment	0.10	1		Conduction	(incase of variance)	AC	HOD	APMC
1	Create a responsive web page which shows the ecommerce/college/exam admin dashboard with sidebar and statistics in cards using HTML, CSS and Bootstrap.	CEO318,1	CO318.1	01/02/2023 - 08/02/2023	०।०थश्व		2	n	
2	Write a JavaScript Program to get the user registration data and push to array/local storage with AJAX POST method and data list in new page.	CEO318.1	CO318.1	2/15/2023	08 02 23		Bry	+	
3	Create version control account on GitHub and using Git commandsto create repository and push your code to GitHub	CEO318.2	CO318.2	3/1/2023	15 02 23			mon	r De
4	Create Docker Container Environment (NVIDEIA Docker or any other).	CEO318.4	CO318.4	3/8/2023	22/02/23			1	-
5	Create an Angular application which will do following actions: Register User, Login User, Show User Data on Profile Component	CEO318.3	CO318.3	15/03/2023 - 29/03/2023	01/03/23				
6	Create a Node.JS Application which serves a static website.	CEO317.3	CO317.4	4/5/2023	15 03 23				)



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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

7	Create four API using Node.JS, ExpressJS and MongoDB for CURD Operations on assignment 2	CEO318.4	CO318.4	4/12/2023	<b>P</b> 9 04		2	2	
8	Create a simple Mobile Website using jQuery Mobile.	CEO318.5	CO318.5	4/19/2023	26 04	les les	Bry	for	Der
9	Deploy/Host Your web application on AWS VPC or AWS Elastic Beanstalk.	CEO318.6	CO318.6	26/04/2023 - 19/04/2023	03/05			Ja	$\mathbf{\tilde{\mathbf{b}}}$

Signature	Date
Course Faculty : Mon	
HoD	

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Course Faculty : 10	
HoD: MY	



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#### Hope Foundation's International Institute of Information Technology, Pune INFORMATION TECHNOLOGY

Academic Year 2022-23 Semester II

#### **PRACTICAL TEACHING RECORD**

Cour	rse Code: 314458	Class: TE	2019	Faculty Nan	ne: Prof. Mo	nali Bansode			
Cour	se Name: Laboratory Practice-II	100		Batch: Al	(a).	Teaching Scheme:	Pr :	2 Hrs	/ week
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Plan Date of Remarks of Fact Conduction (incase of variar		M AC	lonitore HOD	d by APMC
1	Create a responsive web page which shows the ecommerce/college/exam admin dashboard with sidebar and statistics in cards using HTML, CSS and Bootstrap.	CEO318.1	CO318.1	02/02/2023 - 09/02/2023	09 02		?		
2	Write a JavaScript Program to get the user registration data and push to array/local storage with AJAX POST method and data list in new page.	CEO318.1	CO318.1	2/16/2023	16 02				
3	Create version control account on GitHub and using Git commandsto create repository and push your code to GitHub	CEO318.2	CO318.2	3/2/2023	23 02		fr	215	W De
4	Create Docker Container Environment (NVIDEIA Docker or any other).	CEO318.4	CO318.4	3/9/2023	6203				
5	Create an Angular application which will do following actions: Register User, Login User, Show User Data on Profile Component	CEO318.3	CO318.3	3/16/2023	<b>\$8</b> 03				
6	Create a Node.JS Application which serves a static website.	CC 3173	CG3 7.4	3/30/2023	23 03				
7	Create four API using Node.JS, ExpressJS and MongoDB for CURD Operations on assignment 2	CHOSI8.4	<b>60</b> 18.4	06/04/2023 - 13/04/2023	23/03			4 Q.)	)

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	•	Create a simple Mobile Website using jQuery Mobile.	CEO318.5	CO318.5	4/20/2023	27104	alar .	Dulm	-000-
	9	Deploy/Host Your web application on AWS VPC or AWS Elastic Beanstalk.	CEO318.6	CO318.6	4/27/2023	88/05		19 Sm	500
		Start of Semester		No. Len		End of Seme			
		Signature Course Faculty :	Date	1			Signature	Date	
	-	Course Faculty : HoD :				Course Facul HoD :	ty: Mu		
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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD ( reviewed by APMC Co-Ordinator (Biveekly)



## **Hope Foundation's** International Institute of Information Technology, Pune DEPARMENT OF INFORATION TECHNOLOGY

#### Academic Year 2022-23 Semester I

Class: BE 2019 Course Code: 414443

Course Name: Deep Learning Name of Faculty: Dr. Jyoti Surve

#### COURSE EDUCATIONAL OBJECTIVES

Description
To introduce the theoretical foundations, algorithms, methodologies, and application of neural networks and deep learning.
To design and develop an application-specific deep learning model.
To provide the practical knowledge handling and analyzing real world applications

#### **COURSE OUTCOME - DETAILS**

Course	Description
CO403.1	Understand the theoretical foundations, algorithms, and methodologies of Deep Learning.
CO403.2	Apply the concepts of Convolution Neural Networks and use of popular CNN architectures.
CO403.3	Compare Feed Forward Neural Network and Recurrent Neural Network and learn modeling the time dimension using RNN and LSTM.
CO403.4	Elaborate unsupervised deep learning algorithms like Autoencoders.
CO403.5	Explore Representation Learning and Transfer Learning techniques using variants of CNN architectur
CO403.6	Evaluate the performance of deep learning algorithms and to provide solution for various real-world

#### **CLASS TEST- COURSE OUTCOME MAPPING**

Question CLASS TEST - I		CLAS	S TEST-II	CLASS TE	CLASS TEST - III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks	
Q1 - Q15	CO403.1	15	CO403.3	15	CO403.5	15	
Q16 - Q30	CO403.2	15	CO403.4	15	CO403.6	15	

#### **THEORY ASSIGNMENT- COURSE OUTCOME MAPPING**

Question	ASSIG	NMENT-I	ASSIGN	MENT-II	ASSIGNM	ASSIGNMENT-III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks		
Q1	CO403.1	10	CO403.3	10	CO403.5	10		
Q2	CO403.2	10	CO403.4	10	CO403.6	10		

4 Dr. Jyoti Surve **Signature of Faculty** 

Dr. Jyoti Surve **Head of Department** 



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#### Hope Foundation's International Institute of Information Technology, Pune DEPARMENT OF INFORATION TECHNOLOGY Academic Year 2022-23 Semester I

#### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Deep Learning	Course Code: 414443
Faculty Name: Dr. Jyoti Surve	Class: BE 2019

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					CO-PO	WAT	ax								
Course		Program Outcomes (POs)													
Outcome (COs)	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	<b>PO1</b> 1	PO12			
CO403.1	2	2	2	-	1		( <b>2</b> 5		-	-	1	1			
CO403.2	2	2	2	-	1		-	-	-	-	1	1			
CO403.3	2	2	2	-	1		-	÷	-		1	1			
CO403.4	2	2	2	-	1		-	-	-	-	1	1			
CO403.5	2	2	2	-	1		-	7	30	-	1	1			
CO403.6	2	2	2	-	1			-	: <del>.</del>	-	1	1			
1 - LOW , 2 -	MEDI	JM, 3-	HIGH												

Course		Program Specific Outcomes (PSOs)										
Outcome (Cos) PSO1	PSO1	PSO2	PSO3	PSO4								
CO403.1	2	2	1	1								
CO403.2	2	2	1	1								
CO403.3	2	2	1	1								
CO403.4	2	2	1	1								
CO403.5	2	2	1	1								
CO403.6	2	2	1	1								

Signature of Faculty

Head of Department



Sign of Faculty:

Hope Foundation's
International Institute of Information Technology, Pune
DEPARMENT OF INFORATION TECHNOLOGY
Academic Year 2022-23 Semester I
Course Name: Deep Learning
Faculty Name: Dr. Jyoti Surve

# **CO-PO mapping Justification (Theory)**

Course Outcome	Course Outcome Statement	Mapping	Map	ping Level	Justification
001023	internet succession of the second s	CO403.1-PO1	2	Moderate	fundamental knowledge of Mathematics is required in deep learning models through python programming which will help the students to apply the same to formulate solutions for engineering problems.
	, april der commission -	CO403.1-PO2	2	Moderate	comparsion of various types of algorithms like perceptrons ,Feed forward NN which help the students to apply the same to identify, analyze and formulate modules of problems.
		CO403.1-PO3	2	Moderate	Design various deep learning algorithms based on dataset available and user requirement.
	Understand the	CO403.1-PO5	1	Low	students will use modern engineering and IT tools like python DL library for prediction And analysis of various problems.
CO403.1	theoretical foundations, algorithms, and	CO403.1-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.
	methodologies of Deep Learning.	CO403.1-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
		CO403.1-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
	Statement	CO403.1-PSO2	2	ModelEto	
	Conter Distrigat	1		C.	Pune

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Course Outcome	Course Outcome Statement	Mapping	Мар	ping Level	Justification
		CO403.1-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO403.1-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
tone i		CO403.2-PO1	2	Moderate	fundamental knowledge of Mathematics is required in CNN models architectures which will help the students to apply to formulate solutions for engineering problems.
	hideman the state	CO403.2-PO2	2	Moderate	variuos CNN concepts and architecture will help the students to apply the knowledge to identify, analyze and formulate modules of problems.
		CO403.2-PO3	2	Moderate	students will able to design various CNN based algorithms on various realtime dataset available and as per user requirement.
	Apply the concepts of	CO403.2-PO5	1	Low	students will use modern engineering and IT tools like python DL library for prediction And analysis of various problems on CNN
CO403.2	Convolution Neural Networks and use of popular CNN	CO403.2-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.
	architectures.	CO403.2-PO12	de la	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
nuccate initio		CO403.2-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
	CO403.2-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure of CNN projects	
	CO403.2-PSO3	1	Low	students will able to understand professional, business and business	
		CO403.2-PSO4	1	Lov	spidents will able to Practice communication and decision-making skills through the use of appropriate technology

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Course Outcome	Course Outcome Statement	Mapping	Map	ping Level	Justification
		CO403.3-PO1	2	Moderate	fundamental knowledge of Mathematics is required in comparing CNN models architectures with Recurrent Neural Network architectures which will help the students to apply to formulate solutions using both CNN and RNN
		CO403.3-PO2	2	Moderate	Knowledge of RNN architecture and LSTM will help the students to apply the cocepts to identify, analyze and formulate modules of problems.
	Commerce Freed	CO403.3-PO3	2	Moderate	students will able to design various RNN and LSTM based algorithms on various realtime dataset available and as per user requirement.
	Compare Feed Forward Neural Network and	CO403.3-PO5	1	Low	students will use modern engineering and IT tools like python DL library for prediction And analysis of various problems on RNN,LSTM
CO403.3	Recurrent Neural Network and learn	CO403.3-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.
	modeling the time dimension using RNN and LSTM.	CO403.3-PO12	15	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
	and LSTM.	CO403.3-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
	jip ymaangaa	CO403.3-PSO2	2	Moderate	infrastructure of RNN,LSIM projects
	manifest of the second second	CO403.3-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO403.3-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
		1			
		CO403.4-PO1	2	Moderate	fundamental knowledge of Mathematics is required in understanding autoencoders architectures which will help the students to apply its concept to compare solutions
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Course Outcome	Course Outcome Statement	Mapping	Мар	ping Level	Justification
		CO403.4-PO2	2	Moderate	various autoencoders structures help the students to apply its cocepts to identify, analyze and formulate modules of problems.
		CO403.4-PO3	2	Moderate	students will able to design various types of autoencoders on various realtime dataset available and as per user requirement.
		CO403.4-PO5	1	Low	students will use modern engineering and IT tools like python DL library for prediction And analysis of various problems on autoencoders
CO403.4	Elaborate unsupervised deep learning algorithms	CO403.4-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.
	like Autoencoders.	CO403.4-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
		CO403.4-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
	function and TMA	CO403.4-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure of autoencoders projects
	ferment on Frank	CO403.4-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
	immed Ferriel	CO403.4-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
		CO403.5-PO1	2	Moderate	fundamental knowledge of Mathematics is required in comparing representation learning models with transfer learning models which will help the students to apply to formulate solutions using both models
		CO403.5-PO2	2	Moderate	Knowledge of representation and transfer learning will help the students to
	Contra Oniverse Statistical	CO403.5-PO3	2	Moderate	sudents will able to design various transfer learniong projects on various realture dataset available and as per user requirement.

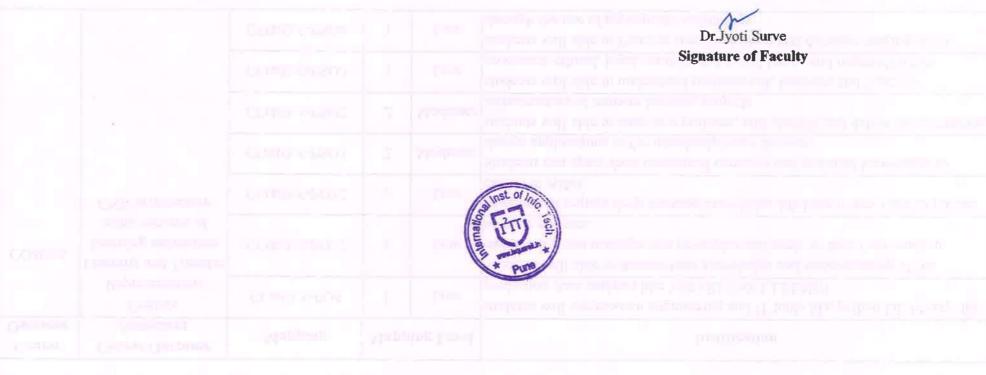
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Course Outcome	Course Outcome Statement	Mapping	Map	ping Level	Justification
Explore Representation	Explore Representation	CO403.5-PO5	1	Low	students will use modern engineering and IT tools like python DL library for prediction And analysis like VGG, RESNET, LEENET
CO403.5	Learning and Transfer Learning techniques using variants of	CO403.5-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.
	CNN architecture	CO403.5-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
		CO403.5-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
		CO403.5-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure of transfer learning projects
		CO403.5-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		students will able to Practice communication and decision-making skills through the use of appropriate technology			
		CO403.6-PO1	2	Moderate	fundamental knowledge of Mathematics is required in comparing various deep learning models like NLP,ASR,RMS which will help the students to apply to formulate solutions using both models
		CO403.6-PO2	2	Moderate	Knowledge of various models of deep learning will help the students to apply
		CO403.6-PO3	2	Moderate	students will able to design various NLP ASR Recommender projects on
CO403.6	Evaluate the	CO403.6-PO5	1	Low	students will use modern engineering and IT tools like python NLP,ASR library for prediction And analysis
	performance of deep learning algorithms and to provide	CO403.6-PO11	1	Low	Students will able to demonstrate knowledge and understanding of the engineering and management principles and apply to their own work to manage projects.



