DD S				- Diames	- Pe						d Learning Outcome-Based Curriculum Framework (	ocer,,		30	)ET
ar S	EMES							EVE	N SEMEST	ER					
	No	Course Code	Course Title	L	T	P	C	SNo	Cours	e Code	Course Title	L	T	P	
1	SE	ETEL155A	Communication Skills		4 (	0 0	4	1	SE ETM	104A	Applied Mathematics-II	3	1	0	
2	on.	ETDM301A	Disaster Management		3 (	0 0	3	2	ETEC	101A	Basics of Electrical & Electronics Engineering	3	1	0	
1	SE				-	-			SE				-	+	+
4	SE		Engineering Physics	-	-		_		CC ETCS		Programming for Problem Solving	3	+	0	+
5	SE	ETPH161A	Engineering Physics lab		0 (	0 2	1	4	SE ETMI	E 155A	Engineering Graphics Lab	0	) (	3	
6	SE	ETMA105A	Applied Mathematics-I		3 1	1 0	4	5	SE ETEC	151A	Basics of Electrical & Electronics Engineering Lab	0	) (	2	
7	SE	ETME101A	Basics of Mechanical Engineering		3 1	1 0	4	6	SE ETCH	159A	Engineering Chemistry Lab	0	) (	2	T
8	SE	ETME151A	Basics of Mechanical Engineering Lab		0 (	) 2	1	7		157A	Workshop Practices	0	0	3	T
								8	SE ETCS	153A	Programming for Problem Solving Lab	0	0	2	T
								9	OE		Open Elective	4		$\top$	$\top$
T	TAL				6	3 4	21	TOTA	AL			1.	3 3	12	
														-	
1	CC	ETCS211A	Operating Systems	3	1	-	4	1	CC ETCS	222A	Computer Organization & Architecture	4	Τ.	1-	T
2	CC	ETEC 233A	Analog Electronics	3	1	-	4		CC ETCS		Analysis and Design of Algorithms	4	1.	1.	T
3	CC	ETEC 210A	Digital Electronics	4		-	4		CC ETCS		Database Management Systems	4	1.	1.	-
4	SE		Python Programming Lab	-	1.	. 2	1		CC IIIT10		Fundamentals of Innovation and Entrepreneurship	3			+
5		ETCS217A	Data Structures	4	+	1.	4		CC ETCS		Computer Organization & Architecture Lab	3	+	2	+
6	SE		Analog Electronics Lab	1	+	2	1		SE ETCS		Database Management Systems Lab	-	+	12	+
7	_	IIT213A	Project I	-	-	4	2		_			-	+	2	+
8		ETCS257A	Data Structures Lab	-	+	2	1				Analysis and Design of Algorithms Lab	-	-	2	+
1	J.	ILICO23/A	Data Structures Lau	-	1-	12	1 1		SE IIIT21		Proability and Statistics	4	-	-	+
T	OTAL			1.		Tio	T		CC IIIT21	2A	Project II	-	-	4	1
-	TAL			- 1	4 2	10	21	TOTA	AL			19	0	10	
3	CC	ETCS211A	Operating Systems		1 -	-	4		CC ETCS		Software Engineering		+	-	+
2	CC	ETCS 214A	Theory of Computation		3 1	-	4	2 (	CC ETCS		Compiler Design Artificial Intelligence	4	-	1.	+
1	cc				_	-	_				Software Engineering	4	-	-	
4	SE		Computer Networks		1 -	-	4		SE ETCS	_	Compiler Design Lab	-	-	2	
1	_	ETCS365A	Computer Networks Lab		-  -	12	1	5 8	SE ETCS	374A	Advanced iOS Development Lab			-	
	CE	ETCERCIA			_	-	-					-	-	3	
2	SE		Java Programming Lab		-	2	1		CC ETCS		Data Warehousing and Data Mining	4	-	-	+
7	CC	ETCS363A	Java Programming Lab Fundamentals of iOS Development Lab		-	2	1 1.5	7 5	SE ETCS			4	-	2	
7 8	CC SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab		-	2 3 2	1	7 5		156A	Data Warehousing and Data Mining	4	-	Ŀ	
7 8 9	CC SE SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I			2 3 2 -	1 1.5 1	7 S 8 S 9	SE ETCS SE Election	156A /e	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab	-	-	Ŀ	
7 8 9	CC SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab			2 3 2	1 1.5	7 S 8 S 9	SE ETCS	156A ve	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab	-	-	Ŀ	
8 9 10	CC SE SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I			2 3 2	1 1.5 1	7 S 8 S 9 (i) (	SE ETCS SE Election	456A ve 808A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies	-	-	Ŀ	
	SE SE SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I			2 3 2	1 1.5 1	7 S 8 S 9 (i) (ii) (iii) (iii)	SE ETCS SE Election	456A ve 808A 809A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course	3 3	-	Ŀ	
	CC SE SE	ETCS363A ETCS255A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I	11		2 3 2 9	1 1.5 1	7 S 8 S 9 (i) (ii) (iii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems	3 3 3	-	Ŀ	
TO	SE SE SE OTAL	ETCS363A ETCS255A ETCS381A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course	11	3 1	-	1 1.5 1 1 0 21.5	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture	3 3 3	-	- 2	2:
TO	CC SE SE SE OTAL	ETCS363A ETCS255A ETCS381A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  f eight weeks duration at the end of sixth semester during Chasing The Rainbow: The Entrepreneurial Streak	11	3 1	k and	1 1.5 1 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture	3 3 3	-	- 2	
