



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### PROGRAMME: B.E.COMPUTER SCIENCE AND ENGINEERING

#### COURSE OUTCOMES(COs)

<b>Semester</b>	01
<b>Subject Code</b>	HS3152
<b>Subject Name</b>	PROFESSIONAL ENGLISH I
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>To use appropriate words in a professional context</li> <li>To gain understanding of basic grammatic structures and use them in right context.</li> <li>To read and infer the denotative and connotative meanings of technical texts</li> <li>To write definitions, descriptions, narrations and essays on various topics.</li> </ul>

#### CO's-PO's & PSO's MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
2	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
3	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
4	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
5	2	3	3	3	-	3	3	3	2	3	-	3	-	-	-
<b>AVg.</b>	<b>1.6</b>	<b>2.2</b>	<b>1.8</b>	<b>2.2</b>	<b>1.5</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1.6</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>

1 - low, 2 - medium, 3 - high, '-' - no correlation



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<b>Semester</b>	01
<b>Subject Code</b>	MA3151
<b>Subject Name</b>	MATRICES AND CALCULUS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use the matrix algebra methods for solving practical problems</li><li>• Apply differential calculus tools in solving various application problems.</li><li>• Able to use differential calculus ideas on several variable functions.</li><li>• Apply different methods of integration in solving practical problems.</li><li>• Apply multiple integral ideas in solving areas, volumes and other practical problems.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO2	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO3	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO4	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO5	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
Avg	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-



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<b>Semester</b>	01
<b>Subject Code</b>	PH3151
<b>Subject Name</b>	ENGINEERING PHYSICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the importance of mechanics.</li><li>• Express their knowledge in electromagnetic waves.</li><li>• Demonstrate a strong foundational knowledge in oscillations, optics and lasers.</li><li>• Understand the importance of quantum physics.</li><li>• Comprehend and apply quantum mechanical principles towards the formation of energy bands.</li></ul>

CO	PO	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	1	1	1	-	-	-	-	-	-	-	-	-
2	3	3	2	1	2	1	-	-	-	-	-	-	-	-	-
3	3	3	2	2	2	1	-	-	-	-	-	1	-	-	-
4	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-
5	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-
<b>Avg</b>	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-



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<b>Sem</b>	01
<b>Subject Code</b>	CY3151
<b>Subject Name</b>	ENGINEERING CHEMISTRY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.</li><li>• To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.</li><li>• To apply the knowledge of phase rule and composites for material selection requirements.</li><li>• To recommend suitable fuels for engineering processes and applications.</li><li>• To recognize different forms of energy resources and apply them for suitable applications in energy sectors.</li></ul>

CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	2	1	-	1	1	-	-	-	-	1	-	-	-
2	2	-	-	1	-	2	2	-	-	-	-	-	-	-	-
3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
4	3	1	1	-	-	1	2	-	-	-	-	-	-	-	-
5	3	1	2	1	-	2	2	-	-	-	-	2	-	-	-
<b>Avg</b>	<b>2.8</b>	<b>1.3</b>	<b>1.6</b>	<b>1</b>	<b>-</b>	<b>1.5</b>	<b>1.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.5</b>	<b>-</b>	<b>-</b>	<b>-</b>



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<b>Sem</b>	01
<b>Subject Code</b>	GE3151
<b>Subject Name</b>	PROBLEM SOLVING AND PYTHON PROGRAMMING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Develop algorithmic solutions to simple computational problems.</li><li>• Develop and execute simple Python programs.</li><li>• Write simple Python programs using conditionals and loops for solving problems.</li><li>• Decompose a Python program into functions.</li><li>• Represent compound data using Python lists, tuples, dictionaries etc.</li><li>• Read and write data from/to files in Python programs</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-
AVg.	2	3	3	3	2	-	-	-	-	-	2	2	3	3	-



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<b>Sem</b>	01
<b>Subject Code</b>	GE3171
<b>Subject Name</b>	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Develop algorithmic solutions to simple computational problems</li><li>• Develop and execute simple Python programs.</li><li>• Implement programs in Python using conditionals and loops for solving problems.</li><li>• Deploy functions to decompose a Python program.</li><li>• Process compound data using Python data structures.</li><li>• Utilize Python packages in developing software applications.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-
<b>AVg.</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	-	-	-	-	-	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	-





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<b>Sem</b>	01
<b>Subject Code</b>	BS3171
<b>Subject Name</b>	CHEMISTRY LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.</li><li>• To determine the amount of metal ions through volumetric and spectroscopic techniques.</li><li>• To analyse and determine the composition of alloys.</li><li>• To learn simple method of synthesis of nanoparticles.</li><li>• To quantitatively analyse the impurities in solution by electroanalytical techniques.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
2	3	1	2	-	-	1	2	-	-	-	-	1	-	-	-
3	3	2	1	1	-	-	1	-	-	-	-	-	-	-	-
4	2	1	2	-	-	2	2	-	-	-	-	-	-	-	-
5	2	1	2	-	1	2	2	-	-	-	-	1	-	-	-
<b>Avg.</b>	<b>2.6</b>	<b>1.3</b>	<b>1.6</b>	<b>1</b>	<b>1</b>	<b>1.4</b>	<b>1.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.3</b>	<b>-</b>	<b>-</b>	<b>-</b>