Sign of Faculty:

Outcome Statemen solution for v	Course Outcome Statement	Mapping	Mapping Level		Justification
	solution for various real-world	CO403.6-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
	applications	CO403.6-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to design applications in the interdisciplinary domain
		CO403.6-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computin infrastructure of NLP,ASR projects
		CO403.6-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO403.6-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
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#### Hope Foundation's International Institute of Information Technology, Pune DEPARMENT OF INFORATION TECHNOLOGY

Academic Year 2022-23 Semester I

Class: BE 2019Course Name: Lab Practice IVCourse Code: 414447Name of Faculty: Dr. Jyoti Surve

#### **COURSE EDUCATIONAL OBJECTIVES**

Course	Description						
CEO407.1	To be able to formulate deep learning problems corresponding to different applications.						
CEO407.2	To be able to apply deep learning algorithms to solve problems of moderate complexity,						
CEO407.3	To apply the algorithms to a real-world problem, optimize the models learned and report on						

#### **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO407.1	Learn and Use various Deep Learning tools and packages.
CO407.2	Build and train a deep Neural Network models for use in various applications
CO407.3	Apply Deep Learning techniques like CNN, RNN Auto encoders to solve real word Problems
CO407.4	Evaluate the performance of the model build using Deep Learning

## **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course O	utcome No	Assignment	Course Outcome No		
1	CO4	107.1	4	CO407.2		
2	CO407.2	,CO407.4	5	CO407.3		
3	CO407.3,	CO407.4	6	CO407.4		

Dr. Jyoti Surve Signature of Faculty

Dr. Jyoti Surve **Head of Department** 





#### Hope Foundation's International Institute of Information Technology, Pune DEPARMENT OF INFORATION TECHNOLOGY Academic Year 2022-23 Semester I

### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Lab Practice IV	Course Code: 414447	
Faculty Name: Dr. Jyoti Surve	Class: BE 2019	

CO-PO MATRIX	
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	Program Outcomes (POs)											
Outcome (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO407.1	2	1	1	÷	1		~	1	1	2	= #1	1
CO407.2	2	2	2		1	z		1	1	2	-	1
CO407.3	2	2	2	-	1	×.	1	1	1	2	<b>2</b> 1	1
CO407.4	2	2	2	-	1	-		1	1	2	-	1
- LOW , 2 -	MEDIL											

Course		Program Specific	Outcomes (PSOs)	
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4
CO407.1	1	1	1	1
CO407.2	2	2	1	1
CO407.3	2	2	1	1
CO407.4	2	2	1	1

Dr.Jyoti Surve Signature of Faculty

Dr.Jyoti Surve Head of Department



#### Hope Foundation's International Institute of Information Technology, Pune DEPARMENT OF INFORATION TECHNOLOGY

Academic Year 2022-23 Semester I

 Class: BE 2019
 Course Name: Lab Practice IV

 Course Code: 414447
 Faculty Name: Dr. Jyoti Surve

Course Outcome	Course Outcome Statement	Manning Manni		ping Level	Justification		
		لمواصيتين بسالا	سو اصتبيع سالد	CO407.1-PO1	2	Moderate	Students will able to gain knowledge of various deep learning packages to formulate solutions to various engineering problems.
		CO407.1-PO2	1	Low	Students will able to apply deep learning packages and tools to analyze problems.		
CO407.1		CO407.1-PO3	1	Low	Students will able to Design solutions for various problems by applying deep learing tools		
		CO407.1-PO5	1	Low	modern tool usage get practiced by students on various deep learning tool.		
	Learn and Use various Deep Learning tools and packages.	CO407.1-PO8	1	Low	ethical practices will be endorsed during lab hours		
		CO407.1-PO9	1	Low	students are encourage to implement projects/assignments as an individual or in teams.		
		CO407.1-PO10	2	Moderate	students must communicate effectively in both oral and written forms during submission		
		CO407.1-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML		
		CO407.1-PSO1	1	Low	Students can apply their theoretical concepts and practical knowledge to to solve real world problems		
		CO407.1-PSO2	1	Low	students will able to analyze a problem, and identify and define the computing confastructure for standard deep learning projects which can be delivered as supply product.		

Sign of Faculty:



Course Outcome	Course Outcome Statement	Mapping	Map	ping Level	Justification
		CO407.1-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO407.1-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
		CO407.2-PO1	2	Moderate	Students will able to gain knowledge of various deep neural network models to formulate solutions to various engineering problems.
		CO407.2-PO2	2	Moderate	Students will able to apply deep neural networks to analyze problems.
		CO407.2-PO3	2	Moderate	Students will able to Design solutions for various problems by applying deep neural network models
		CO407.2-PO5	1	Low	modern tool usage get practiced by students on various deep learning tools based on neural networks
		CO407.2-PO8	1	Low	ethical practices will be endorsed during lab hours
		CO407.2-PO9	1	Low	students are encourage to implement projects/assignments as an individual or in teams.
CO407.2	Build and train a deep Neural Network models for use in	CO407.2-PO10	2	Moderate	students must communicate effectively in both oral and written forms during submission
	various applications	CO407.2-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
	gomi moteni	CO407.2-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to to solve real world problems
		CO407.2-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure for standard deep learning projects which can be delivered as quality product.
		CO407.2-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
	a define the scription out problem and m	CO407.2-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology





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Course Outcome	Course Outcome Statement	Mapping	Map	ping Level	Justification
	aming tarihoque mit terrore erglinering	CO407.4-PO2	2	Moderate	Students will able to apply deep learning models like RNN CNN and autoencoders to analyze problems.
	<pre>V4.0174.011 ins ty epiblical leap</pre>	CO407.4-PO3	2	Moderate	Students will able to Design solutions for various problems by applying deep learning models like autoencoders, CNN and RNN
		CO407.4-PO5	1	Low	modern tool usage get practiced by students on various deep learning tools and libraries
		CO407.4-PO8	1	Low	ethical practices will be endorsed during lab hours
CO407.4	Evaluate the	CO407.4-PO9	1	Low	students are encourage to implement projects/assignments as an individual or in teams.
	performance of the model build using	CO407.4-PO10	2	Moderate	students must communicate effectively in both oral and written forms during submission
	Deep Learning	CO407.4-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
	الشور معتدك وسيريت	CO407.4-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to to solve real world problems
	ut of application and in	CO407.4-PSO2	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure for standard deep learning projects which can be delivered as quality product.
	را دادانید (ایر میسوسینی) ست اید طیلاریسیا به	CO407.4-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO407.4-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology



Dr.Jyoti Surve Signature of Faculty

Sign of Faculty:

Course Outcome	Course Outcome Statement	Mapping	Мар	ping Level	Justification
		CO407.3-PO1	2	Moderate	Students will able to gain knowledge of various deep learning techniques like CNN, RNN and autoencoders to formulate solutions to various engineering problems.
		CO407.3-PO2	2	Moderate	Students will able to apply deep learning models like RNN CNN and autoencoders to analyze problems.
		CO407.3-PO3	2	Moderate	Students will able to Design solutions for various problems by applying deep learning models like autoencoders, CNN and RNN
		CO407.3-PO5	1	Low	modern tool usage get practiced by students on various deep learning tools and libraries
		CO407.3-PO8	1	Low	ethical practices will be endorsed during lab hours
	Apply Deep Learning techniques like CNN, RNN Auto encoders to solve real word Problems	CO407.3-PO9	1	Low	students are encourage to implement projects/assignments as an individual or in teams.
CO407.3		CO407.3-PO10	2	Moderate	students must communicate effectively in both oral and written forms during submission
		CO407.3-PO12	1	Low	student will require deep learning knowledge life long if they want to pursue carrier in AIML
	1. 1	CO407.3-PSO1	2	Moderate	Students can apply their theoretical concepts and practical knowledge to to solve real world problems
		CO407.3-PSO1	2	Moderate	students will able to analyze a problem, and identify and define the computing infrastructure for standard deep learning projects which can be delivered as quality product.
		CO407.3-PSO3	1	Low	students will able to understand professional, business and business processes, ethical, legal, security and social issues and responsibilities.
		CO407.3-PSO4	1	Low	students will able to Practice communication and decision-making skills through the use of appropriate technology
		Ober De ask	1		
		CO407.4-PO1	2		Students will able to gain knowledge of various deep learning techniques like CNN, RNN and autoencoders to formulate solutions to various engineering problems.

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### THEORY TEACHING RECORD

Cours	se Co	de: 414443	Class: BE 20	019	Name of Facult	ty: Dr. Jyoti S	urve			
Cours	se Nai	me: Deep Learning	2		Teaching Scher	ne:	Th: 3 Hrs / week			
							Remarks of	N	by	
Lr. No.		<b>Topics to be Delivered</b>		CO	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	нор	АРМС
			<b>UNIT 1 :</b>	Fundamenta	ls of Deep Learni	ng		~		
1	1.1	What is Deep Learning Multilayer Perceptron			25-7-2022	25-7-2022	-	l		
2	1.2	Feed forward neural, Back propagation			26-7-2022	1-8-2022			-	
3	1.3	Gradient descent, Vanishing gradient problem,	CEO403.1	CO403.1	28-7-2022	1-8-2022				Der
4	1.4	Activation Functions: RELU, LRELU, ERELU. Optimization Algorithms	- CEO403.1	00403.1	29-7-2022	26-7-2022		6x	- The	
5	1.5	Hyper parameters: Layer size, Magnitude (momentum, learning rate),			2-8-2022	2-8-2022		2718	39.	
6	1.6	Regularization (dropout, drop connect, L1, L2)		9 N	4-8-2022	2-8-2022	3			
	A		UNIT 2	: Convolution	al Neural Networ	·k				
7	2.1	Introduction to CNN	1		5-8-2022	08-08-2022			- 10 C	N
8	2.2	Convolution Operation ,Parameter Sharing	]		11-8-2022	08-08-2022				
9	2.3	Equivariant Representation Pooling			16-8-2022	10-08-2022				
10	2.4	Variants of the Basic Convolution Function	CEO403.1	COMUNE	18-8-2022	10-08-2022				( Den
11	2.5	The basic Architecture of CNN	CEO403.2	tona mot	19-8-2022	18-08-2022		-		1
12	2.6	Popular CNN Architecture - AlexNet.		in in	3-8-2022	23-08-2022				1
		Class Test I	1	E man	\$ 24-8-2022	24-08-2022		1		

			UNIT	3 : Recurrent	Neural Network	s	1211 / A	CAD / CP	/03 VER
13	3.1	Recurrent Neural Networks			26-8-2022		0	2	1
14	3.2	Types of Recurrent Neural Networks			30-8-2022	3018122	la	w	
15	3.3	Feed-Forward Neural Networks vs Recurrent			1-9-2022	619/22	P.	10B	ALA
16	3.4	Long Short-Term Memory Networks (LSTM)	CEO403.1	CO403.3	2-9-2022	719/22	Clar L	12	Den
17	3.5	Encoder Decoder architectures	CEO403.2	00403.5	6-9-2022	1319122	1	1	-
18	3.6	Recursive Neural Networks			8-9-2022	1319102	8		
				UNIT 4 : Aut	oencoders				<u> </u>
19	4.1	Undercomplete Autoencoders			13-9-2022	1419122			1
20	4.2	Regulraized Autoencoders-Sparse Autoencoders			15-9-2022	14/9/22		1	
21	4.3	Stochastic Encoders and Decoders			16-9-2022	201312	LA.		
22	4.4	Denoising Autoencoders	CEO403.2	CO403.4	19-9-2022	201912	2011	(W	Den
23	4.5	Contractive Autoencoders	- 1		20-9-2022	211912	198	3011	1-
24	4.6	Applications of Autoencoders			20-9-2022	21 19122			
		Class Test II			21-9-2022				)
			UNIT	5: Represen	tation Learning		_	/	/
25	5.1	Greedy Layerwise Pre-training	CEOUNA		27-9-2022	2719122			
26	5.2	Transfer Learning and Domain Adaption			<b>29-9-20</b> 22	281912		)	
27	5.3	Domain Adaption	CEO403.2	CO403.5	30-9-2022	281912			
28	5.4	Distributed Representation	CEO403.3	-	4-10-2022	12/10/2 Insem Exam	).	5.1	
29	5.5	Variants of CNN			6-10-2022	112/10/22		1 mg	Den
30	5.6	DenseNet			7-10-2022	13/10/221.		3011	
	5		UNIT 6	: Applications	s of Deep Learni	ną			
31	6.1	Overview of Deep Learning Applications: Image	1		11-10-2022	18/10/22			
32	6.2	Social N/w/ analysis			13-10-2022	1811012			
33	6.3	Speech Recognition	CEO403.2		14-10-2022	15/10/2			
34	6.4	Recommender system	CEO403.2 CEO403.3	CO403.6	17-10-2022	19110122			1
35		Natural Language Processing	CE()403.3		18-10-2022	20/10/22		7	1
36	6.6	Summary of Appications			18-10-2022	21/10/2	4		
		Class Test III		and inst	19-10-2022	21/10/201			
		Start of Semester		i in	Mo. Ta	End of Semester			/
		Signature	Date	S. mainered	.S.	Signature	Dat	te	
		Course Faculty :	1817122	Pune		Course Faculty :	08/1		
		HoD:				HoD: Jr			



### PRACTICAL TEACHING RECORD

Cour	rse Code: 414447	Class: BE 2	2019	Name of Fac	ulty: Dr. Jyot	ti Surve			
Coui	se Name: Lab Practice IV			Batch: A		Teaching Scheme:	Pr :	2 Hrs /	week
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	Ionitore HOD	d by APMC
1	Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch	CEO407.1, CEO407.2	CO407.1	26/07/2022- 2/8/2022	2-8-2022	2318 conduct	45.00	)	
2	Implementing Feedforward neural networks with Keras and TensorFlow	CEO407.2, CEO407.3	CO407.2, CO407.4	16/08/2022- 22/8/2022	16/08,22/8	218 conductof	P	271	1700
3	Build the Image classification model	CEO407.2, CEO407.3	CO407.3, CO407.4	30/8/2022- 6/9/2022	-3018122- 619122.		7	)	
4	Use Autoencoder to implement anomaly detection	CEO407.2, CEO407.3	CO407.2	13/09/2022- 20/09/2022	1319122	V±10q	In	)	ŷ
5	Implement the Continuous Bag of Words (CBOW) Model	CEO407.2, CEO407.3	CO407.3	27/09/2022- 10/4/2022	2719122	4/10 insem	91	12	IN DEN
6	Object detection using Transfer Learning of CNN architectures	CEO407.2, CEO407.3	CO407.4	11/10/2022- 18/10/2022	18/10/22,	11/10 insom		$\left  \right\rangle$	)

#### Start of Semester

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Course Faculty :	1817/2
HoD:	



#### **End of Semester**

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Course Faculty :	ozellin
HoD:	



#### PRACTICAL TEACHING RECORD

Cour	se Code: 414447	Class: BE 2	2019	Name of Fac	ulty: Dr. Jyot	ti Surve			-
Cour	se Name: Lab Practice IV			Batch: B		Teaching Scheme:	Pr:2 Hrs/week		
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	lonitore HOD	· ·
1	Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch	CEO407.1, CEO407.2	CO407.1	25/7/2022, 1/8/2022	1-8-2022	~ 23/8 conductor	16~	7.	
2	Implementing Feedforward neural networks with Keras and TensorFlow	CEO407.2, CEO407.3	CO407.2, CO407.4	8/8/2022,23/ 08/2022	8/8/2022,23/ 8/2022	48/18/18 contr	File	2918	0010
3	Build the Image classification model	CEO407.2, CEO407.3	CO407.3, CO407.4	29/08/2022,0 5/09/2022	2918122	(200513.	ļ	2	2
4	Use Autoencoder to implement anomaly detection	CEO407.2, CEO407.3	CO407.2	12/09/2022,1 9/09/2022	121912		64	Im	Alton
5	Implement the Continuous Bag of Words (CBOW) Model	CEO407.2, CEO407.3	CO407.3	26/09/2022,3 /10/2022	26:31 22	3110, 10110 trism	5017	30	Dew
6	Object detection using Transfer Learning of CNN architectures	CEO407.2, CEO407.3	CO407.4	10/10/2022,1 7/10/2022	17/10/22			)	)

#### **Start of Semester**

Signature	Date
Course Faculty :	1517
HoD:	