TO	CC SE SE SE SE CC CC CC	ETCS363A ETCS255A ETCS381A al training will be of ETMC310A ETCS462A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  reight weeks duration at the end of sixth semester durin Chasing The Rainbow: The Entrepreneurial Streak Project	11	3 1	-	1 1.5 1 1 0 21.5	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture	3 3 3	-	- 2	
TO	CC SE SE SE SE CC CC CC	ETCS363A ETCS255A ETCS381A al training will be of ETMC310A ETCS462A ETCS481A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  eight weeks duration at the end of sixth semester during Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II	11	3 1	k and	1 1.5 1 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
TO	CC SE SE SE SE CC CC CC CC	ETCS363A ETCS255A ETCS381A  al training will be of ETMC310A ETCS462A ETCS481A Elective (without I	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  feight weeks duration at the end of sixth semester during Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab)	11	3 1	k and	1 1.5 1 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture	3 3 3	-	- 2	
T(c)	SE SE SE SE CC CC CC CC	ETCS363A ETCS255A ETCS381A  al training will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  eight weeks duration at the end of sixth semester durin Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Ab) Natural Language Processing	11	3 1	k and	1 1.5 1 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (ii)	CC SE SE SE SE CC CC CC CC CC CC	ETCS363A ETCS255A ETCS381A  al training will be of ETMC310A ETCS462A ETCS481A ETCS481A ETCS481A ETCS481A	Java Programming Lab  Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  Feight weeks duration at the end of sixth semester during Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab) Natural Language Processing Digital Image Processing	11	3 1	k and	1 1.5 1 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iii)	CC SE SE SE SE CC	ETCS363A ETCS255A ETCS381A al training will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A ETCS403A ETCS404A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  eight weeks duration at the end of sixth semester durin Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Ab) Natural Language Processing	g summer	3 1	k and	1 1.5 1 0 21.5 1 the ev	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (ii) (iii) (iv)	CC SE SE SE SE CC	ETCS363A ETCS255A ETCS381A  al training will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A ETCS403A ETCS403A ETCS403A ETCS404A ETCS408A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  delight weeks duration at the end of sixth semester durin  Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Advanced Database Management Systems Neural Network	3 3 4 4 4 4	3 1	k and	1 1.5 1 1 0 21.5 21.5 2 4 4 4	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
TC   1   2   3   4   (i)   (iii)	CC SE SE SE SE CC	ETCS363A ETCS255A ETCS381A  Latraining will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A ETCS403A ETCS403A ETCS403A ETCS403A ETCS408A Elective (with Lab	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  delight weeks duration at the end of sixth semester durin  Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Advanced Database Management Systems Neural Network	3 4 4 4 4	3 1	k and	1 1.5 1.5 1 1 1 0 0 21.5 1 the ex	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iii) 5	CC SE SE SE SE CC	ETCS363A ETCS255A ETCS381A  Later and training will be of the state of	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  delight weeks duration at the end of sixth semester durin  Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Advanced Database Management Systems Neural Network	3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3 1	k and	1 1.5 1 1 0 0 21.5 1 the ex	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (ii) (iii) (iii)	CC SE SE SE SE CC	ETCS363A ETCS255A ETCS381A  Latraining will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A ETCS403A ETCS403A ETCS403A ETCS403A ETCS408A Elective (with Lab	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  