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<b>Sem</b>	01
<b>Subject Code</b>	GE3172
<b>Subject Name</b>	ENGLISH LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To listen to and comprehend general as well as complex academic information</li><li>• To listen to and understand different points of view in a discussion</li><li>• To speak fluently and accurately in formal and informal communicative contexts</li><li>• To describe products and processes and explain their uses and purposes clearly and accurately</li><li>• To express their opinions effectively in both formal and informal discussions</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>2</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>3</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>4</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>5</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>AVg.</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	-	-	-



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<b>Sem</b>	02
<b>Subject Code</b>	HS3252
<b>Subject Name</b>	PROFESSIONAL ENGLISH - II
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To compare and contrast products and ideas in technical texts.</li><li>• To identify and report cause and effects in events, industrial processes through technical texts</li><li>• To analyse problems in order to arrive at feasible solutions and communicate them in the written format.</li><li>• To present their ideas and opinions in a planned and logical manner</li><li>• To draft effective resumes in the context of job search.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
2	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
3	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
4	3	3	3	3	2	3	3	3	2	3	3	3	-	-	-
5	-	-	-	-	-	-	-	-	3	3	3	3	-	-	-
<b>AVg.</b>	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-



<b>Sem</b>	02
<b>Subject Code</b>	MA3251
<b>Subject Name</b>	STATISTICS AND NUMERICAL METHODS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Apply the concept of testing of hypothesis for small and large samples in real life problems.</li><li>• Apply the basic concepts of classifications of design of experiments in the field of agriculture.</li><li>• Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.</li><li>• Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.</li><li>• Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO2	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO3	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO4	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO5	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
Avg	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-



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<b>Sem</b>	02
<b>Subject Code</b>	PH3256
<b>Subject Name</b>	PHYSICS FOR INFORMATION SCIENCE
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Gain knowledge on classical and quantum electron theories, and energy band structures</li> <li>Acquire knowledge on basics of semiconductor physics and its applications in various devices</li> <li>Get knowledge on magnetic properties of materials and their applications in data storage,</li> <li>Have the necessary understanding on the functioning of optical materials for optoelectronics</li> <li>Understand the basics of quantum structures and their applications and basics of quantum computing</li> </ul>

CO's	PO's												PSO's			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
<b>1</b>	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>2</b>	3	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>3</b>	3	-	-	1	2	1	1	-	-	-	-	-	-	-	-	-
<b>4</b>	3	-	2	1	3	-	1	-	-	-	-	-	-	-	-	-
<b>5</b>	3	2	2	2	2	1	2	-	-	-	-	2	-	-	-	-
<b>AVG</b>	3	1.3	2	1.3	2.3	1	1.3	-	-	-	-	2	-	-	-	-



<b>Sem</b>	02
<b>Subject Code</b>	BE3251
<b>Subject Name</b>	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Compute the electric circuit parameters for simple problems</li><li>• Explain the working principle and applications of electrical machines</li><li>• Analyze the characteristics of analog electronic devices</li><li>• Explain the basic concepts of digital electronics</li><li>• Explain the operating principles of measuring instruments</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
2	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
3	2	1	1	-	-	-	-	1	-	-	-	2	-	-	1
4	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
5	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
<b>Avg</b>	2	1.8	1	-	-	-	-	1	-	-	-	2	-	-	1



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<b>Sem</b>	02
<b>Subject Code</b>	GE3251
<b>Subject Name</b>	ENGINEERING GRAPHICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use BIS conventions and specifications for engineering drawing.</li><li>• Construct the conic curves, involutes and cycloid.</li><li>• Solve practical problems involving projection of lines.</li><li>• Draw the orthographic, isometric and perspective projections of simple solids.</li><li>• Draw the development of simple solids.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
2	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
3	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
4	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
5	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
<b>Av</b>	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-



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<b>Sem</b>	02
<b>Subject Code</b>	CS3251
<b>Subject Name</b>	PROGRAMMING IN C
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Demonstrate knowledge on C Programming constructs</li><li>• Develop simple applications in C using basic constructs</li><li>• Design and implement applications using arrays and strings</li><li>• Develop and implement modular applications in C using functions.</li><li>• Develop applications in C using structures and pointers.</li><li>• Design applications using sequential and random access file processing</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	2	2	1	2	1	1	1	2	-	3	2	1	2	-
2	2	2	2	1	2	1	1	1	2	-	3	3	2	2	-
3	2	3	2	1	2	1	1	1	2	-	3	2	2	2	-
4	3	2	2	1	3	1	1	1	2	-	3	3	2	2	-
5	2	3	3	1	2	1	2	1	2	-	3	2	2	3	-
<b>6</b>	2	2	3	2	1	2	-	-	2	1	2	2	2	2	
<b>Av</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>-</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>-</b>