#### **End of Semester**

Signature	Date
Course Faculty : M	71112
HoD: Magan	
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### PRACTICAL TEACHING RECORD

ourse Code: 414447 Class: BE 201			Name of Fac	ulty: Dr. Jyot	ti Surve				
se Name: Lab Practice IV			Batch: C		Teaching Scheme:	Pr:2 Hrs/week			
Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)			d by APMC	
Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch	CEO407.1, CEO407.2	CO407.1	28/7/2022, 4/8/2022	4-8-2022	118 conduid	4200	2		
Implementing Feedforward neural networks with Keras and TensorFlow	CEO407.2, CEO407.3	CO407.2, CO407.4	11/8/2022, 18/08/2022	11/8/2022, 18/8/2022	418 18188	Jit	5 m	8 Der	
Build the Image classification model	CEO407.2, CEO407.3	CO407.3, CO407.4	25/8/2022, 1/9/2022	25/8/22		2		1	
Use Autoencoder to implement anomaly detection	CEO407.2, CEO407.3	CO407.2	8/9/2022, 15/09/2022	819/12		1	)	14	
Implement the Continuous Bag of Words (CBOW) Model	CEO407.2, CEO407.3	CO407.3	22/9/2022, 29/9/2022	22/3/02		32	1	Den	
Object detection using Transfer Learning of CNN architectures	CEO407.2, CEO407.3	CO407.4	6/10/2022, 13/10/2022		(110 inson.	150	9	-	
	se Name: Lab Practice IV Experiment / Assignment Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch Implementing Feedforward neural networks with Keras and TensorFlow Build the Image classification model Use Autoencoder to implement anomaly detection Implement the Continuous Bag of Words (CBOW) Model Object detection using Transfer Learning of	se Name: Lab Practice IVExperiment / AssignmentCEOStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2Implementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3Build the Image classification modelCEO407.2, CEO407.3Use Autoencoder to implement anomaly detectionCEO407.2, CEO407.3Implement the Continuous Bag of Words (CBOW) ModelCEO407.2, CEO407.3Object detection using Transfer Learning ofCEO407.2, CEO407.2,	se Name: Lab Practice IVCEOCOExperiment / AssignmentCEOCOStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.1Implementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3CO407.4, CO407.4Build the Image classification modelCEO407.2, CEO407.3CO407.4, CO407.4Use Autoencoder to implement anomaly detectionCEO407.2, CEO407.3CO407.2, CO407.4Implement the Continuous Bag of Words (CBOW) ModelCEO407.2, CEO407.3CO407.3, CO407.4	se Name: Lab Practice IVBatch: CExperiment / AssignmentCEOCODate of PlanStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.128/7/2022, 4/8/2022Implementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3CO407.4, CO407.418/08/2022, 11/8/2022, 11/8/2022, CEO407.311/8/2022, CO407.4, 18/08/2022Build the Image classification modelCEO407.2, CEO407.3CO407.4, CEO407.425/8/2022, 19/2022, CEO407.3, CO407.4, 19/2022Use Autoencoder to implement anomaly detectionCEO407.2, CEO407.3, CEO407.3, CO407.4, 22/9/2022, 22/9/2022, 29/9/20228/9/2022, 22/9/2022, 29/9/2022, 20/07.3, 	se Name: Lab Practice IVBatch: CExperiment / AssignmentCEOCODate of PlanDate of ConductionStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.1 CEO407.228/7/2022, 4/8/20224-8-2022, 11/8/2022,Implementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3CO407.4, CO407.418/08/202211/8/2022, 11/8/2022,Build the Image classification modelCEO407.2, CEO407.3CO407.4, CO407.419/2022, 19/2022,25/8/122, 11/9/2022,11/9/2022, 11/9/2022,Use Autoencoder to implement anomaly detectionCEO407.2, CEO407.3CO407.2, CO407.2,15/09/2022, 15/9/2022,61.9 122- 15/9/2022,Implement the Continuous Bag of Words (CBOW) ModelCEO407.2, CEO407.3,CO407.3, 22/9/2022, 29/9/2022,29/9/2022, 21.9 122-Object detection using Transfer Learning of Object detection using Transfer Learning ofCEO407.2, CEO407.2, CO407.4,6/10/2022, 6/10/2022,13/10/22-	Se Name: Lab Practice IVBatch: CTeaching Scheme:Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.128/7/2022, 4/8/20224-8-2022, 11/8/2022,Ill & ConductionImplementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3CO407.4, CEO407.418/8/2022, 18/8/202211/8/2022, 18/8/2022,4/8, 4/8, 18/8/2022,4/8, 4/8, 18/8/2022,11/8/2022, 4/8, 4/8, 18/8/2022,4/8, 4/8, 18/8/2022,4/8, 4/8, 18/8/2022,11/8, 4/8, 4/8, 18/8/2022,11/8, 4/8, 4/8, 18/8/2022,4/8, 4/8, 4/8, 18/8/2022,11/8, 4/8, 4/8, 4/8, 18/8/2022,4/8, 4/8, 4/8, 18/8/2022,4/8, 4/8, 4/8, 4/8, 18/8/2022,11/8, 2022, 4/8, 4/8, 19/202,4/8, 4/8, 4/8, 4/8, 18/8/2022,4/8, 4/8, 4/8, 4/8, 18/8/2022,4/8, 4/8, 4/8, 4/8, 4/8, 4/8, 19/202,4/8, <td>Se Name: Lab Practice IVBatch: CTeaching Scheme:Pr :Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)MStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.128/7/2022, 4/8/20224-8-2022, 11/8/2022,11/8 conductACImplementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3CO407.4, CEO407.4,11/8/2022, 18/8/202211/8/2022, 18/8/2022,41/8, 1/8/2022, 18/8/2022,11/8</br></td> <td>se Name: Lab Practice IVBatch: CTeaching Scheme:Pr : 2 Hrs /Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)MonitoreStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2<math>CO407.1</math> CEO407.2,<math>28/7/2022</math>, <math>4/8/2022</math><math>4-8-2022</math>, <math>11/8/2022,</math><math>11/8/conduct</math><math>3 C</math><math>4 C</math>HODImplementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3,CO407.4, <math>18/08/2022</math><math>11/8/2022</math>, <math>18/8/2022,</math><math>11/8/2022</math>, <math>18/8/2022,</math><math>4186</math>, <math>18/8</math>, <math>18/8</math><math>118/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022</math>, <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11/8/2022,</math> <math>11/8/2022,</math><math>11</math></td>	Se Name: Lab Practice IVBatch: CTeaching Scheme:Pr :Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)MStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2CO407.128/7/2022, 4/8/20224-8-2022, 	se Name: Lab Practice IVBatch: CTeaching Scheme:Pr : 2 Hrs /Experiment / AssignmentCEOCODate of PlanDate of ConductionRemarks of Faculty (incase of variance)MonitoreStudy of Deep learning Packages: Tensorflow, Keras, Theano and PyTorchCEO407.1, CEO407.2 $CO407.1$ CEO407.2, $28/7/2022$ , $4/8/2022$ $4-8-2022$ , $11/8/2022,$ $11/8/conduct$ $3 C$ $4 C$ HODImplementing Feedforward neural networks with Keras and TensorFlowCEO407.2, CEO407.3,CO407.4, $18/08/2022$ $11/8/2022$ , $18/8/2022,$ $11/8/2022$ , $18/8/2022,$ $4186$ , $18/8$ , $18/8$ $118/8/2022$ , $11/8/2022,$ $11/8/2022$ , $11/8/2022,$ $11/8/2022,$ $11/8/2022,$ $11$	

#### **Start of Semester**

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#### End of Semester

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Course Faculty :	79111:2
HoD :	



#### PRACTICAL TEACHING RECORD

Cour	se Code: 414447	Class: BE 2	019	Name of Fac					
Cour	se Name: Lab Practice IV			Batch: D		<b>Teaching Scheme:</b>	Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	M AC	fonitore HOD	d by APMC
1	Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch	0407.1,CEO4	CO407.1	27/7/2022, 3/8/2022	3-8-2022	1718 condrell	Lox.	7.	Dev
2	Implementing Feedforward neural networks with Keras and TensorFlow	CEO407.2, CEO407.3	CO407.2, CO407.4	10/8/2022, 17/08/2022	10-08-2022	3/8/ 10/8: Conducted	2718	2218	Par
3	Build the Image classification model	CEO407.2, CEO407.3	CO407.3, CO407.4	24/8/2022, 7/9/2022	24/8/22		4		)
4	Use Autoencoder to implement anomaly detection	CEO407.2, CEO407.3	CO407.2	14/9/2022, 21/09/2022	41912	1	62	2m	)
5	Implement the Continuous Bag of Words (CBOW) Model	CEO407.2, CEO407.3	CO407.3	28/09/2022,1 2/10/2022	2919/2-	\$10 holiday. 12/10 many		3011	Der
6	Object detection using Transfer Learning of	407.2,CEO4	CO407.4	19-10-2022	19/10/2				

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Course Faculty :	21112
HoD:	

End of Semester



# Class: BE 2019 Course Name: Distributed Systems' Course Code: 414450 Name of Faculty: Sayali Sabale

#### **COURSE EDUCATIONAL OBJECTIVES**

Course	Description
CEO410.1	To learn the principles, architectures and programming models used in distributed systems.
CEO410.2	To understand the fundamentals and knowledge of the Middleware of distributed systems
CEO410.3	To gain knowledge of working components and fault tolerance of distributed systems.
CEO410.4	To understand the significance of agreement, fault tolerance and recovery protocols in Distributed Systems.
CEO410.5	To make students aware about distributed and multimedia file systems and web systems.
CEO410.6	Create an awareness of Emerging trends in distributed computing.

#### **COURSE OUTCOME - DETAILS**

Course Outcome	Description
CO410.1	Demonstrate the core concepts of distributed systems.
CO410.2	Understand the concept of middleware of distributed systems
CO410.3	Understand Inter-process communication methods and analyze different coordination algorithms.
CO410.4	Comprehend the importance of replication to achieve fault tolerance in distributed systems.
CO410.5	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems.
CO410.6	Understand various Recent Trends in distributed systems.

### **CLASS TEST- COURSE OUTCOME MAPPING**

Question	CLASS TEST - I		CLASS TEST - I CLASS TEST-II			CLASS TEST - III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks		
Q1 - Q15	CO410,1	15	CO410.3	15	CO410.5	15		
Q16 - Q30	CO410,2	15	CO410.4	15	CO410.6	15		

## **THEORY ASSIGNMENT- COURSE OUTCOME MAPPING**

Question	ASSIGNMENT-I		uestion ASSIGNMENT-I		stion ASSIGNMENT-I ASSIGNMENT-H		ASSIGNMENT-III		
No	CO Mapping	Marks	CO Mapping	Marks	CO Mapping	Marks			
QI	CO410.1	10	CO410.3	10	CO410.5	10			
Q2	CO410,2	10	CO410.4	10	CO410.6	10			

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Sayali Sabale Signature of Faculty



Dr. Jyoti Surve

Dr. Jyoti Surve Head of Department

Sign of Faculty: JBS barls



#### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Distributed Systems	Course Code: 414450	
Name of Faculty: Sayali Sabale	Class: BE 2019	

Course					Prog	ram Ou	tcomes	(POs)	r	r		
Outcome (COs)	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO410.1	2	1	2	1		1	1	1		-	-	1
CO410.2	2	1	1	1	1	1	1		*	-	-	1
CO410.3	2	1	2	1	-	1	1			~	3	1
CO410.4	2	2	2	1	-	1	1	-	14		-	1
CO410.5	2	2	2	2		1	1	1991		*		1
CO410.6	2	2	2	2	2	1	1			-	-	1

Course	Program Specific Outcomes (PSOs)								
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4					
CO410.1	2	2	•	-					
CO410.2	2	1	-	-					
CO410.3	2	1	-	-					
CO410.4	2	1	-	-					
CO410.5	2	2	•	-					
CO410.6	2	2		-					

ABSobals

Sayali Sabale Signature of Faculty

Dr. Jyoti Surve Head of Department





Class: BE 2019	Course Name: Lab Practice V	
Course Code: 414454	Name of Faculty: Sayali Sabale	

### **COURSE EDUCATIONAL OBJECTIVES**

Course	Description	
CEO414.1	The course aims to provide an understanding of the principles on which the distributed systems are based, their architecture, algorithms and how they meet the demands of Distributed applications	
CEO414.2	The course covers the building blocks for a study related to the design and the implementation of distributed systems and applications.	

Course Outcome	Description		
CO414.1	Learn how to apply concept of client-server communication to develop any distributed application.		
CO414.2	Understand the topic of communication and coordination in distributed computing system. And develop distributed application with CORBA and using Message Passing Interface (MPI).		
CO414.3	Design, build and test application programs on clock synchronization for distributed systems		
CO414.4	Analyze the design and functioning of different distributed algorithm and implement it.		
CO414.5	Design, build, test simple web service and write any distributed application to consume the web service.		
CO414.6	Learn how to apply principles of state-of-the-Art Distributed systems in practical application		

#### **COURSE OUTCOME - DETAILS**

## **ASSIGNMENT- COURSE OUTCOME MAPPING**

Assignment	Course Outcome No	Assignment	Course Outcome No
1	CO414.1	2	CO414.2
3	CO414.2	4	CO414.3
5	CO414,4	6	CO <b>4</b> 14.4
7	CO414.5	8	CO414.6

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Sayali Sabale Signature of Faculty



Dr. Jyoti Surve **Head of Department** 



### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY

### Academic Year 2022-23 Semester II

Class: BE 2019	
Course Code: 414454	Course Name: Lab Practice V
Course Code: 414454	Name of Faculty: Sayali Sabale
CO PO m	poping Lastic at an a

<u> </u>		O mapping Justification (Laboratory)
CO code		Justification
CO414.1	Learn how to apply concept of client-server communication to develop any distributed application	This outcome key parameters Concept of cliennt-server communication address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. This outcome correlates low with PO12 as student establish client server communication and able to understand engineering, performance, optimizations and time complexity necessary for professional practice. It correlates low with PSO1 as it addresses the understanding of engineering fundamentals.
CO414.2		This outcome key parameters Concept of Common Object Request Broker Architecture(CORBA) with distributed application address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. Different communication topics of distributed application helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the different communication techniques. This outcome correlates low with PO12 as student able to understand engineering, performance, optimizations and time complexity necessary for professional practice by using concept of CORBA and MPI. It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with different distributed application.
	application programs on clock synchronization for distributed systems.	This outcome key parameters Clock Synchronization technique i.e. Berkeley algorithm address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. Clock Synchronization technique helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses the Clock Synchronozation Techniques for distributed systems. This outcome correlates low with PO12 as student able to understand engineering, performance, optimizations and time complexity necessary for professional practice by using concept of clock synchronization echniques. t correlates moderately with PSO1 as it addresses the understanding of ngineering fundamentals with distributed systems.



Sign of Faculty:

CO414.4	functioning of different distributed algorithm and implement it.	This outcome key parameters Concept of mutual exclusion algorithm and election algorithm address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. Bully and Ring algorithm for leader election helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses distributed algorithm in practical application. This outcome correlates low with PO12 as student able to understand engineering, performance, optimizations and time complexity necessary for professional practice by using different distributed algorithm. It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with different distributed algorithm.
CO414.5	Design, build, test simple web service and distributed application to consume the web service.	This outcome key parameters
		This outcome key parameters Different Concepts of Distributed Systems i.e. Communication techniques, middleware services, coordination techniques, replication and fault tolerance, Distributed Files, Multimedia and Web Based System address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. As this differnt techniques helps in the problem analysis, it correlates low with PO2. This outcome correlates low with PO3 as it addresses desisging distributed systems in practical application. This outcome correlates low with PO12 as student able to understand engineering, performance, optimizations and time complexity necessary for professional practice by using different concept of distributed Systems implement practical applications. t correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with distributed systems in practical applications.



Sign of Faculty: Blabala

Course Name: Distributed Systems
Name of Faculty: Sayali Sabale

## **CO-PO** mapping Justification (Theory)

CO code	Course Outcomes	Justification
CO410.1	Demonstrate the core concepts of distributed systems.	This outcome key parameters Characteristics, Design goals and challenges of Distributed Systems, Examples of Distributed Systems address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1. Distributed Computing Models: Physical, Architecture and Fundamental models helps to provide a systematic solution with the experiments, analyzing the problem and interpreting the data correlate low with PO2. Pervasive networking and the modern Internet, Mobile and ubiquitous computing adress to identify, formulates, and provides systematic solutions to complex engineering/Technology problems correlate moderately with PO3. Different trends in distributed systems address to identify, formulates, and provides systematic solutions to complex engineering/Technology problems correlate low with PO4 and PO6 because it also has ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems with necessary constraints and assumptions. Different trends in distributed system address to provide solution for the local and global impact of information technology on individuals, organizations and society correlate low with PO7. This outcome correlates low with PO12 as student able to to understand engineering, performance, optimizations and time complexity necessary for professional practice. It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals. It correlates moderately with PSO2 as it addresses the ablity to work on large-scale computing systems.