eight weeks duration at the end of sixth semester durin Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Advanced Database Management Systems Neural Network	3 4 4 4 4	B 1	- 10 	1 1.5 1 1 0 0 21.5 1 the ex	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iv) 5 (i)	CCC SE	ETCS363A ETCS255A ETCS381A  Later and training will be of the state of	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  eight weeks duration at the end of sixth semester durin Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II  ab) Natural Language Processing Digital Image Processing Digital Image Processing Neural Network Cloud Computing	3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	B 1	k and	1 1.5 1 1 0 21.5 2 21.5 2 4 4 4 4 4 1 1	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iii) 5	CCC SE CCC SE CCC	ETCS363A ETCS255A ETCS381A  Latraining will be of ETMC310A ETCS462A ETCS481A Elective (without I ETCS402A ETCS403A ETCS403A ETCS408A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  Felght weeks duration at the end of sixth semester during Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Advanced Database Management Systems Neural Network Cloud Computing Cloud Computing Cloud Computing Cloud Computing Cloud Computing Lab Internet of Things	3	B 1	- 10 2	1 1.5 1 1 0 0 21.5 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iii) 5 (i) (iii)	CCC CC CC CC CC SE CC SE SE	ETCS363A ETCS255A ETCS381A  ETCS381A  ETCS10A ETCS462A ETCS462A ETCS402A ETCS402A ETCS402A ETCS404A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  delight weeks duration at the end of sixth semester durin  Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Neural Network Neural Network Cloud Computing Cloud Computing Internet of Things Internet of Things Internet of Things Internet of Things Lab	3 4	B 1	- 10 	1 1.5 1 1 0 0 21.5 2 1 4 4 4 4 4 1 1 4 1 1	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iv) 5 (i)	CCC SE CC SE CC SE CC	ETCS363A ETCS255A ETCS381A  ETCS381A  ETCS381A  ETCS4010A ETCS462A ETCS462A ETCS462A ETCS403A ETCS403A ETCS404A ETCS4040A ETCS4040A ETCS4040A ETCS4040A ETCS404A ETCS404A ETCS404A ETCS404A ETCS404A ETCS418A ETCS418A ETCS418A ETCS418A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  Leight weeks duration at the end of sixth semester during the same state of the same state	3	B 1	- 10 2 2	1 1.5 1 1 0 0 21.5 1 the ex	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (ii) (iii) (iv) 5 (i)	CCC SE CC SE CC SE CC	ETCS363A ETCS255A ETCS381A  ETCS381A  ETCS462A ETCS462A ETCS402A ETCS402A ETCS402A ETCS402A ETCS402A ETCS404A ETCS404A ETCS404A ETCS404A ETCS404A ETCS416A ETCS416A ETCS416A ETCS416A ETCS416A ETCS416A ETCS457A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  delight weeks duration at the end of sixth semester durin  Chasing The Rainbow: The Entrepreneurial Streak Project Practical Training II Lab Natural Language Processing Digital Image Processing Digital Image Processing Neural Network Neural Network Cloud Computing Cloud Computing Internet of Things Internet of Things Internet of Things Internet of Things Lab	3 4	B 1	- 10 2	1 1.5 1 1 0 0 21.5 2 1 4 4 4 4 4 1 1 4 1 1	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Election CC ETCS CC ETCS CC ETCS	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2
1 2 3 4 (i) (iii) (iii) (iii) (iii)	CCC SE CC SE CC SE CC	ETCS363A ETCS255A ETCS381A  ETCS381A  ETCS381A  ETCS4010A ETCS462A ETCS462A ETCS462A ETCS403A ETCS403A ETCS404A ETCS4040A ETCS4040A ETCS4040A ETCS4040A ETCS404A ETCS404A ETCS404A ETCS404A ETCS404A ETCS418A ETCS418A ETCS418A ETCS418A	Java Programming Lab Fundamentals of iOS Development Lab Operating System Lab Practical Training I Value Added Course  Leight weeks duration at the end of sixth semester during the same state of the same state	3 4		- 10 2 2	1 1.5 1 1 0 0 21.5 1 the ex	7 S 8 S 9 (i) (ii) (iii)	SE ETCS SE Electric CC ETCS. CC ETCS. AL	456A ve 808A 809A 810A	Data Warehousing and Data Mining Data Warehousing and Data Mining Lab Value Added Course  Web Technologies Distributed Computing Systems Advanced Computer Architecture  d of seventh semester.	3 3 3	-	- 2	2

