

F.E. / F.T. SEM – I (A.Y. 2024-25) B.E. (IT/ MECH /E&TC/M&ME) / B.Tech. (AI&ML)



F.E./F.T. Semester – I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education (CBCGS-HME-2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E./B.Tech. (All Branches)							F.E./F.T. (S	EM: I/II)	
Course Nan	Course Name: Chemistry						Course Cod	le: BSC120)1
Contact Hours Per Week: 05							Credits: 04		
Teaching Scheme (Program Specific)						Examination Summative	on Scheme (Fo	ormative/	
Modes of Te	eaching / Lear	ning / Weigh	tage			Modes of C Evaluation	Continuous As	sessment /	
Hours Per Week					Theory (100)	Practical/ Oral (25)	Term Work (25)	Total	
Theory	Practical	Contact Hours	Credits	ISE	IE	ESE	PR	TW	
3	2	5	4	20	20	60	25	25	150
ISE: In-Sen	iester Examin	ation - Paper	Duration –	1 Hour					
IE: Innovat	ive Examinati	on							
ESE: End S	emester Exan	nination - Pap	per Duration	1 - 2 Hou	rs				
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely completion of practical (40%) and Attendance/Learning Attitude (20%)									
Prerequisite configuration	: Intermediate n, Thermodyna	e of Science mics and Elec	level knowle ctrochemistry	edge of a v etc.	atomic	no and atom	nic weight, ele	ctrolysis, l	Electronic

RBT: Revised Bloom's Taxonomy

Course Objective: The course is designed with the objectives of making them understand microscopic chemistry at atomic and molecular level. It also emphasizes on latest methods of instrumental analysis, and principles of green chemistry used in pharmaceutical industries and other chemical industries. The course provides an opportunity to learn concept of electrochemistry and its application for controlling the rate of corrosion.



<u>Course Outcomes:</u> Upon completion of the course students will be able to:

Sr.	Course	Cognitive levels of
No.	Outcomes	attainment as per Bloom's Taxonomy
CO1	Understand the types of hardness and various technologies used in waste water treatment.	L1, L2, L3
CO2	Apply the knowledge of engineering materials such as nanomaterials, composite materials.	L1, L2, L3
CO3	Understand and apply principles of green chemistry and Its application in maintaining green matrix of environment.	L2, L3
CO4	Understand electrochemistry, corrosion its protection Method.	L1, L2, L3
CO5	Apply the knowledge of analysis of fuel to check the quality of fuel.	L2, L3
CO6	Understand the Phase rule for one and two components Systems.	L2, L3

Module No.	Topics	Hrs.	Cognitive levels of attainment as per Bloom's Taxonomy
1.0	Water Technology		L1, L2, L3
	Introduction – Hard water and soft water. Hardness of water – types – expression of hardness (numerical problems). Estimation of hardness of water by complexometric method (numerical problems). Softening of water by Lime soda process, Zeolite process (numerical problems), & Ion exchange process. Drinking water- Treatments: removal of micro-organisms by Chlorination and disinfection by ozone. Biosensors: Definition, Need, Design and Application of biosensors in waste water treatment, Definition and significance of i) BOD ii) COD numerical problems related to BOD & COD, Sewage treatment – activated sludge process.	9	

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2.0	Engineering materials	8	L1, L2, L3
	Composite materials Introduction, Constitution- i) Matrix phase ii) Dispersed phase. Characteristic Properties of composite materials. Classification - (A) Particle-reinforced composites-i) Large-particle Reinforced composites ii) Dispersion-strengthened Composites (B) Fiber – reinforced composites- i) Continuous– aligned ii) Discontinuous – aligned (short)- (a) aligned (b) randomly oriented (c) Structural Composites- i) Laminates (ii) Sandwich Panels. Nanomaterials: Introduction, Properties of Nanomaterials, Types of Nanomaterials, Nanoparticles, Nanoclusters, Nanorods, Carbon Nanotubes, Types of carbon nanotubes (SWNT, MWNT), Nanowires, Synthesis of Nanomaterials by Precipitation method and sol-gel method , Application of Engineering materials in domestic and industrial purposes.		
3.0	Green Chemistry & Green Engineering Introduction to Green Chemistry, The12 principles of Green Chemistry, Prevention of waste, Atom Economy, Less hazardous Chemical synthesis, Safer and auxiliary solvents, Design for energy efficiency, use of renewable feedstock, Reduction of derivatives, Catalysis, Design for degradation, Real time analysis inherently safer chemistry for accident prevention. Design of Greener route of synthesis over conventional route (Synthesis of Aspirin, Indigo, Adipic acid and Carbaryl), Numerical based on calculation of Atom economy. Concept of green engineering and its application for providing sustainable solution to industry using photocatalytic reactor.	5	L2, L3

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	Choice Based Credit	t Grading System (CBCC	S)
	UnderT	CET Autonomy	0

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4.0	Corrosion: prevention & Control Introduction of Corrosion, Fundamental reason, Mechanism of corrosion-i)Electrochemical / Wet Corrosion mechanism a) Evolution of hydrogen gas and b)Absorption of oxygen gas, ii) Direct Chemical / Dry /Atmospheric Corrosion a) Due to oxygen b) Due to other gases Factors affecting the rate of corrosion, Types of corrosion-Galvanic cell corrosion, Concentration cell corrosion (Differential aeration principle).methods to minimize the corrosion- I)Material selection and Proper design, II) Cathodic protection i) Sacrificial anodic protection ii) Impressed current method III) Anodic protection,	9	L1, L2, L3
5.0	ii) Cathodic coating () Anodic coating (Galvanization)ii) Cathodic coating (Tinning). Methods of application of metallic coatings.	0	
5.0	Fuel Definition, classification of fuels-solid, liquid and gaseous. Calorific value-Definition, Gross or Higher calorific value & Net or lower calorific value, units of heat (no conversions), Dulong's formula & numerical for calculations of Gross and Net calorific values. Characteristics of a good fuel. Solid Fuels – Analysis of coal-Proximate Analysis of Coal and Numerical. Ultimate Analysis with Significance and numerical. Liquid fuels-Crude petroleum oil, its composition and classification and mining (in brief). Refining of crude oil-Fractional Distillation with diagram and composition and use stable. Cracking - Definition, Types of cracking- I) Thermal cracking. II) Catalytic cracking- (i) Fixed-bed catalytic cracking (ii) Moving-bed catalytic cracking. Advantages of Catalytic cracking. Combustion – Calculations for requirement of only oxygen and air (by weight and by volume only) for given solid & gaseous fuels. Green energy such as Hydrogen, Power alcohol, Biodiesel. Biodiesel- Method to obtain Biodiesel from vegetable oils (Trans - esterification), advantage and Disadvantages of biodiesel. Electrical vehicle as a future of automobile industry in perspective of green environment.	9	L2, L3



6.0	Phase rule	5	L2, L3
	Gibb's Phase Rule and explanation of terms involved in		
	it. One component system eg. Water, Reduced phase rule,		
	Two component system eg. Pb-Ag system. Application		
	and Limitations of Phase Rule.		

