DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE
(AUTONOMOUS)
(Approved by AICTE & Affiliated to Anna University, Chennai)
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website : www.dsengg.ac.in

DEPARTMENT OF SCIENCE AND HUMANITIES

MECHANICAL ENGINEERING
(R-2020)

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20HS101
SUBJECT NAME	:	COMMUNICATIVE ENGLISH
SEMESTER	:	I
COURSE CODE	:	C101

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Speak clearly, effortlessly, confidently and appropriately.
CO2	Write coherently with acceptable accuracy, organizing ideas logically.
CO3	Listen and comprehend different discourses and genres of texts.
CO4	Read and comprehend different discourses and genres of texts.
CO5	Read and infer, analyze, predict, interpret and draw conclusions any printed text.
CO6	Write definitions, descriptions, narrations and essays on various topics.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	0	0	0	0	0	0	0	2	3	3	0	2
CO 2	0	0	0	0	0	0	0	2	2	2	0	2
CO 3	0	0	0	0	0	0	0	2	2	3	0	3
CO 4	0	0	0	0	0	0	0	2	2	3	0	2
CO 5	0	0	0	0	0	0	0	2	2	2	0	3
CO6	0	0	0	0	0	0	0	2	2	3	0	3
AVG	0	0	0	0	0	0	0	2	2	3	0	3

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20MA101
SUBJECT NAME	:	ENGINEERING MATHEMATICS
SEMESTER	:	I
COURSE CODE	:	C102

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Use the matrix algebra methods for solving practical problems.
CO2	Apply differential calculus tools in solving various application problems.
CO3	Able to use differential calculus ideas on several variable functions.
CO4	Apply multiple integral ideas in solving areas, volumes and other practical problems.
CO5	Solve the ordinary differential equations using different techniques for that model engineering problems.
CO6	Use the matrix methods for solving practical problems.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	3	3	3	0	0	0	0	0	0	0	0	3
CO 2	3	3	3	0	0	0	0	0	0	0	0	3
CO 3	3	3	2	0	0	0	0	0	0	0	0	3
CO 4	3	2	2	0	0	0	0	0	0	0	0	3
CO 5	3	3	3	0	0	0	0	0	0	0	0	3
CO6	2	2	2	2	0	0	2	0	0	2		2
AVG	3	3	3	0	0	0	0	0	0	0	0	3

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20PH101
SUBJECT NAME	:	ENGINEERING PHYSICS - I
SEMESTER	:	I
COURSE CODE	:	C103

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Distinguish the different crystal systems, structural determination and synthesis of crystals.
CO2	Assess the elastic behavior of the materials and bending behavior of beam.
CO3	Acquire knowledge of NDT and applications of ultrasonics.
CO4	Know the development of modern physics and its applications.
CO5	Recognize the uses of laser
CO6	Understand the concept of light propagation through optical fibre and its uses in various fields

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	3	1	1	3	3	-	-	-	-	-	-	-
CO 2	3	3	1	3	2	-	-	-	-	-	-	-
CO 3	3	2	1	3	2	-	-	-	-	-	-	-
CO 4	3	1	3	1	3	-	-	-	-	-	-	-
CO 5	3	2	2	3	3	-	-	-	-	-	-	-
CO 6	2	3	3	2	2	-	-	-	-	-	-	-
AVG	3	2	2	3	3	0	0	0	0	0	0	0

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20CY101
SUBJECT NAME	:	ENGINEERING CHEMISTRY
SEMESTER	:	I
COURSE CODE	:	C104

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Demonstrate the General Structure, Classification, properties, techniques and of application Polymers.
CO2	Explain the Industrial applications of surface chemistry and catalyst, types of catalyst.
CO3	Understand the law's of thermodynamics and second law based derivations of importance in engineering disciplines.
CO4	Relate the concepts of important photo physical and photochemical processes and spectroscopy.
CO5	Understand of the basic concepts of phase rule and its applications to single and two component systems and appreciate the purpose and significance in industries.
CO6	Differenciate the different kinds of alloys based on chemical composition