	Open Electives -III
	Human Resource Management
	Business Applications Of Economics
	Economic Policies of India
ETLW601A	Constitution of India
ETLW602A	Cyber Laws and Ethics
ETEL217A	Personality Development and Communication Skills
	German
	French
	Yoga and Meditation
	Physical Education

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aı	SNo	Category	Course Code	Course Title	L	T	P	C	EMP/ENT/SE/ OP	SN	Category	Course Code	Course Title	L	T	P	-
	1	BS	ETMA105A	Applied Mathematics-I	3	1	0	4	SE	1	BS	ETMA104A	Applied Mathematics-II	3	1	0	
	2	BS	ETPH109A	Engineering Physics	3		0	4	SE	2	HSMC	UCCS 155A	Communication Skills	4	0		$\vdash$
	2	MC	UCES125A	Environmental Studies	+	+	+							_	+	+	
	4	PCC	ETCS106A	Clean Coding with Python	3	0	-	3	SE EMP	3	BS ESC	ETCH119A ETME 155A	Engineering Chemistry	0	_	3	1
				Overview of AI, Data Science, Ethics and	-	+	+					ETME 133A	Engineering Graphics Lab	-	-	+	+
	5	PCC	ETCS105A	Foundation of Data Analysis	2	0	0	2	EMP	5	BS	ETCH159A	Engineering Chemistry Lab	0	0	2	
1	6	ESC	ETME101A	Basics of Mechanical Engineering	3	1	0	4	OP	6	PCC	ETCS107A	Data Analysis using Python, Numpy,	2	0	0	
1	7	ESC	ETME151A	Basics of Mechanical Engineering Lab	0	0	2	1	OP	8	PCC		Pandas, Matplotlib, and Seaborn Data Analysis using Python, Numpy,	0	0	2	
1	0				-	-	+	_				ETCS154A	Pandas Matnlotlib and Seaborn Lab		+	+	-
1	8	BS	ETPH151A	Engineering Physics Lab	0	0	2	1	SE	9	ESC	ETEC101A	Basics of Electrical and Electronics E	Et 3	1	0	
	9	PCC	ETCS155A	Overview of AI, Data Science, Ethics and Foundation of Data Analysis Lab	0	0	2	1	EMP	10	ESC	ETEC151A	Basics of Electrical and Electronics E	En O	0	2	
1	10	PCC	ETCS157A	Clean Coding with Python Lab	0	0	2	1	EMP					-	+	-	-
	TOT	AL			17	3	8	24		TO	TAL			15	3	10	2
-	_				_												
1	1	GE	ETMA215A	PROBABILITY AND STATISTICS	4	-	-	4	SE	1	PCC	ETCS222A	Computer Organization &	3	1	_	
ı	2	PCC	ETCS203A	Probabilistic Modelling and Reasoning	2				- ar				Architecture	-	+	+	$\vdash$
ı	2			with Python		-	-	2	SE	2	PCC	ETCS220A	Analysis and Design of Algorithms	3	1	-	
1	3	PCC	ETCS231A	Discrete Mathematics	3	1	-	4	SE/OP	3	PCC	ETCS307A	Database Management Systems	3	1	-	
-	4	PCC	ETCS217A	Data Structures	3	1	-	4	SE/EMP	4	PCC	ETCS205A	Machine Learning and Pattern Recognition	3	-	-	
1	5	PCC	ETCS208A	R Programming for Data Science and Data	2	-		2	EMP	5	HSMC	ETMC 226A	Fundamentals of Management	3	1.	-	
	6	BCC.	ETCCACA	Analytics  Data Standard Lab	-	-	-			-			Wachine Learning Practical With	3	-	-	-
	0	PCC	ETCS257A	Data Structures Lab	-	-	2	1	SE/EMP	6	PCC	ETCS254A	Python, Scikit-learn, Matplotlib,	-	-	4	
	7	PCC	ETCS259A	Probabilistic Modelling and Reasoning	-	-	2	1	SE	7	PCC	ETCS 355A	Database Management Systems Lab	-	-	2	
	0	PCC	ETCS261A	with Python Lab  R Programming for Data Science and Data		-	+			-			Database Management Systems Lab	-	-	2	_
	0	rcc		Analytics Lab	-	-	2	1	EMP	8	PCC	ETCS262A	Analysis and Design of Algorithms La	a -	-	2	
	9	MC	UCDM301A	Disaster Management	3	-	-	3	MC	9			Value Added Course	3	-	-	
								1		10	HSMC		MOOC	1		-	
														+	-	$\vdash$	-
	TOT	\L			17	2	6	22		TO	FAL			_	_		L
e:	: Pract	ical trainin	g will be of m	inimum six weeks duration at the end of fo					ng summer bro			on will be done	at the end of fifth semester.	19	3	8	
e	: Pract	ical trainin	g will be of m		ourt			ter duri			the evaluation					0	
te:	Pract	PCC	ETCS308A	Big Data Analytics				ter duri	EMP/ENT	ak and	PCC	ETCS412A	Compiler Design	3	1	-	
te	1 2	PCC PCC	ETCS308A ETCS 214A		ourt			ter duri			the evaluation		Compiler Design Neural Networks and Deep Learning			-	
te:	1 2 3	PCC	ETCS308A	Big Data Analytics	ourt			ter duri	EMP/ENT	ak and	PCC	ETCS412A	Compiler Design  Neural Networks and Deep Learning  Deep Learning Practical with		1	- 4	
te:	1 2	PCC PCC	ETCS308A ETCS 214A	Big Data Analytics Theory of Computation	ourt	h se		3 4	EMP/ENT SE SE	ak and	PCC PCC PCC	ETCS412A ETCS327A ETCS354A	Compiler Design  Neural Networks and Deep Learning  Deep Learning Practical with  Python, TensorFlow and Keras	3	1	-	
te	1 2 3 4	PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A	Big Data Analytics Theory of Computation Operating Systems Computer Networks	ourt	- 1	mest	3 4 4	EMP/ENT SE SE EMP/OP	1 2 3 4	PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A	Compiler Design  Neural Networks and Deep Learning  Deep Learning Practical with		1	-	
	1 2 3 4 5	PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab	ourt	- 1	- - - -	3 4 4 4	EMP/ENT SE SE EMP/OP EMP/OP	ak and	PCC PCC PCC	ETCS412A ETCS327A ETCS354A	Compiler Design  Neural Networks and Deep Learning  Deep Learning Practical with  Python, TensorFlow and Keras	3	1	-	
The second secon	1 2 3 4	PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab	ourt	- 1		3 4 4 4 1 1	EMP/ENT SE SE EMP/OP EMP/OP	1 2 3 4	PCC PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras Data Science - Tools and Techniques Natural Language Processing Value Added Course	3 3 - 2 2 2	1	-	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
The second secon	1 2 3 4 5	PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab	ourt	- 1	- - - -	3 4 4 4	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT	1 2 3 4 5	PCC PCC PCC PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras Data Science - Tools and Techniques Natural Language Processing Value Added Course Data Science - Tools and Techniques	3 3 - 2 2 2	1	-	