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<b>Sem</b>	02
<b>Subject Code</b>	GE3271
<b>Subject Name</b>	ENGINEERING PRACTICES LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.</li><li>• Wire various electrical joints in common household electrical wire work.</li><li>• Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipment's; Make a tray out of metal sheet using sheet metal work.</li><li>• Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
2	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
3	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
<b>Av</b>	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1





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<b>Sem</b>	02
<b>Subject Code</b>	CS3271
<b>Subject Name</b>	PROGRAMMING IN C LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Demonstrate knowledge on C programming constructs.</li><li>• Develop programs in C using basic constructs.</li><li>• Develop programs in C using arrays.</li><li>• Develop applications in C using strings, pointers, functions.</li><li>• Develop applications in C using structures.</li><li>• Develop applications in C using file processing.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	3	3	1	1	1	-	-	2	1	2	2	2	2	
2	2	3	3	2	1	1	-	-	2	1	2	2	2	3	
3	2	2	2	1	1	2	-	-	2	-	2	2	2	2	
4	2	2	2	2	1	2	-	-	3	-	3	3	3	2	
5	2	2	3	2	3	2	-	-	3	-	3	3	3	3	
6	2	2	3	2	1	2	-	-	2	1	2	2	2	2	
<b>Avg</b>	2	2	3	2	1	2	-	-	2	1	2	2	2	2	



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<b>Sem</b>	02
<b>Sub Code</b>	GE3272
<b>Sub Name</b>	COMMUNICATION LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Speak effectively in group discussions held in a formal/semi formal contexts.</li><li>• Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions</li><li>• Write emails, letters and effective job applications.</li><li>• Write critical reports to convey data and information with clarity and precision</li><li>• Give appropriate instructions and recommendations for safe execution of tasks</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
2	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
3	2	2	3	3	1	3	3	3	3	3	3	3	-	-	-
4	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
5	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
AVg.	2.4	2.8	3	3	1.8	3	3	3	3	3	3	3	-	-	-



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<b>Sem</b>	03
<b>Sub Code</b>	MA3354
<b>Sub Name</b>	DISCRETE MATHEMATICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Have knowledge of the concepts needed to test the logic of a program.</li><li>• Have an understanding in identifying structures on many levels.</li><li>• Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.</li><li>• Be aware of the counting principles.</li><li>• Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.</li></ul>

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>1</b>	3	3	2	-	-	-	-	-	-	-	-	2	-	-	-
<b>2</b>	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>3</b>	-	3	2	-	-	2	-	-	-	3	-	-	-	-	-
<b>4</b>	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-
<b>5</b>	-	2	2	2	-	-	-	-	-	2	-	-	-	-	-
<b>AVg.</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>	-	-	-	-	-	<b>1</b>	-	-	-	-	-



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<b>Sem</b>	03
<b>Sub Code</b>	CS3351
<b>Sub Name</b>	DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Design various combinational digital circuits using logic gates</li><li>• Design sequential circuits and analyze the design procedures</li><li>• State the fundamentals of computer systems and analyze the execution of an instruction</li><li>• Analyze different types of control design and identify hazards</li><li>• Identify the characteristics of various memory systems and I/O communication</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	2	1	1	1	1	2	3	2	3	3
2	3	3	3	3	2	1	1	1	1	1	2	3	1	2	2
3	3	3	3	3	2	2	1	1	1	1	2	3	2	3	1
4	3	3	3	3	1	1	1	1	1	1	1	2	1	3	1
5	3	3	3	3	1	2	1	1	1	1	1	2	1	2	1
AVg.	3	3	3	3	1.8	1.6	1	1	1	1	1.6	2.6	1.4	2.6	1.6



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<b>Sem</b>	03
<b>Sub Code</b>	CS3352
<b>Sub Name</b>	FOUNDATIONS OF DATA SCIENCE
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Define the data science process</li> <li>• Understand different types of data description for data science process</li> <li>• Gain knowledge on relationships between data</li> <li>• Use the Python Libraries for Data Wrangling</li> <li>• Apply visualization Libraries in Python to interpret and explore data</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
<b>2</b>	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
<b>3</b>	2	2	1	2	2	1	1	-	1	2	1	3	2	2	3
<b>4</b>	3	2	2	1	2	-	-	-	1	1	2	2	3	3	2
<b>5</b>	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
<b>AVg.</b>	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2



