



SUDHARSAN ENGINEERING COLLEGE

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

Sathiyamangalam, Kulathur(TK), Pudukkottai District-622 501

Ph: 04339-240830, 240840 Fax: 04339-240205

Website: www.sec.ac.in Email: principal@sec.ac.in



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

PROGRAMME: B. E. COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

COURSE OUTCOMES (COs)

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

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	-	-	-
AVg.	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-

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



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

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

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	-	-	-	-	-	-	-	-	-
AV	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-



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

	PO1	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	-	-	-
CO	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-	-



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

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

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



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

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	-	-	-
Avg.	2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-	-



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

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



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

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	-	-	-
AVg.	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-	-



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

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

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	3	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	-	-	1	2	1	1	-	-	-	-	-	-	-	-	-
4	3	-	2	1	3	-	1	-	-	-	-	-	-	-	-	-
5	3	2	2	2	2	1	2	-	-	-	-	2	-	-	-	-
AVG	3	1.3	2	1.3	2.3	1	1.3					2				



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

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



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

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	-
CO	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-



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

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



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Sem	02
Subject Code	GE3271
Subject Name	ENGINEERING PRACTICES LABORATORY
Course Outcome	<ul style="list-style-type: none">• 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.• Wire various electrical joints in common household electrical wire work.• 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.• Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

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
CO	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1



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

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



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

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	-	-	-