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	3	0	0	0	3	3	0	0	0	0	0	0
CO 2	3	2	0	0	3	2	0	0	0	0	0	0
CO 3	3	2	0	2	0	0	0	0	0	0	0	0
CO 4	3	0	2	0	3	2	0	0	0	0	0	0
CO 5	3	0	2	0	3	3	0	0	0	0	0	0
CO 6	0	0	0	2	0	2	0	0	0	0	0	0
AVG	3	1	1	1	2	2	0	0	0	0	0	0

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20GE101
SUBJECT NAME	:	C PROGRAMMING
SEMESTER	:	I
COURSE CODE	:	C105

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Explain the syntax for C programming
CO2	Understand the programs in 'C' for real world situation
CO3	Apply the concept of functions and pointers.
CO4	Understand the programs with structure using 'C' language.
CO5	Compare the applications using sequential and random access file processing.
CO6	Extend to read and write data from/to files in 'C' Programs.

CO-PO MATRIX

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12	PSO1	PSO2
CO1	2	1	-	-	2	-	-	2	1	2	-	2	2	1
CO2	2	1	-	-	2	-	-	2	2	2	-	2	2	1
CO3	3	2	1	1	3	-	-	1	1	2	-	2	3	2
CO4	2	1	-	-	2	-	-	2	2	2	-	2	2	1
CO5	2	1	-	-	2	-	-	2	1	2	-	2	2	1
CO6	2	1	-	-	2	-	-	2	1	2	-	2	2	1
AVG	2	1	1	1	2	-	-	2	1	2	-	2	2	1

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20GE102
SUBJECT NAME	:	ENGINEERING GRAPHICS
SEMESTER	:	I
COURSE CODE	:	C106

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Discuss about conics and orthographic views of engineering components.
CO2	Draw the projection of points, lines and planes.
CO3	Classify solids and projection of solids at different positions.
CO4	Show sectioned view of solids and development of surface.
CO5	Draw isometric projection and perspective views of an object/solid.
CO6	Apply the concept of drawing in practical applications.

CO-PO MATRIX

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	2	1			2					2		
CO 2	1				2					1		
CO 3	3	2	1	1	2					3		
CO 4	3	2	1	1	2					3		
CO 5	1				2					1		
CO 6	3	2	1	1	2					3		2
AVG	2	2	1	1	2					2		2

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20BS101
SUBJECT NAME	:	PHYSICS AND CHEMISTRY LABORATORY
SEMESTER	:	I
COURSE CODE	:	C107

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Understand the functioning of various physics laboratory equipment.
CO2	Observe and tabulate experimental data.
CO3	Solve problems individually and collaboratively.
CO4	Estimate the amount of the given acids using pH titrations
CO5	Determine the amount of iron content in the given substance using potentiometric titration
CO6	Determine the amount of chloride content in the given water sample

CO-PO MATRIX

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	2	2	-	3	2	3	2	3	-	-	3	-
CO 2	2	2	-	2	3	1	2	3	-	-	2	-
CO 3	3	3	-	1	2	3	3	2	-	-	3	-
CO 4	3	2	-	-	-	-	-	-	-	-	-	-
CO 5	3	3	-	-	-	-	-	-	-	-	-	-
CO 6	3	3	-	-	-	-	-	-	-	-	-	-
AVG	3	3	0	1	1	1	1	1	0	0	1	0

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20GE103
SUBJECT NAME	:	C PROGRAMMING LABORATORY
SEMESTER	:	I
COURSE CODE	:	C107

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Develop C programs for simple applications of array and string
CO2	Apply the concept of conditional statement and looping statement in C programs.
CO3	Develop the C programs with function and recursive function
CO4	Apply the concept of pointers and structures
CO5	Apply the concept of sequential file processing
CO6	Apply the concept of random access file processing

CO-PO MATRIX

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

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20HS201
SUBJECT NAME	:	FUNCTIONAL ENGLISH
SEMESTER	:	II
COURSE CODE	:	C109

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Use academic and technical vocabulary in relevant contexts, Construct meaningful and grammatically correct sentence.
CO2	Effectively listen and acquire language and content, read fast and understand texts.
CO3	Use oral presentation skills in all professional contexts.
CO4	Demonstrate and understanding of the nature and importance of technical communication, Draft various types of technical and business documents like, reports, proposals and business letters.
CO5	Compose documents like job application, book review etc.
CO6	Express their thoughts effectively in both oral and written medium of communication.