	1 2 3 4 5	PCC PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab	ourt	- 1		3 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE	1 2 3 4 5 6 7 8	PCC PCC PCC PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS356A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras Data Science - Tools and Techniques Natural Language Processing Value Added Course	3 3 - 2 2 2	1	4	: : : : : : : : : : : : : : : : : : :
	1 2 3 4 5 6 7 8	PCC PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I	3 3 3 3 	- 1		3 4 4 1 1 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP	1 2 3 4 5 6 7 8 9	PCC PCC PCC PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab	3 3 - 2 2 3 -		4 2	: :: :: :: :: :: :: ::
	1 2 3 4 5 6 7 8	PCC PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab	ourt	- 1		3 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE	1 2 3 4 5 6 7 8 9 (i)	PCC PCC PCC PCC PCC PCC PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory	3 3 - 2 2 3 3		4 2	2 2 2 2 1 1 1 3
	1 2 3 4 5 6 7 8	PCC PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I	3 3 3 3 	- 1		3 4 4 1 1 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP	1 2 3 4 5 6 7 8 9 (i) (ii)	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems	3 3 - 2 2 3 - -		4 2	2 2 3 4 1 1 1 3 3 3
	1 2 3 4 5 6 7 8	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course	3 3 3 3 	1 1 1 -	2 2 2 2	3 4 4 4 1 1 1 1 1 0 0	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP	1 2 3 4 5 6 7 8 9 (i) (ii) (iii)	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras Data Science - Tools and Techniques Natural Language Processing Value Added Course Data Science - Tools and Techniques Natural Language Processing Lab  Graph Theory Distributed Computing Systems Advanced Computer Architecture	3 3 - 2 2 3 - -		4 - 2 2 2	1 1 1 2 2 2 2 2 3
	1 2 3 3 4 4 5 5 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A ETCS381A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course	3 3 3 3 3 3 15 15	1 1 1 -	2 2 2 2 8	3 4 4 1 1 1 0	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 - 2 2 3 3 3 3 3 3 3 3		4 2	
	1 2 3 3 4 4 5 5 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS364A ETCS367A ETCS255A ETCS381A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course	3 3 3 3 3 3 15 15	1 1 1 -	2 2 2 2 8	3 4 4 1 1 1 0	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 - 2 2 3 - -		4 - 2 2 2	1 1 1 2 2 2 2 2 3
	1 2 3 3 4 4 5 5 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS255A ETCS381A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course	3 3 3 3 3 15	1 1 1 -	2 2 2 2 8	3 4 4 4 1 1 1 1 0 20 20 ssumme	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 - 2 2 3 - -		4 - 2 2 2	33 33 33
e:	1 2 3 3 4 4 5 5 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  will be of eig	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course	3 3 3 3 3 3 15 15	1 1 1 -	2 2 2 2 8	3 4 4 4 1 1 1 0 20	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE r break and the	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 - 2 2 3 - -		4 - 2 2 2	33 33 33
e:	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  will be of eig	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth seme	3 3 3 3 3 15	1 1 1 3		3 4 4 4 1 1 1 1 0 0 20 20 20 6 6	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE r break and the	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 - 2 2 3 - -		4 - 2 2 2	2 2 2 2 2 1 1 1
e:	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  ETCS464A ETCS464A ETCS464A ETCS464A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth seme Computer Vision Major Project	3 3 3 3 3 15 eester	1 1 1 -	2 2 2 2 8	3 4 4 4 1 1 1 0 20	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE  r break and the	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1 3
2::	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  g will be of eig ETCS428A ETCS464A ETCS464A ETCS453A ETCS461A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  th weeks duration at the end of sixth seme Computer Vision Major Project Computer Vision Lab Practical Training I	3 3 3 3 3 15 eester	1 1 1 3		3 4 4 4 1 1 1 1 0 20 20	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT SE EMP SE EMP SE Threak and the EMP EMP/ENT EMP	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TO	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture	3 3 3 3 3 3 16		4 - 2 2 2	33 33 33
2::	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA	PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  ETCS464A ETCS464A ETCS464A ETCS464A ETCS453A ETCS453A ETCS481A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth seme Computer Vision Major Project Computer Vision Lab Practical Training II	3 3 3 3 3 3 3 15 eester	1 1 1 3		3 4 4 1 1 1 1 0 20 20 1 20 20	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT SE EMP SE  T break and the EMP EMP/ENT EMP/ENT EMP	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1 3
	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA	PCC PCC PCC PCC PCC PCC PCC PCC PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS381A  ETCS464A ETCS464A ETCS464A ETCS464A ETCS453A ETCS453A ETCS481A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth seme Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Data Visualization and Story Telling Lab	3 3 3 3 3 3 3 15 eester	1 1 1 3		3 4 4 1 1 1 1 0 20 20 20 20 20 20 20 20 20 20 20 20 2	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT SE EMP SE EMP SE Threak and the EMP EMP/ENT EMP	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1
