Detailed Course Scheme

Bachelor of Technology (B.Tech)

(Computer Science Engineering)

Semester – I

(2024-25)

DOC202406220013

RNB GLOBAL UNIVERSITY

Educating stars for tomorrow

RNB GLOBAL UNIVERSITY

RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).**Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B. Tech (CSE) Program along with examination pattern is as follows:

Course Scheme

Semester –I

S. No.	Course Code	Course Category	Course Title	L	T	P	Credits
1.	CSEC14100	DSC-1(a)	Introduction to Programming with C	3	0	0	3
2.	CSEC14101	DSC-1(b)	Programming with C Lab	0	0	2	1
3.	CSEC14102	DSC-2(a)	Electronics and Electrical Technology	3	1	0	4
4.	CSEC14103	DSC-2(b)	Electronics and Electrical TechnologyLab	0	0	2	1
5.	CSEC14104	DSC-3(a)	Manufacturing Processes	1	0	0	1
6.	CSEC14105	DSC-3(b)	Manufacturing Process/WorkshopLab	0	0	2	1
7.	BSCC15100	BSC-1	Applied Mathematics- I	3	1	0	4
8.	BSCC16100	BSC -2(a)	Applied Physics-I	3	1	0	4
9.	BSCC16101	BSC -2(b)	Applied Physics-I Lab	0	0	2	1
10.	SEC077001	ASE-1	Ability & Skill Enhancement - I	2	0	0	2
11.	GEC066001	GEC-1	Business Communication	3	1	0	4
12.	WHNN99000		Workshops & Seminars /Human Values & SocialService/NCC/NSS	-	-	-	1
		Total		**18**	**4**	**8**	**27**

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

Internal Assessment

Type	Details	Marks
Mid Term	One Mid-term Sessional	25
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	20
Attendance	75% + : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

Internal Assessment

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	45
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS & NCC/NSS

1. NCC/NSS will be completed from Semester I – Semester IV. It will be evaluated internally by the institute. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of each Semester.

1. Vision

To deliver a high-quality education that will produce engineers of the highest caliber, equipped with the newest information and cutting-edge concepts in computer science engineering to fulfil the demands of industry and society.

2. Mission

- To create an academic setting for the growth of professionals equipped with the knowledge, abilities, values, and self-assurance to assume leadership positions in the field of computer science and engineering.
- To promote a culture of research that produces knowledge and cutting-edge technologies that aid in the society's sustainable development.
- To improve academic collaborations for international exposure.

3. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To produce studentswith strong foundation of knowledge and skills in the field of computer science and engineering.

PEO2: To produce students who are employable in private/public sector/research organizations or work as an entrepreneur.

PEO3: To produce students who can provide solutions to problems in their profession by applying computer engineering theory and practices.

PEO4: To produce graduates who can provide leadership and are effective in multidisciplinary environment.

4. PROGRAMME OUTCOMES (POs)

Engineering Graduates will be able to:

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO3: Design/Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitation.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

5. PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking for efficient design of computer-based systems of varying complexity.

PSO2: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur and a zest for higher studies/employability in the field of Computer Science & Engineering.

PSO3: Cultivate the field of computing and its latest trends, to pursue teaching, research & development activities and to work effectively in a team.

6. Course Outcomes		
Course	**After completion of these courses' students should be able to**	
CSEC14100 – Introduction to Programming with C	**CO1:**	Illustrate the programming tasks using techniques learned and write pseudo-code.
	CO2:	Identify situations where computational methods and computers would be useful.
	CO3:	Given a computational problem, identify and abstract the programming task involved.
	CO4:	Analyse the right data representation formats based on the requirements of the problem.
	CO5:	Create the logics for the programs.
CSEC14101- Programming with C Lab	**CO1:**	Illustrate the knowledge on various parts of a computer.
	CO2:	Design a flowchart and Apply algorithms for every C program.
	CO3:	Develop C program solving skills.
	CO4:	Analyse the tracing and debugging of a program.
	CO5:	Create the programs and identify the outcomes.
CSEC14102 - Electronics and Electrical Technology	**CO1:**	Illustrate the knowledge of basic electrical and electronics technology.
	CO2:	Demonstration on general structure of power /Supply System.
	CO3:	Utilize knowledge about battery technology.
	CO4:	Make use of knowledge about the single phase and three base electrical circuits.
	CO5:	Evaluate the outcomes with the actual outcomes.
CSEC14103 Electronics and Electrical Technology Lab	**CO1:**	Choose meters and instruments for measurement of quantities.
	CO2:	Illustrate and experiment potential divider circuits.
	CO3:	Experimentally verify the basic circuit theorems.
	CO4:	Contrast power and power factor using AC circuits.
	CO5:	Perform the experiments based on the evaluations.
CSEC14104- Manufacturing Processes	**CO1:**	Find fluid mechanics concepts design notches, flow measuring devices.
	CO2:	Demonstrate various thermodynamics concepts and Contrast real life engineering problems (engines compressor).
	CO3:	Make use of various fluid machineries to design pumps turbines.
	CO4:	Design and Build of various power plants.
	CO5:	Evaluate the outcomes with the actual outcomes.