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CO410.2		This outcome key parameters
	middleware of distributed	Middleware Framework, Role of middleware, Origins of middleware, Architecture vs
	systems	Middleware, RMI, CORBA, Types of middleware-messages oriented middleware,
		intelligent middleware, content centric middleware, middleware protocol address the basics
		of engineering fundamentals, computing, science, complex problems correlate moderately
		with PO1.
		Concept of RMI, CORBA helps to provide systematic solution with conducting
		experiments, analyzing the problem and interpreting the data, it correlates low with PO2.
		This outcome correlates low with PO3 as it addresses implementation, and evaluation of a
		software, component, or process to meet desired needs within realistic constraints with the
		help of different middleware concepts.
		This outcome correlates low with PO4 as it addresses systematic solutions to complex
		engineering problems with the help of different middleware concepts.
		This outcome correlates low with PO5 as it address the modern tool usage so in the
		concept of middleware, RMI, CORBA we can use different tools, techniques and skills.
		As the concept of middleware focuses on communication between distruted systems so it
		applies mathematical foundations, algorithmic principles, and it can have local and global
		impact of information technology on individuals, organizations and society hence
		correlates low with PO6 and PO7.
		This outcome correlates low with PO12 as student able to to understand engineering,
		performance, optimizations and time complexity necessary for professional practice.
		It correlates moderately with PSO1 as it addresses the understanding of engineering
		fundamentals with design skills.
		It correlates low with PSO2 as it addresses the identifing and defining the computing
1		infrastructure and work on large-scale computing systems.
		and associate and work on large-scale computing systems.
CO410.3	Understand Inter-process	This outcome key parameters
	communication methods	Inter-process communication, Types of communication, Clock synchronization, logical
	and analyze different	clocks, mutual exclusion, Gossip based coordination address the basics of mathematics,
	coordination algorithms.	engineering fundamentals, complex problems correlate moderately with PO1.
		As the different concept of coordination i.e. Clock synchronization, logical clocks, mutual
		exclusion helps in the problem analysis, it correlates low with PO2.
		This outcome correlates moderately with PO3 as it addresses the election algorithms
		techniques, Gossip based coordination techniques.
		This outcome correlates low with PO4 as it provides schematic solutions to engineering
		complex problems using different electoin algorithm, or mutual exclusion algorithm.
		This outcome correlates low with PO6 as their are algorithmic principles based on election
		algorithm and mutual exclusion algorithm.
		This outcome correlates low with PO7 provide solution for the local and global impact of
		information technology on individuals, organizations by understanding concept of Inter-
		process communication.
		-
		This outcome correlates low with PO12 as student able to to understand engineering,
		performance, optimizations and time complexity necessary for professional practice.
		It correlates moderately with PSO1 as it addresses the understanding of engineering
		fundamentals with design skills.
_		It correlates low with PSO2 as it addresses the identifing and defining the computing
		infrastructure and work on large-scale computing systems.



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1		I2IT/ACAD/CP/02A Ver
CO410.4	Comprehend the importance of replication	This outcome key parameters Cocept of Replication and Fault Tolerance in distributed systems address the basics of
	to achieve fault tolerance in distributed systems.	mathematics, engineering fundamentals, complex problems correlate moderately with PO Consistency protocols: Primary based protocols, replicated write protocols helps in the problem analysis, it correlates low with PO2.
		This outcome correlates low with PO3 as it addresses Reliable client server
		communication, Reliable group communication. This outcome correlates low with PO4 as it addresses distributed commit, Recovery –
		Check pointing, Message logging.
		As the concept of Reliable client server communication, Reliable group communication
		helps in the design of computer-based systems with necessary constraints hence correlates low with PO6.
		As the concept of Reliable client server communication, Reliable group communication helps in the designing solution for the local and global impact of information technology
		on individuals, organizations correlates low with PO7.
		This outcome correlates low with PO12 as student able to to understand engineering, performance, optimizations and time complexity necessary for professional practice. It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with design skills.
		It correlates low with PSO2 as it addresses the identifing and defining the computing infrastructure and work on large-scale computing systems.
CO410.5	Analyze the design and	This outcome key parameters
	functioning of existing	Sun Network File System and HDFS, Resource Management, Distributed Web Based
	distributed file systems, distributed multimedia,	Systems address the basics of mathematics, engineering fundamentals, complex problems correlate moderately with PO1.
	and distributed web-based	Characteristics of Multimedia Data, Quality of Service Management helps analyzing the
	systems.	problem and interpreting the data and correlate moderately with PO2.
		Concept of Apache Web Server, Web Server Clusters, Communication by Hypertext Transfer Protocol, Synchronization, Web Proxy Caching helps to design, implement, and evaluate a software or a software/hardware system, component, or process to meet desired needs within realistic constraints correlate moderately with PO3.
		Concept of Distributed Files: Introduction, File System Architecture, Sun Network File System and HDFS. Distributed Multimedia Systems: Characteristics of Multimedia Data, Distributed Web Based Systems helps to design systematic solutions to complex
		engineering problems correlate moderately with PO4.
.)		As the concept of Distributed Files, Distributed Multimedia Systems, Distributed Web Based Systems helps in the designing of computer-based systems with necessary constraints and assumptions correlate low with PO6.
		As the concept of Distributed Files, Distributed Multimedia Systems, Distributed Web Based Systems helps in the designing solution for the local and global impact of
		information technology on individuals, organizations correlates low with PO7.
		This outcome correlates low with PO12 as student able to to understand engineering, performance, optimizations and time complexity necessary for professional practice.
		It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with design skills.
		It correlates moderately with PSO2 as it addresses the Distributed file echniques, Distributed Multimedia Systems

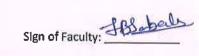


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CO410.6	Understand various	This outcome key parameters
	Recent Trends in	Portable and handheld Devices, Wearable devices, Devices embedded in appliances,
	distributed systems.	Parallel Virtual Machine (PVM), address the basics of mathematics, engineering
		fundamentals, complex problems correlate moderately with PO1.
		As the specifications Devices embedded in appliances helps in the problem analysis, it correlates moderately with PO2.
		This outcome correlates moderately with PO3 as it addresses Portable and handheld Devices, Wearable devices.
		Recent trends of distributed systems with different devices helps in the investigations of Complex Problems and moderately with PO4.
		Different Tools for Distributed System Monitoring are Prometheus, Zabbix, Nagios
		necessary for practice as a IT professional so correlates moderately with PO5.
		As the concept of Parallel Virtual Machine (PVM), Jini, Service Oriented Architecture an
		recent trends helps in the designing of computer-based systems with necessary constraints correlate low with PO6.
		As the different recent trend of distributed system helps in the designing solution for the
		local and global impact of information technology on individuals, organizations correlates low with PO7.
		It correlates moderately with PSO1 as it addresses the understanding of engineering fundamentals with design skills.
		It correlates moderately with PSO2 as it addresses the different recent trend of distributed
		systems that helps in the analyzing a problem, and identify and defining the computing
		infrastructure and working of large-scale computing systems.







### **CORRELATION BETWEEN CO, PO & PSO**

Course Name: Lab Practice V	Course Code: 414454
Name of Faculty: Sayali Sabale	Class: BE 2019

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Course Outcome (COs)	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO414.1	2	-	-	-		-	-	-	-	-	-	1
CO414.2	2	1	1	-			-	-	*		-	1
CO414.3	2	1	1	<b>7</b> 5	1.7		-		<del>7</del> 6		-	1
CO414.4	2	1	1	-	-	-	ž,	-	-	Ę	-	1
CO414.5	2	-	-	*		-	-		-	÷	æ	1
CO414.6	2	1	1		-	-	=	-	-	-		1

Course	Program Specific Outcomes (PSOs)											
Outcome (Cos)	PSO1	PSO2	PSO3	PSO4								
CO414.1	1		1	-								
CO414.2	2	5.	-	-								
CO414.3	2	₹/	-	-								
CO414.4	2	<b>T</b> :	-									
CO414.5	2	-	-	=								
CO414.6	2	-	-	-								

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Sayali Sabale Signature of Faculty



Dr. Jyoti Surve **Head of Department** 



### THEORY TEACHING RECORD

Cour	se Co	de: 414450	Class: BE 2	019	Name of Faculty: Sayali Sabale						
Cour	Course Name: Distributed Systems					Teaching Scheme:					
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitored AC HOD		d by APMC	
			UNIT 1 : Int	troduction to	Distributed Sy	stems					
1	1.1	Introduction: Network operating System Vs Distributed operating systems, Characteristics, Design goals			01/02/2023	01/02/23		}			
2	1.2	Challenges of Distributed Systems, Examples of Distributed Systems			06/02/2023	02/02/29					
3	1.3	Trends in Distributed systems: Pervasive networking and the modern Internet	CEO410.1	CO410.1	07/02/2023	06/02/23		1k	les	Ders	
4	1.4	Mobile and ubiquitous computing, Focus on resource sharing			08/02/2023	07/02/23		P	1		
5	1.5	Distributed Computing Models: Physical, Architecture			136/02/2023	08/02/23					
6	1.6	Distributed Computing Models: Physical, Architecture and Fundamental models			14/02/2023	13/02/23				)	

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	_			UNIT 2 : Mi	ddleware				
7	2.1	Introduction to middleware, middleware Framework, Role of middleware,			15/02/2023	20/02/23	7		)
8	2.2	Middleware,	CEO410.2 CO410.2	20/02/2023	21/02/23				
9	2.3	RMI, CORBA, General Approaches to adaptive software, Types of middleware- messages oriented middleware		O410.2 CO410.2	21/02/2023	27/02/23			100M
10	2.4	Intelligent middleware, content centric middleware, middleware protocol			22/02/2023	28/02/23	0	1 pr	-
11	2.5	Middleware Services, Distributed computing Environment (DCE)			27/02/2023	01/03/23	113		}
12	2.6	Middleware Issues, middleware Analyst Case Study: - XML Based middleware Class Test I			28/02/2023	06/03/23	עין		
		0.000 1001	UNIT 3 :	Inter-Process	s Communicat	ion			/
13	3.1	Introduction, Layered protocols, API for internet protocols, IPC through shared memory			01/03/2023	08/03/23			
4	3.2	External data representation and marshaling, Types of communication, inter process communication,			06/03/2023	13/03/23	7	1 1	
15	3.3	multicast communication, message-oriented communication,			08/03/2023	14/03/23			Dero
6	3.4	MPI, network virtualization, overlay networks	CEO410.3	CO410.3	13/03/2023	15/03/23	-fix	In	
7	3.5	Coordination: Clock synchronization, logical clocks, mutual exclusion		F	14/03/2023	16/03/23	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
8	36	election algorithms, Gossip based coordination Case Study: IBM WebSphere Message Queuing	national.	d of Jano Tech		20/03/23			

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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	1		<b>UNIT 4 : </b> ]	<b>Replication</b> a	nd Fault Tole	rance						
19	4.1	Replication: Reasons for replication, Replica management – Finding the best server location			20/03/2023	21/03/23	Ber D					
20	4.2	Content replication and placement, Content distribution, Managing replicated objects	CEO410.4							21/03/2023	27/03/23	514
21	4.3	Consistency protocols: Primary based protocols, replicated write protocols			27/03/2023	12/04/23	E Dei					
22	4.4	Fault Tolerance: Introduction to fault tolerance, Reliable client server communication, Reliable group communication		CEO410.4 CC	CEO410.4 C	0.4 CO410.4	0.4 CO410.4	0.4 CO410.4	28/03/2023	17/04/23	(Strained)	
23	4.5	Distributed commit, Recovery – Check pointing, Message logging			29/03/2023	18/04/23						
24	4.6	Case Study: Caching and replication in web			03/04/2023	19/04/23						
-		Class Test II	The control of									
			Distributed	Files, Multi	nedia and Wel	Based System						
25	5.1	Distributed Files: Introduction, File System Architecture, Sun Network File System and HDFS			04/04/2023	20/04/23	Bon )					
26	5.2	Distributed Multimedia Systems: Characteristics of Multimedia Data, Quality of Service Management, Resource Management			05/04/2023	24/04/23	Dev					
27	5.3	Distributed Web Based Systems: Architecture of Traditional Web-Based Systems, Apache Web Server	CEO410.5	CO410.5	10/04/2023	25/04/23	- Set					
28	5.4	Web Server Clusters, Communication by Hypertext Transfer Protocol,	a Inst	1 4016	11/04/2023	26/04/23						
29		Synchronization, Web Proxy Caching	mation	Tach.	12/04/2023	27/04/23						

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30	5.6	Case Study: The Global Name Service, The X.500 Directory Service, BitTorrent			17/04/2023	27/04/23	1		
		τ	JNIT 6 : Rec	ent Trends i	n Distributed S	Systems			
31		Recent Trends: Introduction, Portable and handheld Devices, Wearable devices			18/04/2023	08/05/23			1
32	6.2	Devices embedded in appliances, Parallel Virtual Machine (PVM)		CO410.6	19/04/2023	es/20100	1		loen
33	6.3	Jini, Service Oriented Architecture			24/04/2023	10/05/23	de	- In	100
34	6.4	The Future of Recent Trends.	CEO410.6		25/04/2023	10/05/23	120	6	
35	6.5	Tools for Distributed System Monitoring: Prometheus, Zabbix, Nagios			26/04/2023	11/05/23		- het	
36		Case Studies: Mach, Chorus			26/04/2023	11/05/23			
		Class Test III				11421-2			1

#### Start of Semester

Date				
01/02/23				

#### End of Semester

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

#### PRACTICAL TEACHING RECORD

Cour	se Code: 414454	2019	Name of Facul						
Cour	se Name: Lab Practice V		Batch: A		Teaching Scheme:	Pr: 2 Hrs - week			
Sr. No.	Experiment - Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	AC	HOD	d by APMC
1	Implement multi-threaded client-server Process communication using RMI.	CEO414.1	CO414.1	6/2/2023	06/02/23		}	2	
2	Develop any distributed application using CORBA to demonstrate object brokering. (Calculator or String operations).	CEO414.1	CO414.2	13/2/2023	13/02/23		da	In	Der
3	Develop a distributed system, to find sum of N elements in an array by distributing N-n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.3	/ 20/02/2023, 27/02/2023	20/02/23 27/02/23				

4	Implement Berkeley algorithm for clock synchronization.	CEO414.2	CO414.4	6/3/2023	06/03/23	for a
5	Implement token ring based mutual exclusion algorithm.	CEO414.2	CO414.4	13/3/2023	13/03/23	2
6	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.5	20/3/2023	20/03/23	R. Derp
7	Create a simple web service and write any distributed application to consume the web service.	CEO414.1	CO414.2	27/03/2023, 3/04/2023	27/03/23	PTS OF
8	Mini Project (In group): A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	- 10/04/2023, 17/04/2023	17/04/23	\$3 )

#### Start of Semester

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#### End of Semester

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#### PRACTICAL TEACHING RECORD

Cour	se Code: 414454								
Cour	ourse Name: Lab Practice V			Batch: B		<b>Teaching Scheme:</b>	Pr::	2 Hrs	- week
Sr. No.	Experiment - Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	AC	HOD	
1	Implement multi-threaded client-server Process communication using RMI.	CEO414.1	CO414.1	07/02/2023, 14/02/2023	07/02/23			1	
	Develop any distributed application using CORBA to demonstrate object brokering.	CEO414.1	CO414.2	21/02/2023,	21/02/23, 28/02/23		d'	-	
2	(Calculator or String operations).	CE0414.1	0414.2	28/02/2023	28/02/23	-	NIS	The	The
3	Develop a distributed system, to find sum of N elements in an array by distributing N-n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.3	14/03/2023, 21/03/2023	14(03)23, 21(03)23		2 87	for the second	
4	Implement Berkeley algorithm for clock synchronization.	CEO414.2	CO414.4	28/03/2023	29/03/23		LAN		
5	Implement token ring based mutual exclusion algorithm.	CEO414.2	CO414.4	4/4/2023	17 /04 /23		ph?	~	)