:	1 2 3 4 4 5 6 6 7 7 8 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	PCC PCC PCC PCC PCC PCC PCC PCC PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PROJ	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS255A ETCS464A ETCS464A ETCS464A ETCS464A ETCS464A ETCS464A ETCS464A ETCS464A ETCS464A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  th weeks duration at the end of sixth seme Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Data Visualization and Story Telling Lab Lab)	3 3 3 3 3 3 3 15 eester	1 1 1 3		3 4 4 1 1 1 1 0 20 20 1 21 1 1 2 1 1 1 1 1 1	EMP/ENT SE EMP/OP EMP/OP EMP/ENT SE EMP SE EMP SE  T break and the EMP EMP/ENT EMP/ENT EMP EMP/ENT EMP	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1
	1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 TOTA  Practi	PCC PCC PCC PCC PCC PCC PCC PCC PCC PROJ  L  Cal training PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PCC PCC PCC PCC PCC PCC PCC PCC	ETCS308A ETCS 214A ETCS211A ETCS304A ETCS365A ETCS366A ETCS367A ETCS255A ETCS255A ETCS464A ETCS464A ETCS453A ETCS461A ETCS461A ETCS461A ETCS422A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth seme Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Lab Lab)	3 3 3 3 3 3 15 ester	1 1 1 3		3 4 4 1 1 1 1 0 20 20 20 20 20 20 20 20 20 20 20 20 2	EMP/ENT SE EMP/OP EMP/OP EMP/ENT SE EMP SE EMP SE  T break and the EMP EMP/ENT EMP/ENT EMP/ENT EMP/ENT EMP/ENT EMP/ENT EMP/ENT	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1 3
2::	1 2 3 4 4 5 6 6 7 8 9 10 TOTA  TOTA  Practi	PCC PCC PCC PCC PCC PCC PCC PCC PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PROJ PCC PCC PCC PCC PCC PCC PCC PCC PCC PC	ETCS308A ETCS 214A ETCS 211A ETCS304A ETCS365A ETCS366A ETCS367A ETCS255A ETCS381A  ETCS428A ETCS464A ETCS453A ETCS453A ETCS451A ETCS451A ETCS453A ETCS461A ETCS461A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  the weeks duration at the end of sixth sements Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Data Visualization and Story Telling Lab Lab) Cloud Computing Cloud Computing Cloud Computing Lab	3 3 3 3 3 3 15 ester	1 1 1 3		3 4 4 4 1 1 1 1 0 20 20 2 6 1 2 2 1 4 1	EMP/ENT SE EMP/OP EMP/OP EMP/ENT SE EMP SE EMP SE  r break and the  EMP EMP/ENT EMP/ENT EMP/ENT EMP/ENT EMP/ENT EMP/ENT	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	3 3 3 1 3
2::	1 2 3 4 4 5 6 6 7 7 8 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	PCC	ETCS308A ETCS 214A ETCS 211A ETCS304A ETCS365A ETCS365A ETCS367A ETCS255A ETCS381A  ETCS428A ETCS464A ETCS453A ETCS453A ETCS453A ETCS453A ETCS453A ETCS418A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  the weeks duration at the end of sixth sements Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Data Visualization and Story Telling Lab Lab) Cloud Computing Cloud Computing Cloud Computing Lab	3 3 3 3 3 3 3 15 15 eester 2 2 2 4 4	1 1 1 3		3 4 4 4 1 1 1 1 0 20 20 2 6 1 2 2 1 4 1 4	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE  T break and the EMP EMP/ENT	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	
	1 2 3 4 4 5 5 6 6 7 7 8 8 9 9 10	PCC	ETCS308A ETCS 214A ETCS 211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS255A ETCS381A  will be of eig ETCS428A ETCS464A ETCS453A ETCS461A ETCS461A ETCS422A ETCS422A ETCS422A ETCS422A ETCS422A ETCS422A ETCS423A ETCS457A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth sements of the sem	3 3 3 3 3 3 3 15 15 eester 2 2 2 4 4	1 1 1 3		3 4 4 4 1 1 1 1 0 20 20 2 6 1 2 2 1 4 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE  T break and the  EMP EMP/ENT	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	
:	1 2 3 4 4 5 6 6 7 8 9 10 TOTA  TOTA  Practi	PCC	ETCS308A ETCS 214A ETCS 211A ETCS304A ETCS365A ETCS367A ETCS255A ETCS255A ETCS381A  will be of eig ETCS428A ETCS464A ETCS453A ETCS451A ETCS451A ETCS451A ETCS451A ETCS451A ETCS451A ETCS451A ETCS451A ETCS451A	Big Data Analytics Theory of Computation Operating Systems Computer Networks Computer Networks Lab Big Data Analytics Lab iOS Development Lab Operating System Lab Practical Training I Value Added Course  tht weeks duration at the end of sixth sements Computer Vision Major Project Computer Vision Lab Practical Training II Data Visualization and Story Telling Data Visualization and Story Telling Lab Lab) Cloud Computing Cloud Computing Cloud Computing Lab Internet of Things Internet of Things Internet of Things Internet of Things Lab	3 3 3 3 3 3 3 15 15 15 15 15 15 15 15 15 15 15 15 15	1 1 1		3 4 4 1 1 1 1 0 20 20 4 1 4 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1	EMP/ENT SE SE EMP/OP EMP/OP EMP/ENT EMP/ENT SE EMP SE  T break and the EMP EMP/ENT	1 2 3 4 5 6 7 8 9 (i) (ii) (iii) TOT	PCC	ETCS412A ETCS327A ETCS354A ETCS313A ETCS311A ETCS356A ETCS352A Elective ETCS420A ETCS320A ETCS310A	Compiler Design  Neural Networks and Deep Learning Deep Learning Practical with Python, TensorFlow and Keras  Data Science - Tools and Techniques  Natural Language Processing  Value Added Course  Data Science - Tools and Techniques  Natural Language Processing Lab  Graph Theory  Distributed Computing Systems  Advanced Computer Architecture  of seventh semester.	3 3 3 3 3 3 16	1	- - 4 - - 2 2 2	1
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EMP	Employability	
SE	Skill Enhancement	
ENT	Entrepreneurship	
OP	Open Elective	