Suggested list of Practical's / Experiments:

Practical No.	Practical / Experiment Topic	Hrs.	Cognitive levels of attainment as per Bloom's Taxonomy
1.	Determination of Total hardness of Water by complex metric titration using EDTA	2	L1, L2, L3
2.	Determination of Permanent hardness of water by complex metric titration using EDTA	2	L1, L2, L3
3.	Estimation Saponification value of an Lubricating oil.	2	L1, L2, L3
4.	Estimation of Acid value of used Lubricating oil.	2	L1, L2, L3
5.	Determination of Zn / Cu in brass.	2	L1, L2, L3
6.	To determine λmax and Molar extinction coefficient of given solution of KMnO ₄ using Colorimeter.	2	L1, L2, L3
7.	To estimate the emf of Cu-Znsystem By Potentiometry.	2	L1, L2, L3
8.	Determination of Moisture content of coal.	2	L1, L2, L3
9.	Determination of Percentage of Iron in Plain Carbon Steel.	2	L1, L2, L3, L6
10.	Separation of organic binary mixture Using thin layer chromatography	2	L1, L2, L3, L6
	Total	20	



Books and References

Sr. No.	Name of Book	Author Name	Edition
1	An Introduction to Cheminformatics	Andrew R Leach	-
2	Physical Chemistry I & II	Dr. Hrishikesh Chatterjee	2^{nd}
3	Physical Chemistry	Atkins	$8^{ ext{th}}$
4	Principle of Instrumental Analysis	Skoog, Holler Gauch	7^{th}
5	Vogels Textbook of quantitative chemical Analysis	Vogel	8^{th}
6	Organic Chemistry	Morrison Boyd	7^{th}
7	QSAR and Molecular Modelling	S.P Gupta	-

Online References:

Sr. No	Website Name	URL	Modules Covered
1.	IIT B Virtual Lab	http://vlab.amrita.edu/?sub=2&brch=193∼=15	M-1
	(Hardness of Water)	48&cnt=1	
2.	Thin Layer Chromatography	https://elearning.cpp.edu/learning-objects/organic-	M-2
	Simulation	chemistry/tlc/?page=simulation.html	
3.	Free Open Source simulator	http://www.hplcsimulator.org/	M-2
	Project		
4.	Green engineering	https://ee1-nitk.vlabs.ac.in/Objective.html	M-3
5.	IIT B Virtual Lab (EMF	http://vlab.amrita.edu/?sub=2&brch=190∼=36	M-4
	Measurement)	<u>1&cnt=1s</u>	
6.	IIT B Virtual Lab (UV-	http://vlab.amrita.edu/?sub=2&brch=190∼=33	M-4
	Visible Spectroscopy)	<u>8&cnt=1</u>	



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E./B.Tech. (All Branches)					F.E./F.T. (SEM: I)					
Course Name: Mathematics-I					Course Code: BSC1202					
Teaching Scheme (Program Specific)				Exar	ninat	ion Sch	eme (Formative/ S	Summative)		
Modes of Teaching / Learning / Weightage				Mod	Modes of Continuous Assessment / Evaluation					
Hours Per Week				r.	Theor	у	Practical/Oral	Term Work	Total	
					(100)	(00)	(25)		
Theory	Tutorial	Practical	Contact	Credits	ISE	IE	ESE	PR	TW	
			Hours							
4	1	-	5	5	20	20	60	-	25	125
ISE: In-	Semester E	Examinatior	- Paper D	Duration –	1 Hou	ır				
IE: Inno	vative Exa	mination								
ESE: En	d Semeste	r Examinat	ion - Paper	r Duration	n - 2 H	ours				
The weig	ghtage of n	narks for co	ntinuous e	evaluation	of Te	rm w	ork/ Re	port: Formative (4	0%), Timely con	pletion
of practic	cal (40%) an	nd Attendan	ce/Learning	g Attitude	(20%)					
Prerequ	isite: 10+2	level Mathe	matics							

Course Objective: The Course intends to develop the basic Mathematical skills of engineering students that are imperative for effective understanding of engineering subjects. The topics introduced will serve as basic tools for specialized studies in many fields of engineering and technology.

Course Outcomes: Upon completion of the course students will be able to:

SN	Course Outcomes	Cognitive levels of attainment as per Bloom's Taxonomy
1	Apply the fundamentals of calculus and concepts of sequence-series.	L1, L2
2	Apply the concept of partial derivatives in its application part.	L1, L2, L3
3	Apply the concepts of complex numbers.	L1, L2, L3
4	Evaluate the rank of a matrix and its application to solve the system of equations.	L1
5	Apply the concept of Gamma and Beta function to evaluate the area and volume	L1, L2, L3
6	Inculcate the integration technique by various methods.	L1, L2, L3



Detailed Syllabus (Total No. of Hours: 60)

Module No.	Topics	Lectures	Cognitive levels of attainment as per Bloom's Taxonomy
1	Calculus-I (Pre-requisite: Limits, Continuity, Differentiability, Sequence & Series) Mean value theorems (Rolle's, Lagrange's and Cauchy's Theorem), Taylor's series, Maclaurin series for exponential, trigonometric and logarithm functions, Indeterminate forms, Convergence of sequence and series, D'Alembert's ratio test, Cauchy's nth root test and Cauchy's Integral test.	10	L1, L2
2	Multivariable Calculus (Differentiation) (Pre-requisite: Differentiability, Vectors) Partial derivatives (first and higher order), composite function, Total derivative, Euler's Theorem on homogeneous functions in two variables, Maxima, minima and saddle points, Gradient, directional derivative (Self-Study: curl and divergence)	11	L1, L2, L3
3	Complex Number (Pre-requisite: Basics of Complex Numbers, De' Moivre's theorem) Power of complex expressions, Root of an equation using De' Moivres theorem, Hyperbolic functions, Inverse Hyperbolic functions, Separation into real and imaginary parts, Logarithm of complex number	7	L1, L2, L3

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	Matrices I		
	(Pre-requisite: Types of matrices)		
	Symmetric, Skew- symmetric, Hermitian, Skew-		
	Hermitian and Orthogonal Matrices, Unitary Matrices,		
4	Rank, Row-Echelon form, Normal form, Non-	12	1112
т	Homogeneous system of linear algebraic equations,	12	
	Homogeneous system of linear algebraic equations,		
	Linear dependence and independence of vectors,		
	Dependent Matrix, Independent Matrix, Inconsistent		
	Matrix		
	Calculus-II		
	(Pre-requisite: Definite Integral)		
	Types of Improper Integrals and examples based on it,		
5	Beta and Gamma functions and their properties,		111213
5	Application of single integral in the evaluation of	11	L1, L2, L3
	Surface area.		
	(Self-Study: Volumes of revolutions using single		
	integral, Curve Tracing)		
	Numerical Integration		
	Numerical integration - The numerical evaluation of an		
	integral Rectangle method based on (piecewise) constant		
	approximation, Trapezoidal rule based on (piecewise)		
6	linear approximation, Simpson's 1/3 rd rule, Simpson's	9	L1, L2, L3
	3/8 th rule, Interpolation with difference and shift		
	operators, Newton's Cote's quadrature formulae based on		
	generalized approximation.		