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6	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.5	11/4/2023	24/04/23	1			
7	Create a simple web service and write any distributed application to consume the web service.	CEO414.1	CO414.2	18/04/2023	08/05/23		bi	- m Der	4
8	Mini Project (In group): A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	25/4/2023	11/05/23			Tran	

#### Start of Semester

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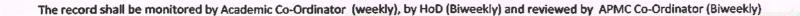


### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year 2022-23 Semester II

#### PRACTICAL TEACHING RECORD

	rse Code: 414454	Class: BE	2019	Name of Facult	ty: Sayali Sab	ale				
Cou	se Name: Lab Practice V		Batch: C Teaching S				Pr:2 Hrs-week			
<b>C</b>					Date of	Remarks of Faculty	M	lonitore	d by	
Sr. No.	Experiment - Assignment	CEO	CO	Date of Plan	Conduction	(incase of variance)	AC	HOD	АРМС	
1	Implement multi-threaded client-server Process communication using RMI.	CEO414.1	CO414.1	1/2/2023	01/02/23		}	0		
2	Develop any distributed application using CORBA to demonstrate object brokering. (Calculator or String operations).	CEO414.1	CO414.2	08/02/2023	08/02/23		Art.	In	De	
3	Develop a distributed system, to find sum of N elements in an array by distributing N-n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.3	15/02/2023, 22/02/2023	01/03/23		III	5 111		
4	Implement Berkeley algorithm for clock synchronization.	CEO414.2	CO414.4	1/3/2023	08/03/23					
5	Implement token ring based mutual exclusion algorithm.	CEO414.2	CO414 5	Inst 8/3/2023	15/03/23	c	6×	,		



6	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.5	15/03/2023	12/04/23	
7	Create a simple web service and write any distributed application to consume the web service.	CEO414.1	CO414.2	29/03/2023, 05/04/2023	19/04/23	fr fr Der
8	Mini Project (In group): A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	12/04/2023, 19/04/2023	26/04/23	(iaks)

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End of Semester	
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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

### PRACTICAL TEACHING RECORD

	rse Code: 414454	Class: BE	2019	Name of Facu	lty: Dr. Bhay	ana Kanawade			
	rse Name: Laboratory Practice-V	Laboratory Practice-V		Batch: A		Teaching Scheme:	Pr: 2 Hrs / week		
Sr. No.	Experiment / Assignment	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Mo	nitored b	
1	Implement multi-threaded client/server Process communication using RMI.	CEO414.1	CO414.1	06-02-2023, 13/02-2023	612	Hackathon (	7		
2	Develop any distributed application using CORBA to demonstrate object brokering. (Calculator or String operations).	CEO414.1	CO414.2	20-02-2023, 27-02-2023	2012		RN		
3	Develop a distributed system, to find sum of N elements in an array by distributing N/n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.2	6-03-2023, 13-02-2023	613	Alter and	A IL		Cer
4	Implement Berkeley algorithm for clock, synchronization.	CEO414.1	CO414.3	20-03-2023	1513	Z		7)	
5	Implement token ring based mutual exclusion algorithm	CEO414.2	CO PAR	TT-7-02-2023	2013		Br.	the l	Dev
	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.4		27:13	5	515)		Lar

7	Create a simple web service and write any distributed application to consume the web service.	CEO414.2	CO414.5	10-04-2023, 17-04-2023	1719 24/4		DX Costy	as loe
8	A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	24-04-2023	815		with	(A) (0)
	Start of Semester	Charles M.	- Common	and a state	End of Sem	ester		
	Signature	Date			S	ignature	Date	~
	Course Faculty :	30)113	ź		Course Facu	lty:	1715	
	HoD: Ar ading	1.000	(Contrast		HoD :	Mares.		
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### PRACTICAL TEACHING RECORD

	Course Code: 414454 Class: BE 2019		Name of Faculty: Dr. Bhavana Kanawade						
Cou	rse Name: Laboratory Practice-V		1.194	Batch: 😰		Teaching Scheme:	Pr:	2 Hrs	/ week
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)		onitore	
1	Implement multi-threaded client/server Process communication using RMI.	CEO414.1	CO414.1	07-02-2023	712		2	2	
2	Develop any distributed application using CORBA to demonstrate object brokering. (Calculator or String operations).	CEO414.1	CO414.2	14-02-2023	2112	Mackathon 13/2-14/2			20
3	Develop a distributed system, to find sum of N elements in an array by distributing N/n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.2	21-02-2023, 28-02-2023	2812	Pres Pr-	AX 113		15
4	Implement Berkeley algorithm for clock synchronization.	CEO414.1	CO414.3	14-03-2023	1413	1	A	2	)
5	Implement token ring based mutual exclusion algorithm	CEO414.2	CO414.4	a inst or 118	2113		STY	- Kin	- Der
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6	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.4	28-03-2023	1214	A
7	Create a simple web service and write any distributed application to consume the web service.	CEO414.2	CO414.5	<b>4-04-2023</b> , 11-04-2023	2014	Tusting (the master is the second
8	A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	18-04-2023	2)5 9)5	

Start of Semester			<b>End of Semes</b>	ster		
Signature Course Faculty :	Date 30 1123		Course Facult	gnature y: Br	Date 12-15	
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The record shall be monitored by Academic Co-Ordinator (wee , by HoD (Biweekly) and reviewed by APMC Cc ...dinator (Biweekly)

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### Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF INFORMATION TECHNOLOGY Academic Year 2022-23 Semester II

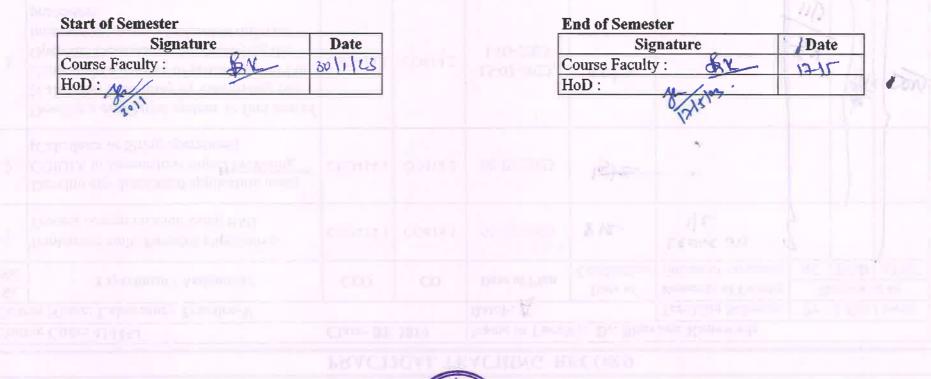
### PRACTICAL TEACHING RECORD

_	rse Code: 414454	Class: BE	2019	Name of Facu	lty: Dr. Bhay	ana Kanawade			
	rse Name: Laboratory Practice-V			Batch: 🕰		Teaching Scheme:	Pr:	2 Hrs/	week
Sr. No.	Experiment / Assignment	CEO	CO	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)		onitore	
1	Implement multi-threaded client/server Process communication using RMI.	CEO414.1	CO414.1	01-02-2023	812	leave op ( 1/2	7 7		
2	Develop any distributed application using CORBA to demonstrate object brokering. (Calculator or String operations).	CEO414.1	CO414.2	08-02-2023	15/2	d:	Y		
3	Develop a distributed system, to find sum of N elements in an array by distributing N/n elements to n number of processors MPI or OpenMP. Demonstrate by displaying the intermediate sums calculated at different processors.	CEO414.1	CO414.2	15-02-2023, 1-03-2023	22)2	Street -	6x 13	18	Cen
4	Implement Berkeley algorithm for clock synchronization.	CEO414.1	CO414.3	08-03-2023	113			1	
5	Implement token ring based mutual exclusion algorithm	CEO414.2	Statust of the	15-03-2023	. 813	р.		AN A	
			* Pune	5	1210	J	N. S.		

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6	Implement Bully and Ring algorithm for leader election.	CEO414.2	CO414.4	29-03-2023	1914	Br.	
	Create a simple web service and write any distributed application to consume the web service.	CEO414.2	CO414.5	<b>5-04-</b> 2023, <b>12-04-</b> 2023	2614	AT AT	Den
8	A Distributed Application for Interactive Multiplayer Games	CEO414.2	CO414.6	19-04-2023	1015	PDE 1	





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## Hope Foundation's International Institute of Information Technology, Pune

## DEPARTMENT OF ENGINEERING SCIENCES

Academic Year 2022-23 Semester I

## **COURSE FILE INDEX**

Sr. No.	Format	DISCRIPTION
1	Vision, Mission of Institute	
2	Vision Mission of Department	
3	Program Educational Objectives, Program Outcomes	
4	and Program Specific Outcomes Institute Academic Calendar	
5	Department Academic Calendar	
6	Class wise Time Table	I2IT / ACAD / SP / 01
7	Faculty wise Time Table	I2IT / ACAD / TT / 01
8	Lab wise Time Table in case of Lab – In charge	I2IT / ACAD / TT / 02
9	University Syllabus	I2IT / ACAD / TT / 04
10	Lesson Plan Resources	
11	Course Objectives and Outcomes (Theory)	I2IT / ACAD / CP / 05
12	Correlation of COs with POs (Theory)	I2IT / ACAD / CP / 01
13	CO-PO mapping Justification (Theory)	I2IT / ACAD / CP / 02
14	Course Objectives and Outcomes (Laboratory)	I2IT / ACAD / CP / 02A
15	Correlation of COs with POs (Laboratory)	I2IT / ACAD / CP / 01
16	CO-PO mapping Justification (Laboratory)	I2IT / ACAD / CP / 02
17	Theory Teaching Plan	I2IT / ACAD / CP / 02A
18	Laboratory Teaching Plan	I2IT / ACAD / CP / 03
19	List of Laboratory Assignments	I2IT / ACAD / CP / 04
20	Rubrics for Continuous evaluation	I2IT / ACAD / CP / 04A
21	Previous University Question Papers	I2IT / ACAD / CP / 06
22	Theory Question Bank	
23	Objective Question Bank	I2IT / ACAD / CP / 21
24	List of Theory Assignments	8
25	Class Test Question Days in the interview	I2IT / ACAD / CP / 18
26	Class Test Question Papers with solutions Class Test Attendance	I2IT / ACAD / CP / 07
27		I2IT / ACAD / CP / 08
28	Course Outcomewise Class Test Marksheet	I2IT / ACAD / CP / 08A
29	Class Test Evaluation Record	I2IT / ACAD / CP / 12
	Slow Learner and Advanced Learner Identification	I2IT / ACAD / CP / 09
30	Schedule of Slow Learner Activities	I2IT / ACAD / CP / 10
31	Assignments to Advanced Learners	I2IT / ACAD / CP / 11
32	List of Slow Learners	I2IT / ACAD / CP / 13
33	List of Advanced Learners	12IT / ACAD / CP / 14
34	Slow Learner Attendance Record	I2IT / ACAD / CP / 15
35	Performance Improvement of Slow Learner	I2IT / ACAD / CP / 16
36	Innovative Practices in Teaching-Learning and ICT	12IT / ACAD / CP / 19

Sr. No.	Format	DISCRIPTION
37	Content Beyond Syllabus (CBS)	12IT / ACAD / CP / 17
38	CBS Attendance Record	I2IT / ACAD / CP / 17A
39	Previous University Result	12IT / ACAD / CP / 21
40	TW Calculation Sheet	I2IT / ACAD / CP / 20
41	Course End Survey (Theory & Laboratory)	I2IT / ACAD / CP / 22
42	Theory Attendance Record	I2IT / ACAD / BB / 01
43	Practical Attendance Record	I2IT / ACAD / BB / 02
44	Continuous Assessment Record	I2IT / ACAD / BB / 03
45	Assignment Assessment Record	I2IT / ACAD / BB / 04
46	Average University Result	12IT / ACAD / AT / 01
17	CO Attainment through University Result	12IT / ACAD / AT / 02
18	CO Attainment through Class Test & Theory Assignment	I2IT / ACAD / AT / 03
19	CO Attainment through Course End Survey	I2IT / ACAD / AT / 04
50	CO Attainment through Continuous Evaluation	12IT / ACAD / AT / 05
51	PO & PSO Attainment through CO for Theory	I2IT / ACAD / AT / 06
52	PO & PSO Attainment through CO for Practical	I2IT / ACAD / AT / 06



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# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year 2022-23 Semester I

Cour	se Co	de: 107001	Class: FE	2019	Name of Facult	y: Prof.Suvar	na Bhagwat			
		me: ENGINEERING MATHEMATICS-I			<b>Teaching Scher</b>	ne:	Th: 3 Hrs / week			
0		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	AC.	lonitored HOD	d by
		ι	NIT - I	DIFFERE	NTIAL CALC	CULUS				
1	1.1	Introduction to functions, Rolle's theorem, Lagrange's mean value theorem			22/11/2022	22/11/2022				
2	1.2	Examples on Rolle's Theorem			23/11/2022	23/11/2022		4.	ζ	5
3	1.3	Examples on LMVT & CMVT Theore		•	24/11/2022	23/11/2022	Extra lecture	a	R	Des
4	1.4	Introduction to Taylor's theorem, Taylor's series & examples	CEO101.1	CO101.1	25/11/2022	24/11/2022	Exha leekure	V		
5	1.5	Examples on Taylor's series			28/11/2022	25/11/2022				
6	1.6	Maclaurin's Series & examples			28/11/2022	28 1.11 / 2022				
7	1.7	Solving indeterminate forms by using L'Hospital's rule, Examples on			29/11/2022	30/11/2022		1		
8	1.8	Indeterminate forms and evaluation of limits.			5/12/2022	05/12/2022			<b> </b> ,	)

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			UN	IT – II Fo	urier Series					
9	) 2.	1 Introduction and Dirichlet's condition for Fourier series			6/12/2022	06/12/2022			$\gamma$	
1	0 2.	2 Full range Fourier series for even,odd			8/12/2022	08/12/2022		1		
11	1 2.	Examples on Full range Fourier series for even,odd functions			12/12/2022	121 12 2022	7	Q	5	
12	2.4	Half range Fourier series for sine and cosine functions	CEO101.2	CO101.2	13/12/2022	13/12/2022	ä.			000
13	2.5	Examples on Half range Fourier series for even.odd functions			15/12/2022	15/12/2022		-	P	
14	2.6				19/12/2022	19/12/2022			) ·	2
15	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Examples on harmonic analysis		×	20/12/2022	20/12/2022			1	
16		Fourier Series application to engineering			22/12/2022	22/12/2022		9		ł
		U	NIT III:PA	RTIAL D	IFFERENTI	ATION	•			
17	3.1	Introduction to Partial Derivatives ,direct differentiation			26/12/2022	26/12/2022	-		)	
18	3.2	Examples on direct differentiation			27/12/2022	27/12/2022				1
19		Homogeneous functions of 2 variables: Euler's theorem			29/12/2022	29/12/2022		6	3	Dev
20	3.4	Homogeneous functions of 3	000444	001010	2/1/2023	02/01/2023			12	>
21		Problems on Euler's Theorem	CEO101.3	CO101.3	3/1/2023	03/01/2023			1."F	-
2		Partial derivative of Composite functions and problems			5/1/2023	04/01/2013				
3	3.7	Total derivatives & examples			9/1/2023	16/01/2023		5		
1	3.8 J	Examples on change of independent va			10/1/2023	17/01/2023				Ĩ

The record shall be monitored by Academic Co-Ordinator (weekly) by HoD (Biweekly) and reviewed by ARMC Co-Ordinator (Biweekly)