HSMC Nutriannues, Social Science and Wainagement
BS Basic Science
ESC workshop, drawing, basics of
MC Mandatory Courses
OEC Open Elective
PROJ Projects / Industrial Training / Seminar
PEC Professional Elective Courses
PCC Professional Core Courses

Jet - Registrar



# SCHOOL OF ENGINEERING AND

## **TECHNOLOGY**

Bachelor of Technology (Computer Science & Engineering)
B.Tech (CSE)

PROGRAMME CODE: 01

2020-24

Approved in the 23rd Meeting of Academic Council Held on 23 June 2020

#### Semester VII

ETCS462A	Project	L	T	P	C
Version 1.0		-	-	1	5
Pre-requisites/Exposure				0	
Co-requisites					

The course is designed to provide an opportunity to students to demonstrate the ability to devise, select and use a range of methodologies and tools to the Chosen/Given project, applying the theoretical knowledge to a real life situation. Experiential Learning outside classroom through self-exploration, practical experience, Industry, field experience, live experience, research, design projects etc.

The learning process in the Project seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These experiential learning attributes through project includes Intellectual ability, Professional judgment and decision making ability, Inter-disciplinary approach, Skills for data handling, Ability in written and oral presentation, Sense of responsibility Developing professional Skills Application of theory, concepts in given industry /practical / field scenario.

#### **Course Outcomes**

On completion of this course, the students will be able to

- CO1. Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.
- C02. Use the relevant tools necessary for engineering practice.
- CO3. Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.
- CO4. Communicate effectively and learn to be a team player.

#### **Catalog Description**

Students are expected make a project based on the latest advancements related to the parent branch of Engineering. Students may opt for an in-disciplinary project (if feasible).

The project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department. This is expected to provide a good training for the student(s) in technical aspects

Student will be continuously evaluated during the semester in form of Project ProgressSeminars. At the end of the semester, assessment of the research/project work of each student will bemade by the board of

Registrat

Registrat

N.R. Mangalam Universit

Sohna Road, Gurugram, (Haryera)

examiners including supervisors on the basis of a viva-voceexamination and the report submitted by the student.

#### **Course Content**

The assignment to normally include:

- 1. Review and finalization of the Approach to the Problem relating to the assigned topic.
- 2. Preparing an Action Plan for conducting the investigation, including team work.
- 3. Detailed Analysis/Modelling/Simulation/Design/ProblemSolving/Experiment as needed.
- 4. Final development of product/process, testing, results, conclusions and future directions.
- 5. Preparing a report in the standard format for being evaluated by the Department.
- 6. Final project presentation before a Departmental Committee.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Quiz	Attendanc e	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

	Mapping between COs and POs	
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.	PO3
CO2	Use the relevant tools necessary for engineering practice.	PO5
CO3	Define overall needs and constraints to solve a problem and develop/design a prescribed engineering sub-system.	PO3



CO4	Communicate effectively and learn to be a team player.	PO10
	did it and it and it are to be a team player.	1010

		En	Pro	Desi	Cond	M	T	Envir	Е	Ind	Com	Proj	Life	Appl	Inno	Et
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		Kn	lysi	ent	ons	n	ne	sustai	c	tea		men	ning	Con	Indu	m
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Cours e Code	Course Title	PO1	PO2	PO3	PO4	P O 5	P O6	PO7	P O 8	PO9	PO10	PO11	PO12	PSO1	PSO2	PS
ETCS 462A	Major Project			3		2					3			3		

1=weakly mapped

2= moderately mapped

3=strongly mapped

#### Semester VIII

	Six Month Industrial Internship	L	T	P	C
Version 1.0		-	-	-	6
Pre-requisites/Exposure					
Co-requisites					

#### **Course Objectives**

- 1. To learn how to carry out extensive research/study in the area of project implementation.
- 2. To be associated with an area of research/research project and contribute towards domain knowledge.
- 3. To learn technical report/project documentation writing.
- 4. To learn and implement the technology that in being used is the specific industry where the training is carried out.

#### **Course Outcomes**

On completion of this course, the students will be able to

- CO1. Carry out the extensive literature survey/study in the area on internship provided.
- C02. Write technical documentation for the project implement.
- CO3. Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.
- CO4. Have practical knowledge on the applications of project of implementation on society.

#### **Catalog Description**

The student will carry out a minimum of six months in industry or appropriate workplace/ academic and research institutions in India/abroad. The internship should give exposure to the practical aspects of the discipline. In addition, the student may also work on a specified task or project which may be assigned to him/her. The outcome of the internship/industrial training should be presented in the form of a report.

#### **Course Content**

The assignment will be defined by the organization where the student will carry of his industrial training.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Quiz	Attenda nce	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50
Weightage (%)	10	10	20	10	

1

## Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs							
	Course Outcomes (COs)	Mapped Program Outcomes					
CO1	Carry out the extensive literature survey/study in the area on internship provided.	PO2					
CO2	Write technical documentation for the project implement.	PO5					
CO3	Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.	PO3					
CO4	Have practical knowledge on the applications of project of implementation on society.	PO6					

		En	Pro	Desi	Cond	M	T	Envir	E	Ind	Co	Proj	Life	App	Inno	Ethi
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Cours							У									
e Code	Course Title	PO1	PO2	PO3	PO4	P O 5	P O6	PO7	P O 8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ETCS 490A	Six Month Industri		3	3		3	2							3		2



al					
Internsh ip					

1=weakly mapped 2= moderately mapped 3=strongly mapped

ETCS464A	Major Project	L	T	P	C
Version 1.0		_	-	-	6
Pre-requisites/Exposure					
Co-requisites					

The course is designed to provide an opportunity to students to demonstrate the ability to devise, select and use a range of methodologies and tools to the Chosen/Given project, applying the theoretical knowledge to a real life situation. Experiential Learning outside classroom through self-exploration, practical experience, Industry, field experience, live experience, research, design projects etc.