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<b>Sem</b>	03
<b>Sub Code</b>	CS3301
<b>Sub Name</b>	DATA STRUCTURES
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Define linear and non-linear data structures.</li><li>• Implement linear and non-linear data structure operations.</li><li>• Use appropriate linear/non-linear data structure operations for solving a given problem.</li><li>• Apply appropriate graph algorithms for graph applications.</li><li>• Analyze the various searching and sorting algorithms.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	1	2	2	1	1	-	1	2	1	3	2	1	3
2	1	2	1	2	2	-	-	-	1	1	1	2	2	2	2
3	2	3	1	2	3	-	-	-	1	1	1	2	2	1	2
4	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
5	1	2	1	2	2	1	1	-	1	2	1	3	2	2	3
AVg.	2	2	1	2	2	1	1	-	1	1	1	2	2	2	2



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<b>Sem</b>	03
<b>Sub Code</b>	CS3391
<b>Sub Name</b>	OBJECT ORIENTED PROGRAMMING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Apply the concepts of classes and objects to solve simple problems</li><li>• Develop programs using inheritance, packages and interfaces</li><li>• Make use of exception handling mechanisms and multithreaded model to solve real world problems</li><li>• Build Java applications with I/O packages, string classes, Collections and generics concepts</li><li>• Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	3	1	3	-	-	-	3	2	2	2	3	1	2
2	2	1	3	2	1	-	-	-	2	1	1	3	3	3	2
3	3	3	1	2	2	-	-	-	3	2	1	2	3	1	3
4	3	1	2	2	2	-	-	-	1	2	1	3	3	1	1
5	1	1	2	3	2	-	-	-	3	2	1	2	3	3	3
AVg.	2	1	2	2	2	-	-	-	2	2	1	2	3	2	2



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<b>Sem</b>	03
<b>Sub Code</b>	CS3311
<b>Sub Name</b>	DATA STRUCTURES LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Implement Linear data structure algorithms.</li><li>• Implement applications using Stacks and Linked lists</li><li>• Implement Binary Search tree and AVL tree operations.</li><li>• Implement graph algorithms.</li><li>• Analyze the various searching and sorting algorithms.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	1	2	2	1	-	-	-	-	2	1	2	2	2	2	3
<b>2</b>	3	3	1	1	-	-	-	-	1	1	1	3	1	2	2
<b>3</b>	2	1	3	1	-	-	-	-	1	1	2	3	3	3	3
<b>4</b>	3	1	3	3	-	-	-	-	1	2	3	3	2	1	2
<b>5</b>	3	2	1	1	2	-	-	-	3	3	3	1	3	1	3
<b>AVg.</b>	2	2	2	1	2	-	-	-	2	2	2	2	2	2	3





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<b>Sem</b>	03
<b>Sub Code</b>	CS3381
<b>Sub Name</b>	OBJECT ORIENTED PROGRAMMING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Design and develop java programs using object oriented programming concepts</li> <li>• Develop simple applications using object oriented concepts such as package, exceptions</li> <li>• Implement multithreading, and generics concepts</li> <li>• Create GUIs and event driven programming applications for real world problems</li> <li>• Implement and deploy web applications using Java</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	2	1	2	1	-	-	-	-	1	2	2	2	1	2	3
<b>2</b>	2	1	3	1	-	-	-	-	2	3	3	2	1	3	1
<b>3</b>	2	2	1	2	1	-	-	-	1	2	1	3	2	3	2
<b>4</b>	2	2	1	3	-	-	-	-	3	1	1	1	2	1	2
<b>5</b>	1	3	3	1	3	-	-	-	1	1	1	1	2	1	2
<b>AVg.</b>	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2



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<b>Sem</b>	03
<b>Sub Code</b>	CS3361
<b>Sub Name</b>	DATA SCIENCE LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Make use of the python libraries for data science</li><li>• Make use of the basic Statistical and Probability measures for data science.</li><li>• Perform descriptive analytics on the benchmark data sets.</li><li>• Perform correlation and regression analytics on standard data sets</li><li>• Present and interpret data using visualization packages in Python..</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	-	-	-	-	1	3	3	3	1	3	2
2	3	2	2	3	1	-	-	-	3	1	3	2	1	3	3
3	3	2	1	3	1	-	-	-	2	1	1	1	3	2	3
4	2	3	1	3	-	-	-	-	2	3	2	3	3	3	1
5	1	2	3	1	1	-	-	-	2	1	3	1	1	3	3
<b>AVg.</b>	2	2	2	2	1	-	-	-	2	2	2	2	2	3	2



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<b>Sem</b>	03
<b>Sub Code</b>	GE3361
<b>Sub Name</b>	PROFESSIONAL DEVELOPMENT
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements</li><li>• Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding</li><li>• Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.</li></ul>