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		UNIT -IV : A	PPLICATI	ONS OF B	ADTIAL DU		FLON
25	4.1	Definition of loophing with 1	LICAT	UNS OF P	12/1/2023	18/01/2023	
26	4.2	Problems on partial differentiation			16/01/2023	19/01/2023	
27	4.3				17/01/2023	23/01/2023	
28	4.4	Jacobian of implicit functions			19/01/2023	4/01/2023	
29	4.5	Application of Jacobian.	CEO101.4	001014	23/01/2023	30/01/2023	
30	4.6	Applications of partial derivatives to find approximate values and error detection.	CE0101.4	CO101.4	24/01/2023	31/01/2023	Pers-
31	4.7	Extreme values of functions of two variables, examples and geometrical interpretation.			30/01/2023	02/02/2023	
32	4.8	Lagrange's undetermined multipliers.			31/01/2023	06/02/2023	
		UN	IIT- V : LI	NEAR AL	GEBRA-MA	<b>TRICES</b>	
33		Introduction to rank ,methods to find			31/01/2023	07/02/2023	201
34	5.2	Normal form, rank using normal form			2/2/2023	09/02/2023	
35	5.3	System of Linear equations, solution of S.L.E. by using row echelon form of the augmented matrix.			6/2/2023	13/02/2023	
36	5.4	Problems on Linear independence and dependence.			7/2/2023	14/02/2023	7 69
37	5.5	Problems on Linear independence and dependence.	CEO101.5	CO101.5	9/2/2023	15/02/2023	change VE Den
38	5.6	Linear Transformations. Rotation,		ti	13/02/2023	16 02 2023	
39	1/1	Orthogonal Matrices and their properties			14/02/2023	17/02/2023	Toble
10	1	Application to problems in engineering.			16/02/2023	20/02/2023	

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		UNIT -VI : INTE	ODUCTIC	ON TO JAC	OBIAN, MA	XIMA AND	MINIMA			
41	6.1	Definition of Eigen values and Eigen vectors. Finding characteristic polynomial of given matrix.	-		20/02/2023	21/02/2023		$\int$	7	
42	6.2	Examples on Eigen value Eigen Vector.			21/02/2023	22/02/2023		K	4	Delo
43	6.3	Cayley-Hamilton theorem and examples			23/02/2023	23/02/2023			V	
44	6.4	Application of Cayley-Hamilton theorem to find inverse of A, to	CEO101.6	CO101.6	27/02/2023	24/02/2023	2	3	· KE	1
45	6.5	Dogonalisation of a matrix			28/02/2023	27/02/2023				2
46	6.6	Dogonalisation of a matrix			2/3/2023	28/02/2023	>	0	$\cup$	
47	6.7	Reduction of quadratic forms to canonical form by linear transformation			6/3/2023	01/03/2023	2		92.	Devo
48		Reduction of quadratic forms to canonical form by orthogonal transformation.			9/3/2023	02/03/2023				

## Start of Semester

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Signature	Date				
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## End of Semester

Signature	Date
Course Faculty : Straguet	06/93/2023
HoD:	06 03 23

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year 2022-23 Semester I

Cours	se Coo	le: 107009	Class: FE A	(IT)	Name of Facult	ty: Prof. Dr.Sn	nita Nande				
Cours	se Nar	ne: Engineering Chemistry			Teaching Scheme:		Th: 3 Hrs / week	1			
				-			Remarks of	Monitored by			
Lr. No.		Topics to be Delivered	CEO	CO	Date of Plan Date of Conduction	Faculty (incase of variance)	ĄС	HOD	АРМС		
			UI	NIT 1 : Wate	er Technology						
1	1.1	Introduction, sources and types of water			22-11-2022	22-11-2022		)	2	)	
2	1.2	Hardness of water		11124	23-11-2022	23-11-2022		5	(	Loon	
3	1.3	Hardness determination by EDTA method			24-11-2022	24-11-2022		N	17	1 des	
4	1.4	Numericals by Hardness determination by EDTA method			25-11-2022	25-11-2022		)	1	)	
5	1.5	Alkalinity of water, its determination	CEO109.1	CO109.1	28-11-2022	29-11-2022		3	2	5	
6	1.6	Alkalinity of water Numericals			29-11-2022	30-11-2022		1A			
7	1.7	Effects and treatment of hardness in boilers priming faoming, caustic embrittlement		2	30-11-2022	05-12-2022		4	(R	Den	
8	1.8	Desalination of Brackish water,Zeolite treatment,Purificatin of water			05-12-2022	06-12-2022			)	1	



			<b>UNIT 2 : I</b>	nstrumental ]	Methods of Ana	alysis		121	T/ACAD/	
9	21	Pagio concento of electro de est			06-12-2022	06-12-2022		5		1
9	2.1	Basic concepts of electrode potential			08-12-2022	08-12-2022		1	10	1
10	2.2	Types of reference electrode calomel electrode ,hydrogn electrode			09-12-2022	09-12-2022	1	la		58.4
11	2.3	Electrode glass electrode, ion selective			12-12-2022	12-12-2022	-		TR	
12	2.4	Ion Selective membrane such as solid membrane			15-12-2022	15-12-2022				ber
13	2.5	Ion Selective membrane such as enzyme based membrane and gas sensing membrane	CEO109.2	CO109.2	19-12-2022	19-12-2022		ň	2	- LAN
14	2.6	Conductometry, conductometric titrat			20-12-2022	20-12-2022		1	/	
15	2.7	Potentiometry, Introduction, Potentiometric titration		_	22-12-2022	22-12-2022		M	TR'	
16	2.8	pH metry, Preparation of Buffers, Standardization of pH meter			23-12-2022	23-12-2022			1+	
		Class Test I	15			211		1	U	
			UNIT	3 : Engineer	ring Materials			1.5		¢.
17	3.1	Speciality polymers introduction preperation and applications			26-12-2022	26-12-2022		7	2	)
18	3.2	Engineering Thermoplastics,polycarbonate			27-12-2022	27-12-2022		1	$\left( \right)$	1
19	3.3	Bio-degradable polymersPoly(hydroxybuyrate- hydroxyvalanate)	ap 1		29-12-2022	29-12-2022		69	P	
20	3.4	Conducting polymers:polyacetylene	CEO109.3	CO109.3	-30-12-2022	30-12-2022			J	Der
21	3.5	Electroluminescent polymers :Polyphylenevinylene			02-01-2023	02-01-2023		ĥ	1	
22	3.6	Polymer composites			05-01-2023	05-01-2023				1
23	3.7	Nanomaterials Introduction classification			16-01-2023	16-01-2023	inte of Information	6	P	)
24		Structure properties and application of graphene, carbon nanotubes and <u>quantaum dots</u> nitored by Academic Co-Ordinator (weekly), by HoD (Biweek.			17-01-2023	17-01-2023	Haunney remained		PT.	1

3			<b>UNIT 4 :</b>	FUELS AND	COMBUSTIO	ONS		121	T / ACAD /	c. / 05 V
25	4.1	Introduction, Fossils fuels, definition, Calorific value			19-01-2023	19-01-2023		$\gamma$	2	1
26	4.2	Determination- bomb calorimeter, boys gas calorimeter, numerical			20-01-2023	20-01-2023		(		
27	4.3	Solid fuels, proximate and alternative analysis and numerical			23-01-2023	23-01-2023		10	a	Der
28	4.4	Liquid fuels, petroleum, composition and refining Octane numbers	CEO109.4	CO109.4	24-01-2023	24-01-2023			16	
.9	4.5	Gaseous fuels: composition, properties of NG. CNG and LPG	1		27-01-2023	27-01-2023		1		
0	4.6	Combustion of fuels, reaction,			30-01-2023	31-01-2023		1	7	1
51	4.7	Calculation of air required, numerical			01-02-2023	01-02-2023		9	R	
32	4.8	Fuel cell PAFC, PEMFC, MCQ	1		02-02-2023	02-02-2023		$\rightarrow \forall$	15	
		Class Test II							17	1.
		land the second s	UNIT :	5 : Spectrosco	pic Technique	s	i dem	1 2.0	1 12212	
33	5.1	UV-Visible spectroscopy introduction			03-02-2023	03-02-2023		)	1	)
34	5.2	Absorption of UV radiation by organic molecule leading to different			06-02-2023	06-02-2023			1/	/
5	5.3	Terms involved in UV-visible spectroscopy,Sngle beam UV-visible Spectrophotometer			07-02-2023	07-02-2023		6		Soon
86	5.4	Application of UV-visible spectroscopy	CEO109.5	CO109.5	08-02-2023	08-02-2023		19.		12
37	5.5				09-02-2023	09-02-2023			R	1000
38	5.6	Principle of IR spectroscopy,types of vibrations			10-02-2023	10-02-2023	otinto		P	1
9	5.7	Conditions and instrumentation of IR spectroscophotometer			13-02-2023	13-02-2023	Situle of Information			1
10	5.8	Application of IR spectroscopy			14-02-2023	14-02-2023	The second se			

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

			UN	IT 6 : Corre	osion science			121	TT MCMU	/ CP / 03 V
41	6.1	Redox, anodic and cathodic reactions			20-02-2023	20-02-2023	5	)	2	$\wedge$
42	6.2	Introduction: Type of corrosion, Dry corrosion and mechanism			21-02-2023	21-02-2023	- 67-1	P	5	
43	6.3	Pilling bed corrosion, worth rule,		1	22-02-2023	22-02-2023	1.22	V	(P	$\prod$
44	6.4	Wet corrosion mechanism	CEO109.6	CO109.6	24-02-2023	24-02-2023			1	1
45	6.5	Factors influencing corrosion, methods of corrosion			27-02-2023	27-02-2023		ħ	2	Den
46	6.6	Protecting coating, surface preparations,			28-02-2023	28-02-2023		G	6	
47	6.7	Metallic coating,			01-03-2023	01-03-2023		1/1	TA	
48	6.8	Electroplating Class Test III			02-03-2023	02-03-2023		D		1

Start of Semester

	Signature	Date
Course Faculty :	march	21/11/2022
HoD:	_	21/11/22



Signature	Date
Course Faculty : Wichne	3 03 2023
HoD:	06 03 23

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Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year 2022-23 Semester I

Cour	se Cod	le: 107009	Class: FE B	(IT)	Name of Facult	y: Prof. Dr.St	nita Nande			
Cour	se Nai	ne: Engineering Chemistry			Teaching Scher	ne:	Th: 3 Hrs / week		13	-
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of	M AC	fonitored HOD	i by APMC
-			[				variance)			
				NIT 1 : Wate	r Technology					
1	1.1	Introduction, sources and types of water			22-11-2022	22-11-2022			7	
2	1.2	Hardness of water			23-11-2022	23-11-2022				
3	1.3	Hardness determination by EDTA method		125	24-11-2022	24-11-2022		5	>	
4	1.4	Numericals by Hardness determination by EDTA method			25-11-2022	25-11-2022		A		her
5	1.5	Alkalinity of water, its determination	CEO109.1	CO109.1	29-11-2022	29-11-2022			6	1-
6	1.6	Alkalinity of water Numericals			30-11-2022	30-11-2022		· V	1 F	
7	1.7	Effects and treatment of hardness in boilers priming faoming, caustic embrittlement			02-12-2022	02-12-2022				-
8	1.8	Desalination of Brackish water,Zeolite treatment,Purificatin of water			05-12-2022	05-12-2022	-	)	-	Es



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			UNIT 2 : In	strumental l	Methods of Ana	lysis	12IT / ACAD / CP /
9	21	Desis concents of shorts do not which			06-12-2022	06-12-2022	
9	2.1	Basic concepts of electrode potential			07-12-2022	07-12-2022	
10	2.2	Types of reference electrode calomel electrode ,hydrogn electrode			08-12-2022	08-12-2022	.9
11	2.3	Electrode glass electrode,ion selective			09-12-2022	09-12-2022	
12	2.4	Ion Selective membrane such as solid membrane			14-12-2022	14-12-2022	
13	2.5	lon Selective membrane such as enzyme based membrane and gas sensing membrane	CEO109.2	CO109.2	15-12-2022	15-12-2022	) ) Der
14	2.6	Conductometry, conductometric titrat			21-12-2022	22-12-2022	
15	2.7	Potentiometry, Introduction, Potentiometric titration			22-12-2022	23-12-2022	
16	2.8	pH metry, Preparation of Buffers, Standardization of pH meter			23-12-2022	23-12-2022	V(£).
	N	Class Test I					
			UNIT	3 : Engineer	ring Materials		
17	3.1	Speciality polymers introduction preperation and applications			27-01-2023	27-12-2022	n n 2 n
18	3.2	Engineering Thermoplastics,polycarbonate			28-12-2023	28-12-2022	121
19	3.3	Bio-degradable polymersPoly(hydroxybuyrate- hydroxyvalanate)			29-12-2023	29-12-2022	49 2
20	3.4	Conducting polymers:polyacetylene	CEO109.3	CO109.3	30-12-2023	30-12-2022	1 / he
21	3.5	Electroluminescent polymers :Polyphylenevinylene			04-01-2023	04-01-2023	K 2 F
22	3.6	Polymer composites		-	05-01-2023	05-01-2023	
23	3.7	Nanomaterials Introduction classification			06-01-2023	17-01-2023	ating (9 TQ
24	3.8	Structure properties and application of graphene,carbon nanotubes and quantaum dots			17-01-2023	18-01-2023	121T T

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

			<b>UNIT 4 :</b>	FUELS AND	COMBUSTIO	NS				V-2001-024600-5.	AD / CP / OB
25	4.1	Introduction, Fossils fuels, definition, Calorific value			19-01-2023	19-01-2023		7		7	
26	4.2	Determination- bomb calorimeter, boys gas calorimeter, numerical			20-01-2023	20-01-2023		16	9	$\left\langle \right\rangle$	
27	4.3	Solid fuels, proximate and alternative analysis and numerical			23-01-2023	24-01-2023			V	0	
28	4.4	Liquid fuels, petroleum, composition and refining Octane numbers	CEO109.4	CO109.4	24-01-2023	25-01-2023		21		B	Deb
29	4.5	Gaseous fuels: composition, properties of NG. CNG and LPG			27-01-2023	27-01-2023				]	10 -
30	4.6	Combustion of fuels, reaction,			30-01-2023	31-01-2023				2	
31	4.7	Calculation of air required, numerical			01-02-2023			(	7	50	
32	4.8	Fuel cell PAFC, PEMFC, MCQ			02-02-2023	03-02-2023			V	E	
		Class Test II									
			UNIT S	5 : Spectrosco	pic Techniques			1			
33	5.1	UV-Visible spectroscopy introduction			03-02-2023	03-02-2023	124	)		7	
34	5.2	Absorption of UV radiation by organic molecule leading to different			07-02-2023	07-02-2023		1/		(	
35	5.3	Spectrophotometer			08-02-2023	07-02-2023		4	P	Jeff	*
36	5.4	Application of UV-visible spectroscopy	CEO109.5	CO109.5	09-02-2023	09-02-2023					/ Den
37	5.5	IR spectroscopy introduction			10-02-2023	10-02-2023		2			
38	5.6	Principle of IR spectroscopy,types of vibrations			13-02-2023	13-02-2023			A	20	4
39	5.7	Conditions and instrumentation of IR spectroscophotometer			14-02-2023	13-02-2023	ofine		J	H	
40	5.8	Application of IR spectroscopy			20-02-2023	20-02-2023	inter or morna	10		$\mathbf{S}$	1
40	5.8	Application of IR spectroscopy	-		20-02-2023	1.	L <sup>2</sup> II echn www.fquarit.edu.ls				1

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			UN	IT 6 : Corre	sion science			1211/1110	CAD / CP / (
41	6.1	Redox, anodic and cathodic reactions			21-02-2023	21-02-2023	)	)	
42	6.2	Introduction: Type of corrosion, Dry corrosion and mechanism			22-02-2023	22-0202023	4	(	
43	6.3	Pilling bed corrosion, worth rule,			24-02-2023	24-02-2023	P	7	
44	6.4	Wet corrosion mechanism	CEO109.6	CO109.6	27-02-2023	27-02-2023			
45	6.5	Factors influencing corrosion, methods of corrosion			28-02-2023	28-02-2023	N	E	Sper
46	6.6	Protecting coating, surface preparations,			01-03-2023	01-03-2023			-
47	6.7	Metallic coating,			02-03-2023	02-03-2023	1	1	VI
48	6.8	Electroplating Class Test III			03-03-2023	03-03-2023			J