Books and References:

SN	Title	Authors	Publisher	Edition	Year
1	Calculus and Analytic	G.B. Thomas	Pearson	9th Edition	2002
	geometry	and R.L. Finney			
2	Advanced Engineering	Erwin Kreyszig	John Wiley &	9th Edition	2006
	Mathematics		Sons		
3	Engineering Mathematics	Veerarajan T	Tata McGraw-	3rd Edition	2008
	for first year		Hill, New Delhi		
4	Higher Engineering	Ramana B.V	Tata McGraw	11th	2010
	Mathematics		Hill, New Delhi	Edition	



5	Higher	B.S. Grewal	Khanna	36th	2010
	Engineering Mathematics		Publishers	Edition	
6	A text book of Engineering	N.P. Bali and	Laxmi	9th Edition	2008
	Mathematics	Manish Goyal	Publications		

Online References:

Sr. No	Website Name	URL	Module Covered
1.	Openstax	https://openstax.org/	M1-M6
2	Lumanlearning .com	https://courses.lumanlearning.com	M1-M6



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. / B.Tech. (All Branches)							F.E. / F.T. (S	EM:I/II)		
Course Name : Programming for Problem Solving							Course Code	: ESC1201		
Teaching Scheme (Program Specific)				E	xamina	tion Scl	heme (Format	ive/ Summative	e)	
Modes of Teaching / Learning / Weightage				N	lodes of	f Contir	uous Assessm	ent / Evaluatio	n	
Hours Per Week			Theory (100)		Practical/ Oral (25)	Term Work (25)	Total			
Theory	Tutorial	Practical	Contact Hours	Credits	ISE	IE	ESE	PR	TW	
3		2	5	4	20	20	60	25	25	150
ISE: In-	Semester As	ssessment - l	Paper Dura	ation – 1 H	lours					
IE: Inno	ovative Exan	nination								
ESE: En	d Semester 1	Examination	n - Paper I	Duration –	2 Hours					
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely completion of practical (40%) and Attendance/Learning Attitude (20%)										
Prerequi	site: Fundan	nental Know	ledge of Co	omputer, Ba	asics of N	Iathema	tics			

Course Objective: This course aims to provide an exposure in developing an algorithm, flowchart and writing efficient codes for user defined problems. The course will be taught using the C programming language.

Course Outcomes: Upon completion of the course students will be able to:

SN	Course Outcomes	Cognitive levels of attainment as per Bloom's Taxonomy
1	Demonstrate the fundamentals of computer terminologies, algorithm and flowcharts.	L1, L2
2	Use of primitive data types in a computer programming.	L1, L2, L3
3	Apply conditional branching and looping to solve problems.	L1, L2, L3
4	Make use of functions and storage classes to implement Programs.	L1, L2, L3, L4

ice ESS MOINT	TCET DEPARTMENT OF ENGINEERING SCIENCES AND HUMAN Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	ITIES (ES&H)
5	Understand and apply non primitive data types in computer	L1, L2, L3
	Programming.	
6	Understand the Concept of C++ Programming	L1, L2, L3

Detailed Syllabus (Total No. of Hours: 45):

Module No.	Topics	Lectures	Cognitive levels of attainment as per Bloom's Taxonomy
1	 Introduction to Computer Terminology, Algorithm and Flowchart Introduction: Operating system, Services in Operating System, Hardware and software processing packages, Knowledge of the internet and its connectivity, Network Communication and networking, Develop concepts of Multimedia Technology. GUI and Security Aspects. Programming Fundamentals: Analysis of Problem, Design Steps, Algorithms, Three constructs of Algorithm and flowchart: Sequence, Decision (Selection) and Repetition, Characteristics of a good algorithm, ASCII and Pseudo Codes. Database Application: Introduction to Database, DBMS, Paradigm Shift from File System to DBMS, Key features of DBMS, Database Languages, View of data, Database Architecture, Basic Commands. 	05	L1, L2
	Fundamentals of C-Programming		

ENGINEERS	TCET DEPARTMENT OF ENGINEERING SCIENCES AN Choice Based Credit Grading System (CE Under TCET Autonomy	ID HUMANITIE BCGS)	ES (ES&H)
1	Structure of C program]	
2	Basics of C programming, Execution of a Program, Programming error in C, Character Set, identifiers and keywords, Token vs Identifiers, data types, enumerated data type and its size of types, Literals, constants and variables. Operators: Arithmetic operators, relational and logical operators, Increment and Decrement operators, assignment operators, the conditional operator, Assignment operators, operation on bits an 1's and 2's complement, Expression Evaluation, Initialization, Block Structure, C Preprocessor, Programs on Operators. Data Input and Output –printf(), scanf(), putchar(), getchar(), puts(), gets(). Fundamentals of the graphics design: Drawing basic shapes, Typography, Contrast, Animation Web design in Complia Design	07	L1, L2, L3
	Animation, web design vs Graphic Design.		
3	Conditional Branching & Loops Branching/Selection - if statement, if-else Statement, Multiway decision, Switch Case. statement (Menu Driven Programs) Iterative/Looping – while, do-while, for. Jump Statements- Continue statement, Break statement, goto statement, return statement. Time and Space Complexity and Notations, Example problems.	8	L1, L2, L3
4	Functions, Recursion and Storage ClassesDeclaration of Function, User defined andLibrary functions, Function parameters, Call byvalue, Call by reference, Recursion Vs Iteration.Library Function: math.h, ctype.hStorage Classes: Auto, Register, Static, Extern.	7	L1, L2, L3, L4
5	Arrays Strings and Structures Introduction to array: Declaration, Definition, accessing array element, bounds checking, passing array elements to functions, one dimensional, Example Program: Computing Mean, median and Mode, multi-dimensional array.	8	L1, L2, L3

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	Strings: Standard Library String functions,		
	Operation on string without using library		
	function from string.h, two-dimensional array		
	of characters. Structures: Basics of structures,		
	Structures and Functions Nested Structures		
	Passing Each Member of Structure as a separate		
	argument, Arrays of Structures.		
	C++ Programming		
	Introduction to C++ program, How C++ differs		L1, L2, L3
	from C, Variable Declaration, Classes and		
6	Objects, Basic of console input output, OOPs	10	
0	Features, OOPs concepts, Function overloading	10	L1, L2, L3
	and Operator overloading, Access Specifiers,		
	Friend Function, I/O Streams & Files, Exception	on	
	Handling(try, catch throw), Programs on C++.		