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<b>Sem</b>	04
<b>Sub Code</b>	CS3452
<b>Sub Name</b>	THEORY OF COMPUTATION
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Construct automata theory using Finite Automata</li> <li>• Write regular expressions for any pattern</li> <li>• Design context free grammar and Pushdown Automata</li> <li>• Design Turing machine for computational functions</li> <li>• Differentiate between decidable and undecidable problems</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	1	3	2	3	-	-	-	-	1	1	2	3	1	3	2
<b>2</b>	2	2	3	2	1	-	-	-	3	3	2	3	3	1	2
<b>3</b>	2	2	3	2	1	-	-	-	1	3	1	2	1	2	2
<b>4</b>	2	2	2	1	-	-	-	-	1	3	3	2	1	3	2
<b>5</b>	2	2	2	1	1	-	-	-	1	1	3	2	3	1	3
<b>AVg.</b>	2	2	2	2	1	-	-	-	1	2	2	2	2	2	2



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<b>Sem</b>	04
<b>Sub Code</b>	CS3491
<b>Sub Name</b>	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use appropriate search algorithms for problem solving</li><li>• Apply reasoning under uncertainty</li><li>• Build supervised learning models</li><li>• Build ensembling and unsupervised models</li><li>• Build deep learning neural network models</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	3	3	-	-	-	-	1	3	3	3	1	2	2
2	1	1	1	3	1	-	-	-	1	2	1	3	2	3	2
3	2	1	2	1	1	-	-	-	2	1	1	3	1	1	1
4	3	1	3	1	-	-	-	-	2	1	2	1	2	2	2
5	3	1	1	2	2	-	-	-	3	1	2	3	2	1	2
AVg.	2	1	2	2	1	-	-	-	2	2	2	3	2	2	2



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<b>Sem</b>	04
<b>Sub Code</b>	CS3492
<b>Sub Name</b>	DATABASE MANAGEMENT SYSTEMS
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Construct SQL Queries using relational algebra</li> <li>• Design database using ER model and normalize the database</li> <li>• Construct queries to handle transaction processing and maintain consistency of the database</li> <li>• Compare and contrast various indexing strategies and apply the knowledge to tune the performance of the database</li> <li>• Appraise how advanced databases differ from Relational Databases and find a suitable database for the given requirement..</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	2	2	3	2	1	-	-	-	2	1	1	1	2	1	3
<b>2</b>	3	1	1	1	1	-	-	-	2	3	3	3	3	1	2
<b>3</b>	3	2	3	2	1	-	-	-	2	1	1	2	2	3	3
<b>4</b>	1	2	3	2	-	-	-	-	3	2	3	3	1	2	3
<b>5</b>	1	1	3	3	2	-	-	-	1	3	3	1	2	2	2
<b>AVg.</b>	2	2	3	2	1	-	-	-	2	2	2	2	2	2	3



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<b>Sem</b>	04
<b>Sub Code</b>	CS3401
<b>Sub Name</b>	ALGORITHMS
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Analyze the efficiency of algorithms using various frameworks</li> <li>Apply graph algorithms to solve problems and analyze their efficiency.</li> <li>Make use of algorithm design techniques like divide and conquer, dynamic programming and greedy techniques to solve problems</li> <li>Use the state space tree method for solving problems.</li> <li>Solve problems using approximation algorithms and randomized algorithms</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	2	-	-	-	-	1	-	-	-	-	1	-	1	-
<b>2</b>	2	3	-	-	-	-	1	-	-	-	-	1	-	1	-
<b>3</b>	1	2	3	1	-	-	2	-	-	-	-	-	-	1	1
<b>4</b>	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>5</b>	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>AVg.</b>	2.67	1.8	3	1	-	-	1.33	-	-	-	-	1	-	1	1



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<b>Sem</b>	04
<b>Sub Code</b>	CS3451
<b>Sub Name</b>	INTRODUCTION TO OPERATING SYSTEMS
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Analyze various scheduling algorithms and process synchronization.</li> <li>Explain deadlock prevention and avoidance algorithms.</li> <li>Compare and contrast various memory management schemes.</li> <li>Explain the functionality of file systems, I/O systems, and Virtualization</li> <li>Compare iOS and Android Operating Systems.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	2	2	-	-	-	-	3	2	3	1	1	2	2
2	2	2	3	1	1	-	-	-	2	1	1	2	2	1	2
3	1	3	2	2	1	-	-	-	2	2	1	1	1	2	2
4	1	3	3	3	-	-	-	-	1	2	1	2	1	3	2
5	3	1	2	1	1	-	-	-	3	2	3	2	2	2	1
<b>AVg.</b>	2	2	2	2	1	-	-	-	2	2	2	2	1	2	2