Start of Semester

Signature	Date
Course Faculty : Shonde	
HoD:	21 11 22



Signature	Date
Course Faculty : Should	3 3 3 2023
HoD:	86 03 22

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## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year 2022-23 Semester I

Cours	se Coo	łe: 107009	Class: FE C (	E & Tc)	Name of Facult	y: Prof. B. M.	Tayde			
Cours	se Nar	me: Engineering Chemistry			Teaching Scher	ne:	Th: 4 Hrs / week		1	
							Remarks of	Моп	itored by	1
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Faculty (incase of variance)	AC	HOD	АРМС
				UNIT 1 : Wa	ter Technology					
1		Introduction to syllabus			22-11-2022	22-11-2022		2		1
2	1.1	Impurities in water. Types, Units of Hardness.			23-11-2022	23-11-2022			$\left \right\rangle$	
3	1.2	Determination of Hardness by EDTA & Numerical			24-11-2022	24-11-2022		bg	5	
4	1.3	Determination of alkalinity, numerical	CEO109.1	CO109.1	25-11-2022	11/25/2022 & 11/28/2022	Students have asked for more practice of numericals		P	
5	I.4	Ill effects of hard water (Scale & sludge & Priming foaming)	0.00109.1	00107.1	28-11-2022	29-11-2022			1	De
6	1.5	Boiler Corrosion, Caustic Embrittlement			29-11-2022	30-11-2022		7.1	0	1:-
7	1.6	Softening of water by zeolite & its numerical.			30-11-2022	01-12-2022		P	40	1
8	1.7	Softening of water by ion exchange			01-12-2022	05-12-2022		91	E	
9	1.8	Purification of water: Reverse osmosis and Electrodialysis.		-	05-12-2022	06-12-2022		J*	0	1



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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Introduction of electrochemistry, Types of electrodes Halfcell& complete cell reaction. Reference Electrode ISE & its types Introduction of conductometry Basic Terms Involved in Conductometry Applications of Conductometric titration	и - е. 3 - е.		06-12-2022 07-12-2022 08-12-2022	07-12-2022 08-12-2022 12-12-2022	7	~	2	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	reaction. Reference Electrode ISE & its types Introduction of conductometry Basic Terms Involved in Conductometry			08-12-2022	12-12-2022		~	1	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Introduction of conductometry Basic Terms Involved in Conductometry	1					$\sim$		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Basic Terms Involved in Conductometry	8							
5 2.6 6 2.7				12-12-2022	14-12-2022		P	>	
6 2.7 <sup>1</sup>	Applications of Conductometric titration	14.		13-12-2022	15-12-2022		$\mathbf{N}$		
6 2.7				14-12-2022	19-12-2022		V	R	
	pHmetry: Introduction, standardization of pH meter	CEO109.2	CO109.2	15-12-2022	20-12-2022		-7	JF	
	pH metric titration of strong acid versus strong base with titration curve			19-12-2022	23-12-2022	7	_J	2	Der
1	Revision on Unit I and II				12/26/2022 & 12/27/2022	4	T	R	
	Class Test I			12/19/2022 to 12/23/2022		J	V		),
		U	NIT 3 : Engine	eering Materials					
	Speciality polymers: Introduction, Basic Concept of polymerization with examples.			20-12-2022	28-12-2022	2		2	2
	Engineering Thermoplastic, Bio-degradable polymers			21-12-2022	29-12-2022	1	- 0	(	
0 1 7 7 1	Conducting Polymer, Electroluminescent polymer			22-12-2022	02-01-2023		(7)	Q	-
1 3.4	Polymer Composite		i i	02-01-2023	03-01-2023	4	V	1	
	Tvanomatemats: mirouticition, classification. Zero, one, two, three Dimensional	CEO109.3	CO109.3	03-01-2023	04-01-2023	)		5	
4 1 66 1	Structure, properties and applications of graphene			04-01-2023	05-01-2023	$\cap$		2	10
	Structure, properties and applications of carbon nanotubes		2	05-01-2023	16-01-2023	4	P	SR.	
5 3.8	Structure, properties and applications of quantum dots (semiconductor nanoparticles).			09-01-2023	17-01-2023	. ~			

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				UNIT 4	: Fuels				19110010	CAD / CP / (
26	4.1	Introduction (definition, classification of fuel based on chemical reactions and characteristics of good fuel)			10-01-2023	18-01-2023		$\left  \right\rangle$	2	)
27	4.2	CV, HCV, LCV and its determination by Bomb calorimeter			11-01-2023	19-01-2023		(B) a		
28	4.3	Boys calorimeter, Numerical on bomb and boys calorimeter			12-01-2023	23-01-2023			A	
9	4.4	Solid fuel: Coal: Analysis of Coal-Proximate and numericals,			16-01-2023	24-01-2023			a	
0	4.5	Solid fuel: Coal: Analysis of Coal- Ultimate analysis, numericals,	CEO109.4	CO109.4	17-01-2023	25-01-2023		~	5	
i	4.6	Liquid fuel: Petroleum: Refining of petroleum /crude oil and composition, boiling range and uses of various fractions,	-		18-01 <b>-</b> 2023	30-01-2023			17	Toes
2	4.7	Gaseous fuel: Composition, properties and applications of CNG. Hydrogen gas as a future fuel			19-01-2023	01-02-2023		M	P	
3	4.8	Alternative fuels: Power alcohol and biodiesel.			23-01-2023	02-02-2023		V	1.	
		Class Test II				2/13/2023 & 2/17/2023	×	)	J,	
			UNI	T 5 : Spectro	scopic Technique	s				
4	5.1	[A]UV-Visible Spectroscopy:Introduction, interaction of emr with matter			24-01-2023	02-02-2023		2	2	)
5	5.2	statement of Beer's law and Lambert's law, different electronic transitions,	10		25-01-2023	06-02-2023			(	
6	5.3	terms involved in UV-visible Spectroscopy			30-01-2023	06-02-2023			>	
57	5.4	Instrumentation and basic principle of single beam spectrophotometer, applications			31-01-2023	14-02-2023		69		
8	5.5	[B] Infra red Spectroscopy:Introduction and Principle	CEO109.5	CO109.5	01-02-2023	14-02-2023			)	Der
9	5.6	types of vibrations, conditions of absorption of IR radiations			02-02-2023	15-02-2023		5	7 -	
0	5.7	vibration of diatomic and polyatomic molecules and Instrumentation	Institute of /	Mormation	06-02-2023	16-02-2023		6.17	SP.	
1	5.8	Parts of IR spectrum, fundamental group region, fingerprint region, applications of IR spectroscopy.	in the second	lec	07-02-2023	17-02-2023	was at FDP from 7th to 11th Feb at MMCCE, Pune	7.4	5	) —

The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by Athec Co-Ordinator (Biweekly)

		the second s		UNIT 6 :	Corrosion					
42	6.1	Introduction, Types of corrosion			08-02-2023	20-02-2023		5		N
43	6.2	mechanism of dry corrosion, nature of oxide films and Pilling-Bedworth's rule			09-02-2023	21-02-2023			. 7	
44	6.3	wet corrosion – mechanism: galvanic and concentration cell corrosion		11	13-02-2023	21-02-2023	was at Nss Camp	61	915	
45	6.4	Factors influencing rate of corrosion			14-02-2023	23-02-2023			1 18	
46	6.5	cathodic and anodic protection	CEO109.6	CO109,6	15-02-2023	27-02-2023	only two lectures per day due to class test II (13th feb to 17th feb)		]4	Kon
47	6.6	metallic coatings and its types			16-02-2023	28-02-2023				100
48	6.7	surface preparation, methods to apply metallic coatings-hot dipping			20-02-2023	01-03-2023		1	1 20	
49	6.8	Cladding, electroplating, cementation.			21-02-2023	02-03-2023			14	
		Class Test III			3/1/2023 & 03/03/2023			1		1

Start of Semester: 22/11/2022

0		
Course Faculty : Mrs. B. M. Tayde	4	
HoD : Prof. Rakhi Wagh	21	11/22



End of Semeste : 03/03/23 Signature	Date
Course Faculty : Mrs. B. M. Tayde	RE.
HoD : Prof. Rakhi Wagh	06 03 23

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# Hope Foundation's International Institute of Information Technology, Pune

**DEPARTMENT OF ENGINEERING SCIENCES** Academic Year 2022-23 Semester II

# **COURSE FILE INDEX**

Sr. No.	Format	DISCRIPTION
1	Vision, Mission of Institute	
2	Vision Mission of Department	
3	Program Educational Objectives, Program Outcomes, and Program Specific Outcomes	
4	Institute Academic Calendar	
5	Department Academic Calendar	I2IT / ACAD / SP / 01
6	Class wise Time Table	I2IT / ACAD / TT / 01
7	Faculty wise Time Table	I2IT / ACAD / TT / 02
8	Lab wise Time Table in case of Lab In charge	12IT / ACAD / TT / 04
9	University Syllabus	in the contract of the second
10	Lesson Plan Resources	I2IT / ACAD / CP / 05
11	Course Objectives and Outcomes (Theory)	I2IT / ACAD / CP / 01
12	Correlation of COs with POs (Theory)	I2IT / ACAD / CP / 02
13	CO-PO mapping Justification (Theory)	I2IT / ACAD / CP / 02A
14	Course Objectives and Outcomes (Laboratory)	I2IT / ACAD / CP / 01
15	Correlation of COs with POs (Laboratory)	I2IT / ACAD / CP / 02
16	CO-PO mapping Justification (Laboratory)	I2IT / ACAD / CP / 02A
17	Theory Teaching Plan	I2IT / ACAD / CP / 03
18	Laboratory Teaching Plan	12IT / ACAD / CP / 04
19	List of Laboratory Assignments	12IT / ACAD / CP / 04A
20	Rubrics for Continuous evaluation	I2IT / ACAD / CP / 06
21	Previous University Question Papers	
22	Theory Question Bank	I2IT / ACAD / CP / 21
23	Objective Question Bank	
24	List of Theory Assignments	I2IT / ACAD / CP / 18
25	Class Test Question Papers with solutions	I2IT / ACAD / CP / 07
26	Class Test Attendance	I2IT / ACAD / CP / 08
27	Course Outcomewise Class Test Marksheet	12IT / ACAD / CP / 08A
28	Class Test Evaluation Record	12IT / ACAD / CP / 12
.9	Slow Learner and Advanced Learner Identification	I2IT / ACAD / CP / 09
0	Schedule of Slow Learner Activities	I2IT / ACAD / CP / 10
1	Assignments to Advanced Learners	I2IT / ACAD / CP / 11
2	List of Slow Learners	I2IT / ACAD / CP / 13
3	List of Advanced Learners	I2IT / ACAD / CP / 14
4	Slow Learner Attendance Record	I2IT / ACAD / CP / 15

Sr. No.	Format	DISCRIPTION
35	Performance Improvement of Slow Learner	12IT / ACAD / CP / 16
6	Innovative Practices in Teaching-Learning and ICT	I2IT / ACAD / CP / 19
37	Content Beyond Syllabus (CBS)	I2IT / ACAD / CP / 17
38	CBS Attendance Record	12IT / ACAD / CP / 17A
39	Previous University Result	I2IT / ACAD / CP / 21
40	TW Calculation Sheet	I2IT / ACAD / CP / 20
41	Course End Survey (Theory & Laboratory)	I2IT / ACAD / CP / 22
42	Theory Attendance Record	I2IT / ACAD / BB / 01
43	Practical Attendance Record	12IT / ACAD / BB / 02
44	Continuous Assessment Record	12IT / ACAD / BB / 03
45	Assignment Assessment Record	I2IT / ACAD / BB / 04
46	Average University Result	I2IT / ACAD / AT / 01
47	CO Attainment through University Result	12IT / ACAD / AT / 02
48	CO Attainment through Class Test & Theory Assignment	I2IT / ACAD / AT / 03
49	CO Attainment through Course End Survey	I2IT / ACAD / AT / 04
50	CO Attainment through Continuous Evaluation	I2IT / ACAD / AT / 05
51	PO & PSO Attainment through CO for Theory	I2IT / ACAD / AT / 06
52	PO & PSO Attainment through CO for Practical	I2IT / ACAD / AT / 06





Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year 2022-23 Semester II

Cours	ourse Code: 107009		se Code: 107009 Class: FE D (Com			Comp)	Name of Facult	Tayde			
		me: Engineering Chemistry			Teaching Schen	ne:	Th: 4 Hrs / week				
Lr. No.		Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of variance)	Monitored by           AC         HOD         A		у АРМС	
				UNIT 1 : Wa	ater Technology						
1		Introduction to syllabus			11/4/2023	11/4/2023		~			
2	1.1	Impurities in water. Types, Units of Hardness.			12/4/2023	12/4/2023		1	17		
3	1.2	Determination of Hardness by EDTA & Numerical			13/4/2023	13/4/2023 & 15/4/2023	Less number of students were present for previous class so, revised the topics	P	R	100	
4	1.3	Determination of alkalinity, numerical	CEO109.1	CEO109.1	CO109.1	-15/4/2023	17/4/2023 & 18/4/2023	Students have asked for more practice of numericals			
5	1.4	III effects of hard water (Scale & sludge & Priming foaming)	]		17/4/2023	19/4/2023			5		
6	1.5	Boiler Corrosion, Caustic Embrittlement	]		18/4/2023	20/4/2023		)	1/	4	
7	1.6	Softening of water by zeolite & its numerical.			19/4/2023	21/4/2023		GA	n Sa	200	
8	1.7	Softening of water by ion exchange	]		20/4/2023	24/4/2023				1-	
9	1.8	Purification of water: Reverse osmosis and Electrodialysis.			21/4/2023	25/4/2023					



10	2.1	Introduction of electrochemistry,		1	04/4/0444	nalysis		1	1														
10	4.1	Types of electrodes Halfcell& complete cell			24/4/2023	26/4/2023		2	1	1													
11	2.2	reaction. Reference Electrode			25/4/2023	27/4/2023			11														
12	2.3	ISE & its types						26/4/2023	28/4/2023			1/											
13	2.4	Introduction of conductometry			28/4/2023	29/4/2023			1	1													
14	2.5	Basic Terms Involved in Conductometry			29/4/2023	2/5/2023			4	/													
15	2.6	Applications of Conductometric titration	CEO109.2	CO109.2	1/5/2023	8/5/2023	CL on 3/5/2023 (holidays from 4/5/2023 to 7/5/2023 due to extra work done during NBA )	P	R	) con													
16	2.7	pHmetry: Introduction, standardization of pH meter			2/5/2023	8/5/2023			1 L														
17	2.8	pH metric titration of strong acid versus strong base with titration curve			3/5/2023	9/5/2023 (2 hr.)	was CL from 10/5/2023 to 13/5/2023																
						15/5/2023 & 16/5/2023	Revision on both the units																
		Class Test I												2/5/2023 to 4/5/2023	15/5/2023 to 19/5/2023	(Insem 22/5/2023 to 25/5/2023	2	1					
			τ	JNIT 3 : Engin	eering Materiak	5																	
18	3.1	Speciality polymers: Introduction, Basic Concept of polymerization with examples.			8/5/2023	17/5/2023		$\overline{)}$	2														
19	3.2	Engineering Thermoplastic, Bio-degradable polymers			9/5/2023	18/5/2023		lm	6														
20	3.3	Conducting Polymer, Electroluminescent polymer			10/5/2023	29/5/2023		40	P														
21	3.4	Polymer Composite			12/5/2023	30/5/2023			J	Der													
22	3.5	Nanomaterials: Introduction, classification. Zero, one, two, three Dimensional	CEO109.3	CO109.3	CO109.3	CO109.3	CO109.3	15/5/2023	30/5/2023		-	7	100										
23	3.6	Structure, properties and applications of graphene																	16/5/2023	31/5/2023		$)_{m}$	6
24	3.7	Structure, properties and applications of carbon nanotubes			17/5/2023	2/6/2023		(1,	(II														
25	3.8	Structure, properties and applications of quantum dots (semiconductor nanoparticles).			19/5/2023	5/6/2023		J	$\mathcal{L}$														
							stitute of	Informari															
							12 the inational In	IT Technol															