CSEC14105-Manufacturing Process/Workshop Lab	**CO1:**	Define the tools for welding, carpentry and plumbing operations.
	CO2:	Make use of basic fabrication techniques and apply for carpentry and plumbing practices.
	CO3:	Make use of basic fabrication techniques of different types of welding and basic machining practices.
	CO4:	Design and Build of various fabrication techniques.
	CO5:	Perform the experiments based on the evaluations.
BSCC15100 Applied Mathematics- I	**CO1:**	Illustrate vector calculus and to Demonstrate the electromagnetic field.
	CO2:	Make use of the physical interpretation of the gradient, divergence, and curl.
	CO3:	Discover the ideas and techniques of linear algebra, and to illustrate some of their applications in engineering.
	CO4:	Prepare to evaluate multiple integrals in rectangular, polar, spherical and cylindrical coordinates.
	CO5:	Justify the polar theory techniques to solve real world problems.
BSCC16100- Applied Physics-I	**CO1:**	Define the structure and various planes in a crystals, study its properties and use for applications.
	CO2:	Illustrate of fee electron theory to study the material properties and understand its use in engineering applications and studies.
	CO3:	Build the knowledge of modern physics and quantum mechanics; solve the engineering problems using the concept of wave particle dualism in modern day applications.
	CO4:	Elaborate the basic principle and concepts of light to construct lasers and optical fibers, impart the knowledge and develop skills to use modern instruments.
	CO5:	Justify the quantum mechanics theory techniques to solve real world problems.
BSCC16101 Applied Physics-I Lab	**CO1:**	Illustrate the concepts of diffraction and interference of light by using diffraction grating and Newton's ring.
	CO2:	Identify the characteristics of Zener diode, photo diode, transistor by utilizing the concepts of semiconductors physics.
	CO3:	Discover the ability to use various passive electrical components, determine Dielectric constant and electrical resonance.
	CO4:	Evaluate the concepts of quantum mechanics to verify the Stefan's law and understand Fermi energy in metals.
	CO5:	Create a experiment on newton's rings
SEC077001 Ability & Skill Enhancement - I	**CO1:**	Understand the relevance and method of writing impactful and structured resume.
	CO2:	Explain the need for right etiquettes to be followed in the professional

		world.
	CO3:	Develop confidence in public speaking and expressing their opinions and ideas clearly and effectively.
	CO4:	Buildemployability skills like critical thinking, team work, conflict management and leadership skills.
	CO5:	Communicate effectively in English.
GEC066001-Business Communication	**CO1:**	Explain historicalbackground and the development of communication; Importance and role of communication in everyday life.
	CO2:	Understand Mechanics behind the communication process, difficulties experienced in communication. Different types of communication, impedance due to extraneous factors called "barriers"
	CO3:	Apply different types of communication, impedance due to extraneous factors called "barriers".
	CO4:	Analyse the Important non-verbal parameters in communication. So to make communication effective and attractive
	CO5:	Apply the appropriate body language for making presentation more effective
WHNN99000-Workshops & Seminars/ Human Values & Social Service/NCC/NSS	**CO1:**	Relate to the concept of cognitive development and Big Five personality characteristics.
	CO2:	Explain the basic fundamentals of Emotional Intelligence.
	CO3:	Develop ability to practice new problem-solving skills in a group and use these skills in personal life.
	CO4:	Build coping strategies and adapt balanced self- determined behaviour.
	CO5:	Create leadership skills to be effective as a manager.

7. CO PO Mapping

CSEC14100	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2					3	2		3
CO2	3	3	2	3	3	3	3	2	3		2	3
CO3	3	3	3	2	3	3	3	2	3	3	3	3
CO4	2	2	3	2	3	3	3	3	3	3	3	3
CO5	3	3	2	2		2			3	2	2	3

CSEC14101	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2		3	3	3	3	3	3	3
CO2	2	2	3	2	3	3	3	3	3	3	3	3
CO3	2	2	2	3	3				3	3	3	3
CO4	3	3	2	2	3				3	3	3	3
CO5	3		2	2	3				3	2	2	3

CSEC14102	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2			3	3	3	3	2	3
CO2	3	3	3	3	2		3	3	2	3	3	3
CO3	2	2	2	3	3	3			3		3	3
CO4		2	3	3	3	3	3	3	3	2	3	3
CO5	3		2	2	3				3	2	2	3

CSEC14103	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2		3	3	3	3	3	3	3
CO2	2	2	3	2	3	3	3	3	3	3	3	3
CO3	2	2	2	3	3				3	3	3	3
CO4	3	3	2	2	3				3	3	3	3
CO5	3		3	2					2	3	2	3

CSEC14104	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	2			3	3	3	3	2	3
CO2	2	3	2	3	2		3	3	2	3	2	3
CO3	3	2	2	3	2	3			3		3	3
CO4		2	3	2	3	3	3	3	3	2	3	3
CO5	3		3		2	2	3	3	2	2		3