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<b>Sem</b>	04
<b>Sub Code</b>	GE3451
<b>Sub Name</b>	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.</li><li>• To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.</li><li>• To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.</li><li>• To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.</li><li>• To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	-	-	-	2	3	-	-	-	-	2	-	-	-
2	3	2	-	-	-	3	3	-	-	-	-	2	-	-	-
3	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
4	3	2	1	1	-	2	2	-	-	-	-	2	-	-	-
5	3	2	1	-	-	2	2	-	-	-	-	1	-	-	-
<b>Avg.</b>	<b>2.8</b>	<b>1.8</b>	<b>1</b>	<b>1</b>	<b>-</b>	<b>2.2</b>	<b>2.4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.8</b>	<b>-</b>	<b>-</b>	



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<b>Sem</b>	04
<b>Sub Code</b>	CS3461
<b>Sub Name</b>	OPERATING SYSTEMS LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Define and implement UNIX Commands.</li><li>• Compare the performance of various CPU Scheduling Algorithms.</li><li>• Compare and contrast various Memory Allocation Methods.</li><li>• Define File Organization and File Allocation Strategies.</li><li>• Implement various Disk Scheduling Algorithms.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	1	3	1	1	-	-	-	1	3	3	3	2	1	3
<b>2</b>	3	1	1	2	2	-	-	-	3	2	1	1	3	1	2
<b>3</b>	3	3	2	1	2	-	-	-	3	3	1	2	2	2	2
<b>4</b>	1	2	2	3	2	-	-	-	3	1	3	1	1	2	1
<b>5</b>	2	2	1	1	3	-	-	-	1	2	2	3	1	3	3
<b>AVg.</b>	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2



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<b>Sem</b>	04
<b>Sub Code</b>	CS3481
<b>Sub Name</b>	DATABASE MANAGEMENT SYSTEMS LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Create databases with different types of key constraints.</li> <li>• Construct simple and complex SQL queries using DML and DCL commands.</li> <li>• Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.</li> <li>• Create an XML database and validate with meta-data (XML schema).</li> <li>• Create and manipulate data using NOSQL database..</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	3	3	-	-	-	-	3	1	3	2	2	3	2
<b>2</b>	2	2	3	2	2	-	-	-	1	2	3	3	2	1	2
<b>3</b>	3	3	2	1	1	-	-	-	1	1	1	3	2	3	3
<b>4</b>	1	3	3	3	1	-	-	-	1	1	3	2	3	1	3
<b>5</b>	3	2	1	1	1	-	-	-	2	2	3	1	3	1	2
<b>AVg.</b>	2	3	2	2	1	-	-	-	2	1	3	2	2	2	2



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<b>Sem</b>	05
<b>Sub Code</b>	CS3591
<b>Sub Name</b>	Computer Networks
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Explain the basic layers and its functions in computer networks.</li> <li>• Understand the basics of how data flows from one node to another.</li> <li>• Analyze routing algorithms.</li> <li>• Describe protocols for various functions in the network.</li> <li>• Analyze the working of various application layer protocols.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	2	-	-	-	-	-	-	-	-	-	-	3	-	-
2	-	1	-	-	2	-	-	-	-	-	-	2	-	2	-
3	-	2	-	-	3	-	-	-	-	-	-	-	-	3	-
4	-	-	-	1	2	-	-	-	-	3	-	-	-	-	-
5	-	3	2	-	-	-	-	-	-	-	-	-	-	-	3
<b>AVg.</b>	-	1	-	-	1	-	-	-	-	1	-	-	-	1	1



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<b>Sem</b>	05
<b>Sub Code</b>	CS3501
<b>Sub Name</b>	COMPILER DESIGN
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Understand the techniques in different phases of a compiler</li> <li>• Design a lexical analyser for a sample language and learn to use the LEX tool.</li> <li>• Apply different parsing algorithms to develop a parser and learn to use YACC tool</li> <li>• Understand semantics rules (SDT), intermediate code generation and run-time environment.</li> <li>• Implement code generation and apply code optimization techniques.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	-	-	-	-	3	3	1	3	2	3	2
2	3	3	3	3	3	-	-	-	3	2	3	2	2	1	2
3	3	3	2	2	3	-	-	-	3	1	1	1	2	2	3
4	3	2	2	1	1	-	-	-	2	3	2	3	1	2	1
5	3	3	3	2	1	-	-	-	2	1	1	3	2	1	2
<b>AVg.</b>	<b>3.00</b>	<b>2.80</b>	<b>2.60</b>	<b>2.20</b>	<b>2.00</b>	-	-	-	<b>2.60</b>	<b>2.00</b>	<b>1.60</b>	<b>2.40</b>	<b>1.80</b>	<b>1.80</b>	<b>2.00</b>