List of Practical/ Experiments:

Practical No.	Type of Experiment	Practical/Experiment Topic	Hrs	Cognitive levels of attainment as per Bloom's Taxonomy
1.		A. Write a Comparative Case study on Windows98, Windows NT, LINUX, and UNIX.	02	L1, L2
2.		 A. Design an algorithm and flowchart to accept the distance between to cities in kilometers from the keyboard. Calculate and display this distance in meter, feet, cms, and inches. B. Design an algorithm and flowchart to accept a number from user and find the remainder after dividing it by 2 and 3. C. Design a program to print the size of fundamental types (Size of Types). D. Write an SQL Query for: Creating Database, Creating Table, Insert Values into the table, Show table, update and delete table, Drop the table. 	02	L1, L2, L3

ESSER DEPARTMENT OF ENGINEERING SCIENCES AND HUMANITIES (ES&H) Choice Based Credit Grading System (CBCGS) Under TCET Autonomy						
3.	Basic Experiments	 A. Write a program to accept two numbers and display the result of their bitwise AND, OR, EXOR, and NOT Operations. B. A company XYZ is having Four Categories of employees. Rent allowance of employees can be calculated according to their categories as follows: Category 1: 30% of Salary Category 2: 20% of Salary Category 3: 10% of Salary Category 4: 5% of Salary Write a program to read employees number, category and salary and find its rent allowance. C. Design an algorithm draw a flowchart to display the square, cube, fourth power,n th power of x, where x is an integer taken from user. Write a C program for same. 	02	L1, L2, L3		

4.	 A. Write a Program to find real roots of a quadratic equation. Read all necessary inputs using input methods and display the roots. B. Write a menu driven program to print a multiplication table of given numbers using for loop, while loop and do-while loop. C. Write a program to demonstrate the use of Jump statements: break statements, continue statements, return statements. 	02	L1, L2, L3
5.	Write a C Program to print Half Pyramid using *, numbers and alphabets. * * * * * * * * * * * * * * * * * * *	02	L1, L2,L3

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ENGINEERS	Under IGEI Autonomy	Ut	Estd. in 2001
	A. Write a C program to build a house using	02	L1 L2 L3
6.	graphic functions.		L1, L2,L3
	A. Write a Puzzle Game using graphics	02	L1, L2,L3
7.	functions in C.		
	A. Write a program to find the Factorial of the		
0	number using functions.		S
0.	B. Write a program to check a given number is		
	prime or not using recursion.		
	C. Implement a C Program to accept two	02	L1, L2, L3
	numbers from the user and swap them. Pass		
	the values to be swapped to the function		
	using call by reference method.		
	D. Write a program to test math.h, ctype.h		
	library functions.		
	B. C program to print array elements in reverse		
	order.		
9	C. Write a program to find the transpose of		
	a Square Matrix without using another		
	matrix.		111713
	A. Write a Program that reads two matrices	02	L1, L2, L3
	values A (m x n) and B(p x q) Display		
	Matrix Addition in proper matrix format.		
	A. Write a Program that Implements string		
	handling functions with and without using		
	string library functions.	02	
10.	B. Write a Program to check whether the		L1, L2, L3
	given string is palindrome or not.		
	A. Write a program in c++ to accept 2		
	numbers from the user, find out the sum		
	and average of given input number.		
	B. Write a program in c++ to accept the marks		
11.	by students in five different subjects are	02	111212
	input through the keyword. Find out the	02	L1,L2,L3
	aggregate marks and percentage marks		
	obtained by the students, assume that		
	students in each subject is 100		
	students in each subject is 100.		

	DEPARTMENT	TCET OF ENGINEERING SCIENCES AND HUMANITIES (E Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	ES&H) औ	Red. in 2001
12.		 A. Write a C++ program to compute the quotient and remainder. B. Write a program in C++ to check whether a number is positive, negative or zero. C. Write a C++ program to get the volume of a sphere with radius 6. 	02	L1,L2,L3
13.		A. Write a program to demonstrate function definition outside class and accessing class members.	02	L1,L2,L3
14.	Design Experiments	A. The Sports club of cricket needs to maintain data about players. Description of it is given below. Clubs want to maintain the player's name, age, no of matches played, no of runs, and average. For the above description declare a structure and Display data in the descending order of number of runs made. Design & implement a Program for the above problem.	02	L1, L2, L3
15.		A. Design a program to create structure for an account holder in a bank with following Fields: name, account number, address, balance and display the details of five account holders.	02	L1, L2, L3
	L	Total	30	

Books and References:

Sr.	Title	Authors	Publisher	Edition	Year
No.					
1	MASTERING C	K. R. Venugopal and	McGraw Hill	2 nd Edition	2006
		Sudeep R. Prasad			
2	Programming in ANSI C	E Balaguruswamy	McGrawHill	8 th Edition	2018
3	Programming in C	Pradeep Dey and	Oxford	2 nd Edition	2011
		Manas Gosh	UniversityPress		
4	Let Us C	Yashwant Kanetkar	BPB	16 th Edition	2018
5	Data Structures using C	Aaron M. Tenenbaum	Pearson	7th Edition	2009
6	The C++ Programming	Bjarne Stroustrup.	Addison-Wesley	4 th Edition	2013
	Language				



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. / B. Lech. (All Branches)											
Course Name: Engineering MechanicsCourse Code: ESC1202											
Teaching	Scheme (Pro	ogram Specifi	c)		Exami	nation S	Schem	e (Formative/	Summative)		
Modes of	Teaching / I	Learning / We	ightage		Modes	of Con	tinuoı	is Assessment /	/ Evaluation		
					Т	'heory		Practical/	Term	T-4-1	
	Н	ours Per wee	K		(100)			Oral (25)	Work (25)		
			Contact		TOP		ES				
Theory	Tutorial	Practical	Hours	Credits	ISE	IE	Ε	OR	TW		
3	_	2	5	4	20	20	60	25	25	150	
ISE: In-S	emester Exa	mination - Pa	per Duratio	n - 1Hours	5					<u></u>	
IP: Innov	ative Practic	es									
ESE: End Semester Examination - Paper Duration - 3 Hours											
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely completion of											
practical (40%) and Att	tendance/Learn	ing Attitude	(20%)							
Prerequis	ite: Basics of	f Force, displac	cement, Velo	city, accele	eration &	related	conce	pt from Physics	. Also required	d basics	

of math's like integration & differentiation

Course Objective: This course aims to expound the basic fundamentals of force & its effects on static and dynamic systems and thereby provide a strong base for various engineering subjects.

<u>Course Outcomes:</u> Upon completion of the course students will be able to:

SN	Course Outcomes	Cognitive Levels of Attainment as per Bloom's Taxonomy
1	Find resultant/equilibrant of different types of coplanar force system and locate the centroid of plane lamina.	L1, L2
2	Construct free body diagram of a coplanar system and calculate the reactions for static equilibrium.	L1, L2, L3
3	Analyze problems related to friction for system containing block, wedge, ladder etc.	L1, L2, L3
4	Find resultant of different types of non-coplanar force system	L1, L2, L3
5	Analyze Projectile motion of the particle and draw motion curves. Locate instantaneous center of rotation and find linear and angular velocity for different links for rigid bodies having plane motion.	L1, L2, L3
6	Apply D'Alembert's principle, Work energy principle, Impulse momentum theorem in the problems based on Kinetics of Particles	L1, L2, L3



Detailed Syllabus:

			Cognitive levels
Madula Na	Torior	IJma	of attainment as
Module No.	Topics	Hrs.	per Bloom's
			Taxonomy
	System of Coplanar Forces:	08	L1, L2
	Concept of Rigid and Deformed Bodies, Fundamental		
	concepts and principles of mechanics: Newtonian		
01	Mechanics, Resolution of force, Moment of force about a		
	point, Couple, Varignon's Theorem. Resultant of Coplanar		
	system of forces, Force couple system.		
	Centroid of composite plane lamina.		
	Equilibrium of System of Coplanar Forces:	08	L1, L2, L3
	Free Body Diagram, Condition of Equilibrium.		
	Equilibrium of system consisting of several forces.		
	Types of support:		
	Types of loads, Types of Beams, Determination of		
02	reactions at supports for various types of loads on beams.		
	(Excluding problems on internal hinges).		
	Stress & Strain:		
	Types of stress, types of strain, Poisson's Ratio Problem of		
	step bar		
	Friction	05	L1 L2 L3
	Introduction to Laws of friction angle of friction angle of	00	L1, L2, L3
03	repose, cone of friction. Equilibrium of bodies on inclined		
	plane. Application to problems involving blocks, wedges.		
	ladders, etc.		
	Forces in space:	06	L1, L2, L3
04	Resultant of concurrent force system, parallel force system		
04	and non-concurrent non-parallel force system in 3D space		
	Kinematics of a Particle:	09	L1, L2, L3
	Introduction to different type of motion, Projectile motion.		
05	Kinematics of a Rigid Body:		
	Introduction to general plane motion, Instantaneous center		
	of rotation for the mechanisms up to two links only.		
1		1	1

ESSH ENGINEERS	TCET PARTMENT OF ENGINEERING SCIENCES AND HUMA Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	NITIES	(ES&H)
	Kinetics of a Particle:	09	L1, L2, L3
	Force and Acceleration:		
	Newton's second law of motion, D'Alembert's Principle,		
	Equations of dynamic equilibrium for rectilinear motion.		
	Work and Energy:		
06	Principle of work and energy, Law of conservation of		
	energy.		
	Impulse and Momentum: Principle of linear impulse and		
	momentum and its application, principle of conservation		
	of momentum. Problems of elastic balls with direct &		
	oblique impact		
	Total Hours:		45

List of Practical/ Experiments:

Practical Number	Type of Experiment	Practical/ Experiment Topic	Hrs.	Cognitive levels of
Tumber	Experiment			Bloom's
				Taxonomy
1		Polygon law of coplanar forces	2	L1, L2, L3
1		using Universal Force Table.		
2		Law of Moments (Varignon's	2	L1, L2, L3
		Theorem) using Bell Crank Lever		
3		Equilibrium of Simply Supported	2	L1, L2, L3
5		Beams		
1		Inclined plane (to determine	2	L1, L2, L3
4	Dasia	coefficient of friction).		
5	Dasic Evnorimonts	Compound pendulum.	2	L1, L2, L3
6	Experiments	Collision of Elastic Bodies using	2	L1, L2, L3
0		Law of conservation of momentum		
7		Law of parallelogram of forces	2	L1, L2, L3
/		(Lami's Theorem)		
Q		Kinematics of Particles: Motion	2	L1, L2, L3
8		Under Gravity		
0		Kinematics of Particles- Projectile	2	L1, L2, L3
,		Motion		
10	Virtual	Virtual Lab- Newton's Second Law	2	L1, L2, L3
10	Experiment	of Motion		
11		Design of Flywheel	2	L1, L2, L3

ICEI S&H GINIEERS	PARTMENT OF	UMANITIES (ES&H)			
12 Design		Finding centroid of a composite	2	L1, L2, L3	
	Experiments	plane area			
13	Group Activities	Mini Project	2	L1, L2, L3	
Total				26	

TERM WORK:

Term-work shall consist of minimum six experiments (At least two experiment from Dynamics), assignments consist numerical based on above syllabus, At least 3 numerical from each module. The distribution of marks for term work shall be as follows-

Laboratory work: 10 Marks

Assignment: 10 Marks

Attendance (Theory & Practical): 5 Marks

The final certification and acceptance of term-work ensures the satisfactory performance of laboratory work and minimum passing in the term-work

SN	Title	Title Authors		Year
1	Engineering Mechanics	Irving H. Shames	Prentice Hall	2006
2	Vector Mechanics for Engineers, Vol I - Statics, Vol II, – Dynamics	F. P. Beer and E. R. Johnston	McGraw Hill.	2011
3	Engineering Mechanics	R. C. Hibbler	Pearson Press.	2006
4	A Text Book of Engineering Mechanics	Bansal R.K	Laxmi Publications.	2018

Books and References:



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. / B.Tech. (All Branches)					F.E. / F.T. (SEM : I/II)					
Course Name: Workshop & Manufacturing Pract					ices -I	Ι		Course Code	e: ESC1203	
Teaching Scheme (Program Specific)				ific)	Exai	ninati	on Sche	me (Formativ	e/ Summative)	
Mode	s of Teach	ing / Learn	ning / Wei	ghtage	Mod	es of (Continu	ous Assessmer	nt / Evaluation	
Hours Per Week				Theory (00)			Practical / Oral (25)	Term Work (00)	Total	
Theor y	Tutoria l	Practic al	Contac t Hours	Credit s	IS E	IE	ESE	PR	TW	
-	-	2	2	1	-	-	-	25	-	25
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely completion of practical (40%) and Attendance/Learning Attitude (20%)										
Prerequ	iisite: Basi	c knowledg	ge of Manu	facturing	Techn	iques				

Course Objective: In this a course that provides an understanding of electrical engineering fundamentals, as well as the basics of programming and building circuits for the Arduino and basic of pc assembly.

Course Outcomes: Upon completion of the course students will be able to:

Sr.	Course	Cognitive levels
No	Outcomes	of attainment as
		per Bloom's
		Taxonomy
CO1	To understand the architecture of Arduino Uno board and	L1, L2
	Arduino programming.	
CO2	To program and construct applications using a number of	L1, L2
	different sensors, actuators and communication media.	
CO3	To provide brief overview of different IOT based systems	L1, L2
	and physical applications.	
CO4	To learn about component of PC and their functions.	L1, L2
CO5	To learn about process of assembly and disassembly of	L1, L2
	desktop.	



C O 6	To learn about the different network topologies and their	L1, L2
	functions.	

Suggested List of Practical/ Experiments:

Practical Number	Practical/ Experiment Topic	Hrs.	Cognitive levels of attainment as per Bloom's Taxonomy
1	IoT Using Arduino: Introduction i) Arduino UNO Board ii) Application iii) Adventages & diseduentages	02	L1, L2
2	 a Hi) Advantages & disadvantages Basic Programes using LEDs i) LED Blinking ii) RGB Light iii) LED Brightness Control 	02	L1, L2, L3
3	House wiring, staircase wiring and Automated Street Lighting using Arduino	02	L1, L2, L3
4	Different Sensors & their functions along with their applications	02	L1, L2, L3
5	Different Actuators & their functions along with their applications	02	L1, L2, L3
6	Speed Control of Stepper Motor	02	L1, L2
7	Speed Control of Servo Motor	02	L1, L2, L3
8	Demonstration of 3D Printing	02	L1, L2
9	Dismantling and Identification of components of computer (PC).	04	L1, L2, L3
10	Assembling of PC Installation of Operating System.	04	L1, L2
11	Application Software & Maintenance.	04	L1, L2, L3
12	Identification of Network Components.	04	L1, L2, L3
	Total	34	