CO-PO MATRIX

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	0	0	0	2	0	2	0	2	2	2	0	2
CO 2	0	0	0	0	0	0	0	2	2	3	0	2
CO 3	0	0	0	2	0	2	0	2	3	2	0	2
CO 4	0	0	0	0	0	0	0	2	2	3	0	3
CO 5	0	0	0	0	0	0	0	2	2	3	0	2
CO 6	0	0	0	1	0	1	0	2	2	3	0	2
AVG	0	0	0	2	0	2	0	2	2	2	0	2

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20MA201
SUBJECT NAME	:	ADVANCE CALCULUS AND ORDINARY DIFFERENTIAL EQUATION
SEMESTER	:	II
COURSE CODE	:	C110

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Evaluate the effective mathematical tools to obtain the solutions of first and second order differential equations that model physical processes.
CO2	Express Gradient, divergence and curl of a vector point function and related identities. Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
CO3	Apply the tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems.
CO4	Express Analytic functions, conformal mapping and complex integration.
CO5	Solve Laplace transform and inverse transform of simple functions, properties, various related theorems and application to solve the differential equations with constant coefficients.
CO6	Understand the Cauchy integral theorem and formula.

CO-PO MATRIX

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	3	3	2	0			2	0				
CO 2	3	1	2	0			2	0				
CO 3	2	1	1	0			1	0				
CO 4	3	0	3	0			2	0				
CO 5	2	3	1	0			0	0				
CO 6	2	2	2	2			2	0				
AVG	3	2	2	0			2	0				

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20PH201
SUBJECT NAME	:	ENGINEERING PHYSICS II
SEMESTER	:	II
COURSE CODE	:	C111

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Interpret the properties of electromagnetic radiations and its effect on human.
CO2	Apply the principles and understand the production of radioactive nuclides.
CO3	Explain the interaction of radiation with matter.
CO4	Identify and analyze the radiation quantities and its effects.
CO5	Demonstrate the knowledge on the properties of sound and its application in medicine.
CO6	Apply the principles and understand the process of physics in medical field.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	2	1	2	2	-	2	-	1	-	2	-	2
CO 2	1	1	2	1	-	2	-	1	-	2	-	2
CO 3	2	2	2	2	-	1	-	1	-	1	-	2
CO 4	2	1	2	1	-	1	-	2	-	2	-	2
CO 5	3	2	2	1	-	1	-	1	-	2	-	2
CO6	2	1	2	2	-	2	-	1	-	2	-	2
AVG	2	1	2	2	0	2	0	1	0	2	0	2

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REGULATION	:	2020
SUBJECT CODE	:	U20GE201
SUBJECT NAME	:	PYTHON PROGRAMMING
SEMESTER	:	II
COURSE CODE	:	C112

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Explain the logical solutions through Flowcharts, Algorithms and Pseudo code
CO2	Explain the concept of expressions & statements
CO3	Construct the conditional statement to obtain the programmatic solution.
CO4	Develop the compound data using Python lists, tuples, and dictionaries
CO5	Construct the errors and exceptions.
CO6	Understand the concept of read and write file.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	2	1	-	-	-	-	-	-	-	-	2	2
CO 2	2	1	-	-	-	-	-	-	-	-	2	2
CO 3	2	1	-	-	-	-	-	-	-	-	2	2
CO 4	3	2	1	1	1	-	-	-	-	-	2	2
CO 5	3	2	1	1	1	-	-	-	-	-	2	2
CO6	2	1	-	-	-	-	-	-	-	-	2	2
AVG	2	1	1	1	1	-	-	-	-	-	2	2

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20ES201
SUBJECT NAME	:	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
SEMESTER	:	II
COURSE CODE	:	C113