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<b>Sem</b>	05
<b>Sub Code</b>	CB3491
<b>Sub Name</b>	CRYPTOGRAPHY AND CYBER SECURITY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Understand the fundamentals of networks security, security architecture, threats and vulnerabilities</li> <li>• Apply the different cryptographic operations of symmetric cryptographic algorithms</li> <li>• Apply the different cryptographic operations of public key cryptography</li> <li>• Apply the various Authentication schemes to simulate different applications.</li> <li>• Understand various cybercrimes and cyber security.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	2	1	2	2	-	-	-	1	-	-	1	2	3	3
<b>2</b>	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
<b>3</b>	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
<b>4</b>	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
<b>5</b>	3	2	3	2	3	-	-	-	3	-	-	2	3	2	3
<b>AVg.</b>	<b>3</b>	<b>2.6</b>	<b>2.6</b>	<b>2.6</b>	<b>2.8</b>	-	-	-	<b>2</b>	-	-	<b>1.2</b>	<b>2.8</b>	<b>2.8</b>	<b>3</b>



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<b>Sem</b>	05
<b>Sub Code</b>	CS3551
<b>Sub Name</b>	DISTRIBUTED COMPUTING
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Explain the foundations of distributed systems (K2)</li> <li>• Solve synchronization and state consistency problems (K3)</li> <li>• Use resource sharing techniques in distributed systems (K3)</li> <li>• Apply working model of consensus and reliability of distributed systems (K3)</li> <li>• Explain the fundamentals of cloud computing (K2)</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	3	1	-	-	-	2	1	3	3	2	1	1
2	1	3	2	1	2	-	-	-	2	2	2	2	1	3	2
3	2	2	1	3	3	-	-	-	3	2	1	1	1	2	1
4	1	2	2	3	1	-	-	-	3	3	2	1	3	1	1
5	3	3	1	2	3	-	-	-	3	3	3	1	3	2	3
<b>AVg.</b>	1.8	2.4	1.8	2.4	2	-	-	-	2.6	2.2	2.2	1.6	2	1.8	1.6



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<b>Sem</b>	05
<b>Sub Code</b>	CCS375
<b>Sub Name</b>	WEB TECHNOLOGIES
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Construct a basic website using HTML and Cascading Style Sheets</li> <li>• Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.</li> <li>• Develop server side programs using Servlets and JSP.</li> <li>• Construct simple web pages in PHP and to represent data in XML format.</li> <li>• Develop interactive web applications.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	2	3	3	3	-	-	-	1	3	3	1	3	2	3
<b>2</b>	2	2	2	1	2	-	-	-	2	2	1	3	2	2	2
<b>3</b>	1	1	3	2	3	-	-	-	1	2	1	1	1	2	1
<b>4</b>	2	3	3	1	2	-	-	-	3	1	2	2	2	2	2
<b>5</b>	1	2	3	2	2	-	-	-	2	1	3	1	1	1	2
<b>AVg.</b>	1.8	2	2.8	1.8	2.4	-	-	-	1.8	1.8	2	1.6	1.8	1.8	2





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<b>Sem</b>	05
<b>Sub Code</b>	CCS358
<b>Sub Name</b>	PRINCIPLES OF PROGRAMMING LANGUAGES
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Describe syntax and semantics of programming languages</li> <li>• Explain data, data types, and basic statements of programming languages</li> <li>• Design and implement subprogram constructs</li> <li>• Apply object-oriented, concurrency, and event handling programming constructs and Develop programs in Scheme, ML, and Prolog</li> <li>• Understand and adopt new programming languages</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	2	1	-	-	-	-	-	-	3	2	3	-
2	3	3	3	2	2	-	-	-	-	-	-	3	2	3	-
3	3	3	3	2	2	-	-	-	-	-	-	3	2	3	-
4	3	3	3	3	2	2	-	-	-	-	-	-	3	2	-
5	3	3	3	3	3	3	2	2	1	3	1	3	3	3	-
<b>AVg.</b>	<b>2.8</b>	<b>2.8</b>	<b>3</b>	<b>2.4</b>	<b>2</b>	<b>2.5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>2.4</b>	<b>2.8</b>	<b>-</b>



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<b>Sem</b>	06
<b>Sub Code</b>	CCS354
<b>Sub Name</b>	NETWORK SECURITY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Classify the encryption techniques</li><li>• Illustrate the key management technique and authentication.</li><li>• Evaluate the security techniques applied to network and transport layer</li><li>• Discuss the application layer security standards.</li><li>• Apply security practices for real time applications.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	2	2	-	-	-	2	1	2	1	2	3	1
2	1	1	3	2	2	-	-	-	2	2	1	1	3	1	2
3	1	2	1	1	2	-	-	-	3	3	1	3	2	1	3
4	2	2	3	2	3	-	-	-	3	3	2	1	2	1	3
5	2	1	3	2	2	-	-	-	2	1	1	3	2	1	1
<b>AVG</b>	1.8	1.8	2.4	1.8	2.2	-	-	-	2.4	2	1.4	1.8	2.2	1.4	2