Books and References:

SN	Title	Authors	Publisher	Edition	Year
1.	Arduino For Dummies	John Boxall	John Wiley &	2nd edition	May 2013
			Sons		
2.	Getting Started with	Massimo	O'Reilly	2nd edition	May 2015
	Arduino	Banzi,	Media,		
		Michael	Incorporated		
		Shiloh			
3.	Programming Arduino	Simon Monk	McGraw Hill	2nd edition	June 2016
			TAB		
4.	Build a computer from	Jeff Heaton	Heaton	5 th edition	July 2006
	scratch		Research		
5.	Business Application of	Oka	M.M.	7 th edition	May 2018
	computer				
6.	CompTIA Network	Mike Meyers	M.C.Graw Hill	7 th edition	July 2018

Online References:

Sr.	Website Name	I'RI.
No.	vv ebsite i vanie	
1	Arduino	https://www.arduino.cc/en/Tutorial/HomePage
2	Spoken-tutorial	https://spoken-tutorial.org/tutorial-
		search/?search_foss=Arduino&search_language=English
3	Assemble and	https://ncert.nic.in/vocational/pdf/keit104.pdf
	Dissemble the PC	
4	Software	https://www.uobabylon.edu.iq/eprints/publication_12_13193_12
	Management	44.pdf
5	Computer	https://courses.cs.washington.edu/courses/cse461/21wi/slides/3-
	Networks	components+protocols.pdf



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. (All Branches)							F.E. (SEM: I/ II)			
Course Na	Course Name: Introduction to Indian Knowledge System							Course Code	e: HSMC120	1
Teaching Scheme (Program Specific)					Examin	ation S	cheme (Formative/ S	ummative)	
Modes of	Teaching /	Learning / Y	Weightage		Modes	of Cont	inuous A	Assessment/ E	Evaluation	
Hours Per Week				Theory (100)			Practical/ Oral (25)	Term Work (00)	Total	
Theory	Tutorial	Practical	Contact Hours	Credits	ISE	IE	ESE	OR	TW	125
2	-	2	4	3	20	20	60	25	-	
ISA: In-S	ISA: In-Semester Examination- Paper Duration – 1 Hours									
ESE: End	Semester	Examination	1 - Paper D	Duration - 2	2 Hours					
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely										
completion	n of practica	al (40%) and	Attendance	e/Learning	Attitude (20%)				
Prerequis	ite- History	, Value Educ	cation, Mor	al Science						

<u>Course Objective</u>: The course aims at imparting basic principles of thought process, reasoning, and inferencing with a focus on sustainability as the core of Indian Traditional Knowledge Systems connecting society and nature. It also aims to introduce the students to all aspects of IKS which are related to their fields of study and to promote interest in knowing and exploring more.

Course Outcomes: Upon completion of the course students will be able to:

Sr.	Course Outcomes	Cognitive Levels of
No.		Attainment as per
		Revised Bloom's
		Taxonomy
1	Correlate and develop an understanding of the Indian	L1, L2, L3
	Knowledge System	
2	Become aware of the knowledge of the Vedangas and Indian	L1, L2, L3
	Health Sciences	
3	Understand and analyze Indian Language Sciences and Indian	L1, L2, L3
	Mathematics	
4	Develop knowledge of Bharatavarsha in classical and	L1, L2, L3
	medieval India	
5	Understand the role and position of women in traditional and	L1, L2, L3
	modern Indian society	



Detailed Syllabus (Total No. of Hours: 30):

Module No.	Topics	Hrs.	Cognitive Levels of Attainment as per Revised Bloom's Taxonomy
1	Indian Knowledge System	04	L1, L2, L3
	 1.1 Indian Education: Preservation of culture, tradition, and Dharma through education. 1.2 The Purpose of Knowledge in India 1.3 Methodology of the Indian Knowledge System: Systematization of knowledge fields as Sastra. 1.4 Indian Architecture and Town Planning: The importance of Sthapatya-Veda. The ancient cities of the Indus Saraswati region. Town planning and drainage systems, Examples of the significance of architecture and materials in Ramayana and Mahabharata 		
2	Indian Fine Arts: Basic concepts of Indian music and dance	05	
2	 2.1 The six Vedangas and Indian Health Sciences 2.1 The six Vedangas — Siksha, Vyakarana, Chandas, Nirukta, Jyotisha and Kalpa. 2.2 Indian Astronomy & Indian Health Sciences: Ancient records of the observation of the motion of celestial bodies in the Vedic corpus. 2.3 Ancient Indian Medicine 2.4 Basic Concepts of Ayurveda, Yoga and Holistic Health Care 2.5 Important Texts of Ayurveda: Selected extracts from Astāngahrdaya (selections from Sūtrasthāna) and Suśruta-Samhitā (sections on plastic surgery, cataract surgery and anal fistula), Charaka and Sushruta on the qualities of a Vaidya, Ayurveda in 18/19th centuries 	03	L1, L2, L5
3	Indian Languages, Sciences and Mathematics	06	- /
	 3.1 Language Sciences and the preservation of the Vedic Corpus: Origin of Varnamala of Indian languages 3.2 Word formation in Sanskrit and Indian languages: Basic purpose of the Science of Vyakarana as established by 		L1, L2,L3

	TCET DEPARTMENT OF ENGINEERING SCIENCES AND HUI Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	VANIT	IES (ES&H)
	 Panini. 3.3 Important texts of Indian Language Sciences: Siksha or phonetics, Nirukta or etymology, Vyakarana or Grammar, Chandas or Prosody, Indian Language Sciences in the 18//19 the centuries 3.4 Classical Literature in Sanskrit and Other Indian Languages: The nature and purpose of Kavya. Drisya and Sravya Kavyas. 3.5 Indian Mathematics: Introductory Overview, 		
	3.6 Mathematics in the Vedas, Śulva Sūtras and Jain Texts,		
1	Development of Place Value System Phometeyorsha	05	
5	 4.1 The idea of Bharatavarsha, A Land of Rare Natural Endowments, The Vedic Corpus. The Itihasas— Ramayana and Mahabharata, and their important regional versions. 4.2 The Puranas & Upnishads, Brihadarnyaka Upanishad 4.3 Earlier Buddhist writings- Abhidhamma Pitaka, Vinaya Pitaka, Sutta Pitaka 4.4 Important Indian Ancient Sanskrit literary work-Kalidas poetry and Vishakhadatta 4.5 Sangham Literature (Art & Culture) Women in Indian society 5.1 The role and position of women in Hindu civilization; Gleanings from the Vedas 5.2 Saptasati Devi Mahatmyam 5.3 Women's in Ramayana, Mahabharata, Kautilya'sArthasastra 5.4 Current status of women in India. Overview of ancient 	05	L1, L2, L3
	5.4 Current status of women in India, Overview of ancient women throughout the globe5.5 Case studies on prominent Indian women and social emancipation		
6	 Modern India 6.1 The national movement for freedom 6.2 Contribution of Social reformers in development of modern India 6.3 Understanding Mahatma Gandhi; A new nation is born as a republic – the pangs of birth and growth. 6.4 India since Independence – the saga of socio-political movements 	05	L1, L2, L3