The learning process in the Project seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These experiential learning attributes through project includes Intellectual ability, Professional judgment and decision making ability, Inter-disciplinary approach, Skills for data handling, Ability in written and oral presentation, Sense of responsibility Developing professional Skills Application of theory, concepts in given industry /practical / field scenario.

#### **Course Outcomes**

On completion of this course, the students will be able to

CO1. Use applied scientific knowledge to identify and implement relevant principles of mathemati

cs and computer science.

C02. Use the relevant tools necessary for engineering practice.

CO3. Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.

CO4. Communicate effectively and learn to be a team player.

#### **Catalog Description**

Students are expected make a project based on the latest advancements related to the parent branch of Engineering. Students may opt for an in-disciplinary project (if feasible).

The project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department. This is expected to provide a good training for the student(s) in technical aspects

Student will be continuously evaluated during the semester in form of Project Progress Seminars. At the end of the semester, assessment of the research/project work of each student will be made by the board of examiners including supervisors on the basis of a viva-voce examination and the report submitted by the student.

#### **Course Content**

The assignment to normally include:

- 1. Review and finalization of the Approach to the Problem relating to the assigned topic.
- 2. Preparing an Action Plan for conducting the investigation, including team work.
- 3. Detailed Analysis/Modelling/Simulation/Design/Problem Solving/Experiment as needed.
- 4. Final development of product/process, testing, results, conclusions and future directions.
- 5. Preparing a report in the standard format for being evaluated by the Department.
- 6. Final project presentation before a Departmental Committee.

## Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Quiz	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

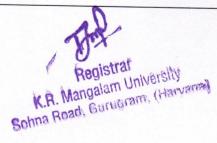
### Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

	Mapping between COs and POs	
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.	PO3
CO2	Use the relevant tools necessary for engineering practice.	PO5
CO3	Define overall needs and constraints to solve a problem and develop/design a prescribed engineering sub-system.	PO3
CO4	Communicate effectively and learn to be a team player.	PO10

ETCS 464A	Course Code	
Major Project	Course Title	
	PO1	Engineering Knowledge
	PO2	Problem analysis
3	PO3	Design/development of solutions
	PO4	Conduct investigations of complex problems
2	P O 5	Modern tool usage
	PO 6	The engineer and society
	PO7	Environment and sustainability
	P O 8	Ethics
	PO9	Individual or team work
3	PO10	Communication
	PO11	Project management and finance
	PO12	Life-long Learning
3	PSO1	Application of Concepts
	PSO2	Innovation and Industry Friendly
	PSO3	Ethics and Communication Skills

1=weakly mapped 2= moderately mapped

3=strongly mapped



ETCS490A	Industrial Internship			P	C
Version 1.0		_	-	-	12
Pre-requisites/Exposure					
Co-requisites					

#### **Course Objectives**

- 1. To learn how to carry out extensive research/study in the area of project implementation.
- 2. To be associated with an area of research/research project and contribute towards domain knowledge.
- 3. To learn technical report/project documentation writing.
- 4. To learn and implement the technology that in being used is the specific industry where the training is carried out.

#### **Course Outcomes**

On completion of this course, the students will be able to

- CO1. Carry out the extensive literature survey/study in the area on internship provided.
- CO2. Write technical documentation for the project implement.
- CO3. Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.
- CO4. Have practical knowledge on the applications of project of implementation on society.

#### **Catalog Description**

The student will carry out a minimum of six months in industry or appropriate workplace/academic and research institutions in India/abroad. The internship should give exposure to the practical aspects of the discipline. In addition, the student may also work on a specified task or project which may be assigned to him/her. The outcome of the internship/industrial training should be presented in the form of a report.

#### **Course Content**

The assignment will be defined by the organization where the student will carry of his industrial training.

## Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Examination Scheme:

Components	Quiz	Attendance	Mid Term	Presentation/	End Term
			Exam	Assignment/ etc.	Exam
Weightage (%)	10	10	20	10	50

### Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs					
	Course Outcomes (COs)	Mapped Program Outcomes			
CO1	Carry out the extensive literature survey/study in the area on internship provided.	PO2			
CO2	Write technical documentation for the project implement.	PO5			
CO3	Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.	PO3			
CO4	Have practical knowledge on the applications of project of implementation on society.	PO6			

ETCS 490A	Course Code	
Industri al Internsh ip	Course Title	
	PO1	Engineering Knowledge
3	PO2	Problem analysis
3	PO3	Design/development of solutions

	PO4	Conduct investigations of complex problems
3	P O 5	Modern tool usage
2	PO 6	The engineer and society
	PO7	Environment and sustainability
	P O 8	Ethics
	PO9	Individual or team work
	PO10	Communication
	PO11	Project management and finance
	PO12	Life-long Learning
3	PSO1	Application of Concepts
	PSO2	Innovation and Industry Friendly
2	PSO3	Ethics and Communication Skills

1=weakly mapped 2= moderately mapped

3=strongly mapped