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<b>Sem</b>	06
<b>Sub Code</b>	CCS367
<b>Sub Name</b>	STORAGE TECHNOLOGIES
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Demonstrate the fundamentals of information storage management and various models of Cloud infrastructure services and deployment</li> <li>• Illustrate the usage of advanced intelligent storage systems and RAID</li> <li>• Interpret various storage networking architectures - SAN, including storage subsystems and virtualization</li> <li>• Examine the different role in providing disaster recovery and remote replication technologies</li> <li>• Infer the security needs and security measures to be employed in information storage management</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	1	2	1	3	3	-	-	-	1	1	1	3	1	2	1
<b>2</b>	3	1	2	3	3	-	-	-	3	2	3	2	2	3	1
<b>3</b>	1	1	3	2	2	-	-	-	3	1	1	2	2	3	3
<b>4</b>	3	2	1	2	2	-	-	-	1	1	3	1	3	2	1
<b>5</b>	1	3	2	1	2	-	-	-	1	2	3	1	3	2	1
<b>AVG</b>	1.8	1.8	1.8	2.2	2.4	-	-	-	1.8	1.4	2.2	1.8	2.2	2.4	1.4



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<b>Sem</b>	06
<b>Sub Code</b>	CCS341
<b>Sub Name</b>	Data Warehousing
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Design data warehouse architecture for various Problems</li><li>• Apply the OLAP Technology</li><li>• Analyse the partitioning strategy</li><li>• Critically analyze the differentiation of various schema for given problem</li><li>• Frame roles of process manager &amp; system manager</li></ul>

CO	PO											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>1</b>	3	3	3	2	2	-	-	-	3	-	-	3
<b>2</b>	3	2	2	2	3	-	-	-	2	-	2	2
<b>3</b>	3	3	3	3	-	-	-	-	-	-	-	3
<b>4</b>	3	3	3	3	-	-	-	-	-	-	-	3
<b>5</b>	3	2	2	2	-	2	-	-	-	-	2	2
<b>AVg.</b>	3	2.6	2.6	1.2	2.5	1	-	-	2.5	-	2	2.6



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<b>Sem</b>	06
<b>Sub Code</b>	CCS336
<b>Sub Name</b>	CLOUD SERVICES MANAGEMENT
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Exhibit cloud-design skills to build and automate business solutions using cloud technologies.</li><li>• Possess Strong theoretical foundation leading to excellence and excitement towards adoption of cloud-based services</li><li>• Solve the real world problems using Cloud services and technologies</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	1	1	1	-	-	-	2	1	3	2	2	1	3
<b>2</b>	3	1	2	3	2	-	-	-	1	2	3	1	2	2	2
<b>3</b>	1	1	3	1	3	-	-	-	3	3	1	1	3	2	1
<b>4</b>	1	1	1	2	3	-	-	-	2	3	3	1	1	1	1
<b>5</b>	1	3	3	2	2	-	-	-	1	3	1	2	1	3	2
<b>AVG</b>	1.8	1.8	2	1.8	2.2	-	-	-	1.8	2.4	2.2	1.4	1.8	1.8	1.8



# SUDHARSAN ENGINEERING COLLEGE

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

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<b>Sem</b>	06
<b>Sub Code</b>	CS3691
<b>Sub Name</b>	EMBEDDED SYSTEMS AND IOT
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Explain the architecture of embedded processors.</li><li>• Write embedded C programs.</li><li>• Design simple embedded applications.</li><li>• Compare the communication models in IOT</li><li>• Design IoT applications using Arduino/Raspberry Pi /open platform.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	1	1	3	1	-	-	-	3	1	2	3	2	1	1
<b>2</b>	2	3	1	3	2	-	-	-	1	2	3	1	1	1	2
<b>3</b>	2	2	3	2	3	-	-	-	1	3	1	1	2	1	3
<b>4</b>	2	2	2	1	1	-	-	-	1	3	1	1	2	2	3
<b>5</b>	3	2	1	1	3	-	-	-	3	2	3	2	1	3	1
<b>AVG</b>	2.4	2	1.6	2	2	-	-	-	1.8	2.2	2	1.6	1.6	1.6	2



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<b>Sem</b>	06
<b>Sub Code</b>	CCS356
<b>Sub Name</b>	OBJECT ORIENTED SOFTWARE ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Compare various Software Development Lifecycle Models</li><li>• Evaluate project management approaches as well as cost and schedule estimation strategies.</li><li>• Perform formal analysis on specifications.</li><li>• Use UML diagrams for analysis and design.</li><li>• Architect and design using architectural styles and design patterns, and test the system</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	2	2	-	-	-	-	1	1	2	2	2	1
2	2	3	2	3	2	-	-	-	2	2	3	2	3	2	1
3	2	3	2	1	1	-	-	-	2	2	3	2	2	3	1
4	2	3	2	2	3	-	-	-	2	2	3	2	2	3	1
5	2	3	1	2	2	-	-	-	-	-	-	1	3	2	2
<b>AVg.</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>