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Understand electric circuits and working principles of electrical machines.
CO2	Understand the concepts of various electronic devices.
CO3	Choose appropriate instruments for electrical measurement for a specific application.
CO4	Explain the basic concepts of digital electronics.
CO5	Explain the operating principles of measuring instruments.
CO6	Analyze the AC Electrical Circuits.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	3	2	1	1				1				2
CO 2	3	2	1	1				1				2
CO 3	2	1						1				2
CO 4	2	1						1				2
CO 5	2	1						1				2
CO6	2	1						1				2
AVG	2	1	1	1	1			1				2

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DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20GE202
SUBJECT NAME	:	ENGINEERING MECHANICS
SEMESTER	:	II
COURSE CODE	:	C114

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Compute the resultant force for planar and spatial system of forces.
CO2	Estimate the force, moment for planar and spatial system of forces.
CO3	Compute the centroid, second moment of area, center of gravity, product moment of inertia and mass moment of inertia.
CO4	Compute the motion parameters like displacement, velocity, acceleration using dynamics.
CO5	Compute the reaction force by applying principles of friction and the motion parameters of rigid body.
CO6	Apply the concepts of mechanics and work in force analysis.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12
CO 1	3	2	1	1				1				2
CO 2	3	2	1	1				1				2
CO 3	2	1						1				2
CO 4	2	1						1				2
CO 5	2	1						1				2
CO6	2	1						1				2
AVG	2	1	1	1	1			1				2

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20GE203
SUBJECT NAME	:	ENGINEERING PRACTICES LABORATORY
SEMESTER	:	II
COURSE CODE	:	C115

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Identify Tools and Techniques used for Sheet Metal Fabrication.
CO2	Use welding equipment to join the structures.
CO3	Demonstrate Plumbing requirements of domestic buildings.
CO4	Apply the skills of basic electrical engineering for house wiring practice.
CO5	Measure various electrical quantities.
CO6	Explain the working of electronic components and its utilization.

CO-PO MATRIX

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

DEPARTMENT OF SCIENCE AND HUMANITIES

AVG	3	2	1	1	2		1		2	2	2		2	

REGULATION	:	2020
SUBJECT CODE	:	U20GE204
SUBJECT NAME	:	PYTHON PROGRAMMING LABORATORY
SEMESTER	:	II
COURSE CODE	:	C116

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Explain the logical solutions through Flowcharts, Algorithms and Pseudo code
CO2	Explain the concept of expressions & statements
CO3	Construct the conditional statement to obtain the programmatic solution.
CO4	Develop the compound data using Python lists, tuples, and dictionaries
CO5	Construct the errors and exceptions.
CO6	Understand the concept of read and write file.

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO 1	2	1	-	-	-	-	-	-	-	-	2	2
CO 2	2	1	-	-	-	-	-	-	-	-	2	2
CO 3	2	1	-	-	-	-	-	-	-	-	2	2
CO 4	3	2	1	1	1	-	-	-	-	-	2	2
CO 5	3	2	1	1	1	-	-	-	-	-	2	2
CO6	2	1	-	-	-	-	-	-	-	-	2	2
AVG	2	1	1	1	1	-	-	-	-	-	2	2

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION	:	2020
SUBJECT CODE	:	U20ES202
SUBJECT NAME	:	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY
SEMESTER	:	II
COURSE CODE	:	C117

COURSE OUTCOMES:

Course Code	Upon completion of the course, the students will be able to
CO1	Use experimental methods to verify the Ohm's Laws.
CO2	Use experimental methods to verify the Kirchhoff's Laws.
CO3	Analyze experimentally the load characteristics of electrical machines.
CO4	Analyze the characteristics of basic electronic devices.
CO5	Analyze the behavior of digital devices.
CO6	Use DSO to measure the various parameters

CO-PO MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO 1	3	2	2	0	0	0	0	0	3	0	0	2
CO 2	3	2	2	0	0	0	0	0	3	0	0	2
CO 3	3	2	2	2	0	0	0	0	3	0	0	2
CO 4	1	1	1	0	3	0	0	0	3	0	0	2
CO 5	2	2	2	0	0	0	0	0	3	0	0	2
CO6	3	2	2	0	0	0	0	0	3	0	0	2
AVG	3	2	2	0	1	0	0	0	3	0	0	2