_				UNIT 4	I : Fuels		
26	4.1	Introduction (definition, classification of fuel based on chemical reactions and characteristics of good fuel)			22/5/2023	6/6/2023	27
27	4.2	CV, HCV, LCV and its determination by Bomb calorimeter			23/5/2023	7/6/2023	(m)
28	4.3	Boys calorimeter, Numerical on bomb and boys calorimeter			24/5/2023	8/6/2023	19 /0
29	4.4	Solid fuel: Coal: Analysis of Coal-Proximate and numericals,			26/5/2023	13/6/2023	1 (E)
30	4.5	Solid fuel: Coal: Analysis of Coal- Ultimate analysis, numericals,	CEO109.4	CO109.4	29/5/2023	14/6/2023	
31	4.6	Liquid fuel: Petroleum: Refining of petroleum /crude oil and composition, boiling range and uses of various fractions,			30/5/2023	16/6/2023	7 7 1000
32	4.7	Gaseous fuel: Composition, properties and applications of CNG. Hydrogen gas as a future fuel			31/5/2023	19/6/2023	( A G
33	4.8	Alternative fuels: Power alcohol and biodiesel.			2/5/2023	20/6/2023	VR
		Class Test II			5/6/2023 to 7/6/2023		
			UN	TT 5 : Spectro	scopic Technique	ts	
34	5.1	[A]UV-Visible Spectroscopy:Introduction, interaction of emr with matter			9/6/2023	21/6/2023	<b>2</b>
35	5.2	statement of Beer's law and Lambert's law, different electronic transitions,			12/6/2023	22/6/2023	
36	5.3	terms involved in UV-visible Spectroscopy			13/6/2023	23/6/2023	
37	5.4	Instrumentation and basic principle of single beam spectrophotometer, applications			14/6/2023	23/6/2023 25/6/2023	( Devo
38	5.5	[B] Infra red Spectroscopy:Introduction and Principle	CEO109.5	CO109.5	16/6/2023	25/6/2023 26/6/2023	Im B:
39	5.6	types of vibrations, conditions of absorption of IR radiations			19/6/2023	26/6/2023	
40	5.7	vibration of diatomic and polyatomic molecules and Instrumentation			20/6/2023	27/6/2023	ofinior
41		Parts of IR spectrum, fundamental group region, fingerprint region, applications of IR spectroscopy.			21/6/2023	27/6/2023	Settimes Stiller

				<b>UNIT 6 :</b>	Corrosion										
42	6.1	Introduction, Types of corrosion			23/6/2023	3/7/2023	0		1						
43	6.2	mechanism of dry corrosion, nature of oxide films and Pilling-Bedworth's rule			26/6/2023	3/7/2023 & 4/7/2023		17							
<b>4</b> 4	6.3	wet corrosion – mechanism: galvanic and concentration cell corrosion			27/6/2023	4/7/2023	(0)	TP	1						
45	6.4	Factors influencing rate of corrosion										28/6/2023	5/7/2023	40	12
46	6.5	cathodic and anodic protection	CEO109.6	CO109.6	30/6/2023	6/7/2023			1						
47	6.6	metallic coatings and its types, surface preparation,			3/7/2023	6/7/2023			TOPN						
48	6,7	methods to apply metallic coatings-hot dipping			4/7/2023	7/7/2023		160							
49	6.8	Cladding, electroplating, cementation.			5/7/2023	7/7/2023	(9)	10	1						
		Class Test III			19/07/2023 to 21/07/2023		90								

#### Start of Semester: 11-04-2023

Signature	Date	
Course Faculty : Mrs. B. M. Tayde	00-11	104.25
HoD : Prof. Rakhi Wagh	P	

#### End of Semester: 7/7.2023

Signature	Date
Course Faculty : Mrs. B. M. Tayde	03-21.07.23
HoD : Prof. Rakhi Wagh	E .



# Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES

Academic Year 2022-23 Semester II

#### THEORY TEACHING RECORD Class:- F.E A(IT) Course Code: 102012 Faculty Name:- Prof.Rahul Joshi Teaching Scheme: **Course Name: Engineering Graphics** Th: 3 Hrs / week Monitored by Sr. Date of **Remarks of Faculty Topics to be Delivered** CEO CO Date of Plan No. Conduction (incase of variance) AC HOD APMC **UNIT 1 : Fundamentals of Engineering Graphics** R Devo P 1 1.1 Introduction to Graphics CEQ111.1 CO111.1 12/4/2023 12/4/2023 UNIT 2 : Introduction to 2D and 3D computer aided drafting packages 13-04-2023 2 2.1 Introduction to 2D and 3D 13-04-2023 15-04-2023 CEO111.2 CO111.2 Draw and Modify Menu and Basic 17-04-2023 3 2.2 17-04-2023 Commands 18-04-2023 **UNIT 3 : Engineering curves** 19-04-2023 4 3.1 Cycloid,Spiral,Helix,Involute 19-04-2023 20-04-2023 02-05-2023 . 5 3.2 Rectangular method: Ellipse, Parabola 2/5/2023 Den 03-05-2023 CE0111.3 CO111.3 Directrix Focus 08-05-2023 2 6 3.3 8/5/2023 Method:Ellipse,Parabola,Hyperbola 09-05-2023 Directrix Focus 10-05-2023 $\ell \sim$ 7 3.4 10/5/2023 Method:Ellipse,Parabola,Hyperbola 11-05-2023 **UNIT 4 : Orthographic Projections** 12-05-2023 **Principle of projections** 8 4.1 12/5/2023 Den 16-05-2023



Sr.		Topics to be Delivered		со	Date of Plan			M	lonitored	l by									
Sr. No.			CEO			Date of Conduction	Remarks of Faculty (incase of variance)	AC	HOD	АРМС									
9	4.2	Introduction to First angle and Third angle method of projection	1.10.1	1 pateriti	18-05-2023	18-05-2023 29-05-2023		)	7										
10	4.3	Orthographic Projection of Point,line,plane,solid and Machine elements/parts	CEO111.4	CEO111.4	CO111.4	30-05-2023	30-05-2023 31-05-2023		(9)	8	> Dev								
11	4.4	Front view, Top view and Side view of object	en in	201111	1/6/2023	01-06-2023 05-06-2023		$\mathcal{D}$	1 FP	2007									
			τ	JNIT 5 :Isom	etric Projection	11-12-2020			<u> </u>										
12	5.1	Introduction to Isometric Projections	CE0111.5	CEO111.5	CEO111.5		6/6/2023	06-06-2023 08-06-2023		7	2	)							
13	5.2	Isometric Circle concept				CEO111.5	CEO111.5	CEO111.5	CEO111.5	CEO111.5	CEO111.5	CE0111.5	C0111.5	12/6/2023	12-06-2023 13-06-2023		6	Ga	
14	5.3	Isometric projection from Orthographic Projection											coms	15-06-2023	15-06-2023 16-06-2023		11	B	( Du
15	5.4	Isometric projection from Orthographic Projection																	
			UNIT 6	5 : Developm	ent of Lateral su	irfaces		1-1											
16	6.1	Development of Lateral surfaces of Cut section of Cone			21-06-2023	21-06-2023 26-06-2023		2	2	2									
17	6.2	Development of Lateral surfaces of cut section of Prism	CEO111.6	CO111.6	30-06-2023	26-06-2023 30-06-2023	Extra Lecture Conducted	(7	R	De									
17			0120	0.02		03-07-2023			1-	-									

Signature	Date
Course Faculty : Prof. Rahul Joshi	
HoD :Prof. Rakhi Wagh	1

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End of Semester		The Partie
Signature	Date	TTI ation
Course Faculty : Prof. Rahul Joshi		La Martin
HoD :Prof. Rakhi Wagh		* a could all
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## Hope Foundation's International Institute of Information Technology, Pune DEPARTMENT OF ENGINEERING SCIENCES Academic Year: 2022-23 Semester - II

Course Code : 107008 Class: FE E&TC						Name of Faculty: Pooja Khatkale																
Course Name: Engineering Mathematics-II					Teaching Scheme:		Th: 4 Hrs / week	-2.														
Lr.		Topics to be Delivered	СЕО	co	Date of Plan	Date of Conduction	Remarks of Faculty (incase of	Monitored by														
No.	4							AC	HOD	- APMC												
	-	UNIT - I ORDINARY DIFFERENTIA	L EQUAT	ION OF FI	<b>IRST ORDER</b>	AND FIRST	T DEGREE															
1	1.1	Introduction to differential equation Definition applications in brief order and degree			11-04-2023	11-04-2023	-	)	2	)e												
2	1.2	Concept of exact differential equations and solving exact equations	- CEO108.1	1 CO109 1	12-04-2023	12-04-2023	-	1		1												
3	1.3	Solving Inexact equations by finding integrating factor			13-04-2023	13-04-2023			$\langle \rangle$													
4	1.4	Fir.ding integrating factor to solve inexact equations			17-04-2023	17-04-2023		41.	12	Toon												
5	1.5	Problems on Differential equations with Integrating Factor		CO108.1	18-04-2023	17-04-2023	Patralet		TA	1000												
6	1.6	Solutions to Linear deifferential equations			19-04-2023	18-04-2023	13															
7	1.7	Problems on Linear Differential equations			20-04-2023	18-04-2023	<u>`</u>			1												
8	1.8	Equations reducible to linear form Bernoullis Equation			22-04-2023	19-04-2023	-															
9	1.9	Equations reducible to linear form																24-04-2023	20-04-2023			U
51		UNIT – II APPLICA	<b>FION OF D</b>	IFFEREN	TIAL EQUAT	IONS		1		1												
10	2.1	Concept of orthogonal trajectories finding equations of orthogonal trajectories by using differential equations			25-04-2023	24-04-2023	15	9	2	)												
11	2.2	Application of Differential equations Newtons Law of Cooling			26-04-2023	25-04-2023	25		1													
12	2.3	Problems on Newtons Law of Cooiing			27-04-2023	26-04-2023	1	1.	5													
13	2.4	Application of Differential equations Kirchoffs Law of Electrical circuits	CEO108.2		02-05-2023	27-04-2023	NA .	16	1/0	1												
14	2.5	Application of Differential equations Kirchoffs Law of Electrical circuits		CO108.2	03-05-2023	28-04-2023	10	11	1 R	1 Deg												
15	2.6	Application of Differential equations Rectilinear Motion			04-05-2023	29-04-2023	11		14													
16	2.7	Application of Differential equations Fouriers Law of heat conduction			08-05-2023	02-05-2023	 		-	1												
17	2.8	Problems on Fouriers Law of heat conduction			09-05-2023	03-05-2023				1												
18	2.9	Application of Differential equations Simple Harmonic Motion	1		10-05-2023	08-05-2023		1	U													



Lr. No.					1000	Date of	Remarks of	Monitore		ACAD / CP / 03 red by	
	Topics to be Delivered	CEO	CO	Date of Plan	Conduction	Faculty (incase of	AC	HOD	АРМС		
-		UNIT III	: INTEGR	AL CALC	ULUS		(mease vi				
19	3.1	Reduction formula for standard trignometric functions		- 11 B	11-05-2023	09-05-2023	Futra left	5	2		
20	3.2	Problems based on Reduction formulae		3 CO108.3	15-05-2023		11		17-	1	
21	3.3	Definition of Gamma function and its properties			16-05-2023	11-05-2023	5				
22	3.4	Problems based on Gamma Function			17-05-2023	12-05-2023	1		Ta		
23	3.5	Definition of Beta function and its properties	CEO108.3		18-05-2023	12-05-2023	12	G	VIE	Trenz	
24	3.6	Problems based on Beta Function	-		22-05-2023	15-05-2023	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	111		11/	
25	3.7	Differentiation under integral sign DUIS			23-05-2023	16-05-2023	15	11			
26	3.8	Problems based on DUIS			24-05-2023	17-05-2023	))	1		1	
27	3.9	Problems based on Error Function			05/25/2023	29-05-2023	reame.		1	/	
		UNIT	-IV : CURV	E TRACI			Courses -		-	. 6	
28	4.1	Geometry of two dimensiona and three dimension plane			01-06-2023	30-05-2023	Entra lect	5	2	1	
29	4.2	Cartesian and polar form of equations and their conversions			05-06-2023	31-05-2023	17		1/		
30	4.3	Tracing equation of a curve in cartesian form		_	06-06-2023	01-06-2023	17		5	1	
31	4.4	Problems on tracing curve in cartesian form			07-06-2023	02-06-2023		11	1/	1	
32	4.5	Tracing curve in polar form	CEO108.4	CO108 4	08-06-2023	05-06-2023		110	00	1	
33	4.6	Problems on tracing of curves in polar form	CL0100.4	00100.4	12-06-2023	06-06-2023		111	MB	5 Dem	
34	4.7	Tracing of Rose curves Tracing of curves in Parametric form			13-06-2023	06-06-2023		11	11	1	
35	4.8	Rectification of Cartesian curves			14-05-2023	07-06-2023	1		11-		
36	4.9	Rectification of Cartesian curves Rectification of Polar and Parametric curves				15-06-2023	08-06-2023		)	J	)
		UNIT	-V: SOLID	GEOMET	RY					2	
37	5.1	Relation between Coordinate system	(H)		19 06-2023	09-06-2023	N	0	0		
38	5.2	Sphere Introduction and Different Forms	1		20-06-2023	13-06-2023	15		1	1	
39	5.3	General equation of Sphere Touching the Spheres	CEO108.5		21-06-2023	14-06-2023	12	1./	1		
40	4.4	Orthogonal Sphere and Tangent Plane to Sphere			22-06-2023	15-06-2023	12	1/0	10	Toen	
41	5.5	Cone Introductin and Different types of Cone			26-06-2023	16-06-2023	14	-( ()	NP	1	
42	5.6	Right Circular Cone			27-06-2023	19-06-2023	12	11			
43	5.7	Cylinder Introduction and Different types of Cylinder			28-06-2023	20-06-2023	+ 1		11	1	
44	5.8	Right Circular Cylinder			03-07-2023	21-06-2023	1,		1		
45	5.9	Discussion on some miscellaneous examples		CO108.5	04-07-2023	22-06-2023					

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I r. No.	-	Topics to be Delivered	CEO	со	Date of Plan	Date of Conduction	Remarks of Faculty (incase of		Monitor	ed by
								AC	HOD	APMC
		UNIT -VI : MULTIPI	E INTEGR	ALS AND '	THEAR APPL	ICATIONS				
46	6.1	Introduction and Evaluation of Double Integration	- CEO108.6		05-07-2023	23-06-2023	Entra lect	2	2	
47	6.2	Evaluation of Double Integral when Limit is not given			06-07-2023		~	1		
48	6.3	Change of Order of Integration			10-07-2023 11-07-2023	27-06-2023	15	1		
49	6.4	Solving double integration by Transformation to polar form				28-06-2023		In	a	5
50	6.5	Application of double integration Area bunded by curves		CO108.6	12-07-2023	30-06-2023	1	414	1×	Den
51	6.6	Evaluation of Tripple Integration			13-07-2023	03-07-2023	h	IV		
52	6.7	Evaluation of Tripple Integral when the Limits are not given			17-07-2023	03-07-2023	la la			
53	6.8	Application of triple integration to calculate Volume of solid			18-07-2023	04-07-2023				
54	6.9	Application of double and triple integration Mass Mean value and RMS value Centre of Gravity and Moment of Inertia		9	18-07-2023	04-07-2023	13	-		

Start of Semester

Signature	Date
Course Faculty:	11/04/23
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End of Semester		stitute of	Informa
Signature	Date	4	7 6
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The record shall be monitored by Academic Co-Ordinator (weekly), by HoD (Biweekly) and reviewed by APMC Co-Ordinator (Biweekly)

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