Total	30	
6.5 Problems facing the nation today, Bharatavarsha today and the		

Suggested list of Practical's and Experiments:

Practical Number	Practical/ Experiment Topic	Hrs.	Cognitive levels of attainment as per Bloom's Taxonomy
1	Yoga and Meditation	02	L1, L2, L3
2	Sanskrit Basics	02	L1, L2, L3
3	Storytelling from Epics	02	L1, L2, L3
4	Comparative Religion Study	02	L1, L2, L3
5	Ayurveda Workshop	02	L1, L2, L3
6	Models on Indian Scientific Achievements	02	L1, L2, L3
7	Ancient Water Management and Transportation	02	L1, L2, L3
8	Debates on Dharma (Ethical Practices)	02	L1, L2, L3
9	Classical Dance Workshop	02	L1, L2, L3
10	Philosophy Through Folktales	02	L1, L2, L3
11	Buddhist Meditation Practice	02	L1, L2, L3
12	Traditional Indian Games and Sports	02	L1, L2, L3
13	Field Trip to Historical Sites	02	L1, L2, L3
14	Art of War	02	L1, L2, L3
15	Traditional Music Experience	02	L1, L2, L3
	Total	30	



Books and References:

Sr.	Name of the Book	Name of the	Publisher	Edition	Year of
No		Author			Publication
1	Cultural Heritage of India-	V.	Bhartiya	5th Edition,	2014
	course material	Sivaramakrishnan	VidyaBhavan		
2	History of Astronomy in	S. N. Sen and K. S.	INSA, Delhi	2nd Edition,	2001
	India,	Shukla			
3	Indian Astronomy: An	S. Balachandra Rao,	Universities	-	2000
	Introduction		Press,		
			Hyderabad,		
4	History of Astronomy: A	Ramasubramanian,	Mumbai TIFR	-	2016
	Handbook,	R. (Ed.).			
		Sule, Aniket			
		(Ed.) Vahia,			
		Mayank (Ed.)			
5	Some Aspects of Earlier	Dharampal	New Quest	1 st Edition	1987
	Indian Society and Polity		Publications, Pune,		
	and Their Relevance				
	Today,				

Online References:

Sr.	Website Name	URL	Modules Covered
No.			
1	Glimpses of	https://frontline.thehindu.com/arts-and-	M 1- M 6
	Eternal India	culture/art/article30192593.ece	
2	History of	https://www.jagranjosh.com/general-knowledge/history-of-	M 1- M 6
	Modern India	modern-india-a-complete-study-material-1464334160-1	
3	Modern	https://byjus.com/free-ias-prep/modern-history-ncert-notes/	M 1- M 6
	Indian		



F.E. / F.T Semester –I

Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023) TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. (All	All Branches)					F.E. (SEM: I	/ II)			
Course N	ame: Profe	essional Skil	I I (Object O	riented Pi	rogrammin	g)		Course Code	HME-PS12	201
Те	eaching Sch	eme (Progr	am Specific)	Examina	tion Sc	heme (F	ormative/ Sur	nmative)	
Modes of	of Teaching	g / Learning	/ Weightag	е	Modes of	Conti	nuous A	ssessment/ Eva	aluation	
	Hou	rs Per Week			Theory		Practical/ Oral	Term Work (25)	Total	
Theory	Tutorial	Practical	Contact Hours	Credits	ISE	IE	ESE	OR	TW	25
-	-	2	2	1	-	-	-	-	25	23
The weig	ntage of ma	arks for con	tinuous eval	uation of	Term wo	rk/ Re	port: Fo	rmative (40%),	Timely com	pletion
of practica	al (40%) an	d Attendance	e/Learning A	ttitude (2	0%)					
Prerequis	s ite- Fundar	nental Knov	ledge of Co	mputer, M	Iathematic	S				

Course Objective: The course will be able to Enhance the software designing and implementation of the JAVA. It introduces object oriented design techniques and problem solving.

Course Outcomes: Upon completion of the course students will be able to:

Sr.	Course Outcomes	Cognitive Levels of
No		Attainment as per
•		Bloom's Taxonomy
1	Use of an integrated development environment to	L1, L2, L3
	write, compile, run, and test the object oriented JAVA	
	program.	
2	Understand features of object oriented programming.	L1, L2, L3
3	Apply conditional branching and looping statements.	L1, L2, L3
4	Use of Inheritances and Packages in programing.	L1, L2, L3
5	Apply concepts of exception handling and multithreading.	L1, L2, L3
6	Use of Applet programming for creating GUI.	L1, L2, L3



Detailed Syllabus

Unit	Details	Hrs.	Cognitive levels of attainment as per Bloom's
			Taxonomy
Ι	Fundamentals of JAVA Programming: History, architecture and its components, JAVA Class File, JRE, The JAVA Virtual Machine, JVM Components, The JAVA API, JAVA platform, JAVA development kit, Methods References, Type Annotations, setting the path environment variable, JAVA Compiler And Interpreter, JAVA programs, variables and Literals.	02	L1, L2
П	Operators, Keywords & Data types: Primitive data types, Keywords, Object Reference Types, Strings, Operators and properties of operators, Arithmetic operators, assignment operators, increment and decrement operator, relational operator, logical operator, bitwise operator, conditional operator. JAVA 8 Concepts: Stream API, , Functional Interface .	02	L1, L2, L3
Ш	 Control Flow Statements: The IfElse IfElse Statement, The SwitchCase Statement. Iterations: The While Loop, The Do While Loop, The For Loop, The Break And Continue Statements, The Return Statement, and Pattern Programming. Classes: Types of Classes, Scope Rules, Access Modifier, Initializing The Class Object And Its Attributes, Class Methods, Accessing A Method, Method Returning A Value, Method's Arguments, Method Overloading. 	02	L1, L2, L3
IV	 Inheritance and Interfaces: Single, Multilevel and Hierarchical Inheritances. Multiple Inheritance, Method Overriding, Super and Final Keywords. Packages: Creating Packages, Default Package, Importing Packages, Using A Package. 	02	L1, L2, L3

DEP	TCET ARTMENT OF ENGINEERING SCIENCES AND HUMANITIE Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	es (es&H) Se	ettd.in 2001
V	 Arrays Two Dimensional Arrays, Multi-Dimensional Arrays. Multithreading: The thread control methods, Thread life cycle, the main thread. Exceptions: Catching JAVA Exceptions, Catching Run-Time Exceptions, Handling Multiple Exceptions. 	02	L1, L2, L3
VI	Abstract Window Toolkit: Window Fundamentals, Component, Container, Panel, Window, Frame, Canvas. Components – Labels, Buttons, Check Boxes, Radio Buttons, Choice Menus, Text Fields, Text, Scrolling List, Scrollbars, Panels, Frames.	02	L1, L2, L3, L4

List of Practical/Experiments:

Practical	Type of	Practical/ Experiment Topic	Hrs.	RBT Levels
Number	Experiment			
1.	Basic Experiments	(a) Apply installation steps to set the environment variables and run a simple java program.(b) Write a simple java program to understand identifiers, keywords, comments, braces and code blocks and variables.	2	L1, L2
2.		(a) Write a Java program to understand the concept of operators.(b) Write a Java program to understand various string operations.	2	L1, L2,L3

		TCET TOF ENGINEERING SCIENCES AND HUMANITIES (ES Choice Based Credit Grading System (CBCGS) Under TCET Autonomy	&H)	estd. in 2001
3.	Design Experiments	 (a) Write a java program to find the smallest and largest element from the array. (b) Write a Java program to display the following pattern. ***** **** *** *** ** ** 	2	L1, L2,L3
4.		(a) Designed a class SortData that contains the method asec() and desc().(b) Experiment with constructor and constructor overloading.	2	L1, L2,L3
5.		 (a) Write a java program to implement single level inheritance. (b) Write a java program to implement multilevel inheritance. (c) Write a java program to implement method overriding. 	2	L1, L2,L3
6.		(a) Write a java program to create a package, Add the necessary classes and import the package in java class.(b) Write a java program for multiplying two matrices and print the product for the same.	2	L1, L2,L3
7.		(a) Write a java program to implement multithreading.(b) Write a java program to open a file and display the contents in the console window.	2	L1, L2,L3
8.		(a) Write a java program to implement exception handling.	2	L1, L2,L3
9.		Design an AWT Counter application.	2	L1, L2, L3



Books and References:

Sr.	Name of the Book	Name of the	Publisher	Edition	Year of
No		Author			Publication
1	Practical English	Michael Swan	OUP	4th Edition	1995
	Usage				
2	Remedial English	F.T. Wood	Macmillan	2014 Edition	2007
	Grammar				
3	On Writing Well	William Zinsser	Harper	25th	2001
			Resource	Anniversary	
			Book	Edition	
4	Study Writing	Liz Hamp- Lyons	Cambridge	2nd Edition	2006
		and Ben Heasly	University		
			Press		

Online References:

Sr. No.	Website Name	URL	Modules Covered
1	Coursera	https://www.coursera.org/learn/speak-english-professionally	M 1-M 6
2	NPTEL	https://nptel.ac.in/courses/109/106/109106129/	M 1-M 6
3	NPTEL	https://nptel.ac.in/courses/109/106/109106094/	M 1-M 6



F.E. / F.T Semester –I Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education - (CBCGS-HME 2023)

TCET Autonomy Scheme (w.e.f. A.Y. 2024-25)

B.E. (All Branches)						F.E. (SEM: I)				
Course Name: Attitude & Aptitude Development I					Course Code: MC1201					
Teaching Scheme (Program Specific)				Examination Scheme (Formative/ Summative)						
Modes of Teaching / Learning / Weightage				Modes of Continuous Assessment/ Evaluation						
Hours Per Week				Theory (100)		Practical/ Oral (25)	Term Work (00)	Total		
Theory	Tutorial	Practical	Contact Hours	Credits	ISE	IE	ESE	OR	TW	- 25
1	-	-	1	Non- Credit	-	-	-	-	25	25
The weightage of marks for continuous evaluation of Term work/ Report: Formative (40%), Timely										
completion of practical (40%) and Attendance/Learning Attitude (20%)										
Prerequisite- Basic knowledge of English language, Grammar and Vocabulary										

<u>Course Objective:</u> The course will be able to enhance the attitude, aptitude, and logical level of the students up to their potentials.

<u>Course Outcomes:</u> Upon completion of the course students will be able to:

Sr.	Course Outcomes	Cognitive Levels of
No.		Attainment as per
		Bloom's Taxonomy
1	Understand personality concepts and effectively respond to success	L1, L2, L3
	and failure using SWOT analysis.	
2	Grasp the concept, types, and formation of attitudes through various	L1, L2, L3
	influences and balancing techniques.	
3	Improve verbal reasoning skills, including grammar, vocabulary, and	L1, L2, L3
	comprehension.	
4	Master fundamental quantitative concepts like number systems,	L1, L2, L3
	ratios, percentages, and more.	
5	Enhance their logical reasoning abilities in areas such as series,	L1, L2
	analogies, and deductions.	
6	Solve arithmetical problems involving races, clocks, calendars, and	L1, L2, L3
	series identification.	



Detailed Syllabus (Total No. of Hours: 15):

Module	Topics	Hrs.	Cognitive Levels of
No.			Attainment as per Revised
			Bloom's Taxonomy
1	Introduction to Personality Development	02	L1, L2, L3
	1.1 Concept and Meaning of Personality		
	1.2 Significance of Personality Development		
	1.3 Responding to Success and Failure		
	1.4 SWOT analysis		
2	Attitude & Motivation	02	L1, L2, L3
	2.1 Attitudes: Concept, Objectives		
	2.2 Types of Attitude		
	2.3 Development of Attitudes through parents, peers and		
	conditioning		
	2.4 Forming Attitude by balance and measurement of		
	Attitude		
3	Verbal Reasoning -I	02	L1, L2, L3
	3.1 Para Jumbles.		
	3.2 Reading Comprehension.		
	3.3 Vocabulary, Synonym, Antonyms, Analogies.		
	3.4 Grammar: Nouns, Articles, Pronouns, etc.		
4	Quantitative Aptitude-I	04	L1, L2, L3
	4.1 Number System, Numbers, & Ages.		
	4.2 Averages, Ratios, & Proportions.		
	4.3 Percentages.		
	4.4 Mixtures & Allegations.		
5	Logical Reasoning Ability-I	03	L1, L2
	5.1 Directions, and Blood Relations.		
	5.2 Coding & Decoding.		
	5.3 Letter Series, and Number Series.		
	5.4 Analogies, and Cubes.		
	5.5 Logical Deductions, and Venn Diagrams.		
	5.6 Assumption, Inferences, and Arguments.		
6	Arithmetical Ability	02	L1, L2, L3
	6.1 Races and Games		
	6.2 Clocks		
	6.3 Calendars		
	6.4 Odd man out and Series		
	Total	15	



TCET DEPARTMENT OF ENGINEERING SCIENCES AND HUMANITIES (ES&H) Choice Based Credit Grading System (CBCGS) Under TCET Autonomy

Estd. in 2001

Books and References:

SN	Name of the Book	Name of	Publisher	Edition	Year of
		the			Publicatio
		Author			n
1	Quantitative Aptitude	R.S. Aggarwal	S. Chand		
	for Competitive				
	Examinations				
2	A Modern Approach to	R.S. Aggarwal	S. Chand		
	Verbal & Non-Verbal				
	Reasoning				
3	A Modern Approach to	R.S. Aggarwal	S.		
	Logical Reasoning		Chand		
4	Puzzles to Puzzle You	Shakuntala	Orient		2005
		Devi			

Online References:

Sr.	Website Name	URL	Modules
No.			Covered
1	NPTEL	shttps://onlinecourses.nptel.ac.in/noc22_hs77/preview	M 1, M 2
2	www.indiabix.com	https://www.indiabix.com/verbal-ability/questions-and- answers/	M 3
3	Management Assessment Tests	https://www.practiceaptitudetests.com/industry/management/	M 4, 5, 6