CSEC14105	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2		3	3	3	3	3	2	3
CO2	2	3	3	2	3	2	2	3	3	2	3	3
CO3	2	2	2	2	3				2	3	3	3
CO4	2	3	3	2	3				3	3	3	3
CO5	3		2		3				2			3

BSCC15100	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2			3	3	3	3	2	3
CO2	3	2	3	3	2		3	3	2	3	3	3
CO3	2	2	2	2	3	3			3		3	3
CO4		2	3	2	2	2	3	2	3	2	3	3
CO5	2			2	3	3			3	2		2

BSCC16100	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2			3	3	3	3	2	3
CO2	2	3	3	3	3		3	3	2	3	3	3
CO3	2	2	2	2	2	3			3		3	3
CO4		2	3	2	2	2	3	2	3	2	3	3
CO5	2		3	3	3	3		3				2

BSCC16101	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2		3	3	3	3	3	2	3
CO2	3	3	3	2	3	2	2	3	3	2	3	3
CO3	2	2	2	2	3				2	3	3	3
CO4	2	2	3	2	3				3	3	3	3
CO5	3		3		3				3		2	3

SEC077001	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	3	3	2	2	3		2	-	3
CO2	-	2	3	3	2		-	-	2	2	-	3
CO3	2	-		3	3	2	-	3	2	-	2	3
CO4	2		2	2		-	-	-	-	2	2	1
CO5	3	2	3	2	3	-	-	2	-	2	2	2

99002200	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	2			2	2		2	2	2
CO2		3	2	2	2	2		2	2	3	2	3
CO3		3	2	3	3	2	2	3	3	3	3	2
CO4			2	3	3	2	3	3	2	2		3
CO5	3	2	3	2	3		3	2	2	2	2	2

GEC066001	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	-	3	-	2	3	2	-	3	3
CO2	2	3	3	3	-	2	2	2	3	2	-	3
CO3	2	3	2	3		-	-	-	2	3	2	
CO4	2		3	2	3	-	-	2	3	-	3	2
CO5	3	3	3	3	3	3	3	3	3	3	3	3

WHNN99000	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	2	3	-	3	2	3	2	-	3	3
CO2	2	3	-	3	2	3	-	3	2	3	2	3
CO3	3	2	3	2	-	3	2	3	3	3	3	3
CO4	2	3	2	2	3	2	2	-	2	3	2	3
CO5	2	3	2	2	3	2	3	3	-	-	2	3

8. Curriculum

Course Name: Introduction to Programming with C

Course Code: CSEC14100

Objectives:

- The computer is often a very handy tool when solving complex technical problems in engineering and scientific explorations. Programming a computer is a fundamental task in finding solutions to such problems. This course is being offered in order to train the undergraduate students. The course aims to provide exposure to problem-solving through programming. It aims to train the student to the basic concepts of the C-programming language. This course involves a lab component which is designed to give the student hands-on experience with the concepts.

Course Outline:

Unit I: Introduction to Programming
Concept of algorithms, Flow Charts, Data Flow diagrams etc., Introduction to the Editing tools such as VI or MS-VC editors, Concepts of the finite storage, bits bytes, kilo, mega and gigabytes. Concepts of character representation, Number Systems & Binary Arithmetic Introduction to C History of C Overview of Procedural Programming

Unit II: C Programming Basic
Data Types, Variables, Constants, Operators and Basic I/O: Declaring, Defining and Initializing Variables, Scope of Variables, Using Named Constants, Keywords, C Data Types: int, char, float, etc, Casting of Data Types, C expressions, arithmetic operation, relational and logic operations, Using Comments in programs, Character I/O (getc, getchar, putc, putcharetc),Formatted and Console I/O (printf(), scanf()), Using Basic Header Files (stdio.h, iostream.h, conio.hetc), Using main() function, Example of some simple C program. C – Operators- Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Assignment Operators

Unit III: Expressions, Conditional Statements and Iterative Statements
C - Decision Making Statements, conditional executing using if, else. Understanding syntax and utility of Iterative Statements (while, do-while, and for loops), Use of break and continue in Loops, Using Nested Statements (Conditional as well as Iterative).

Unit IV: Functions and Arrays
Utility of functions, call by Value, call by Reference, Functions returning value, Functions with variable number of Arguments. Creating and Using One Dimensional Arrays (Declaring and Defining an Array, initializing an Array, accessing individual elements in an Array, manipulating array elements using loops), Two dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns), Introduction to

Multi-dimensional arrays.

Unit V: Pointers

Understanding a Pointer Variable, Simple use of Pointers (Declaring and Dereferencing Pointers to simple variables), Pointers to Pointers, Passing pointers as function arguments, Returning a pointer from a function, using arrays as pointers, Passing arrays to functions, Structures and Unions.

Suggested Readings:

1. Ashok N. Kamthane, "Computer Basics and C Programming", Pearson Education.
2. E. BalaGuruswamy, "Programming in ANSI C", 2008.
3. V Rajaraman, "Computer Basics and C Programming", PHI.
4. Herbert Schildt, "C The Complete Reference" Fourth Edition, 2000.
5. YashwantKanetkar, "Let us C" eighth edition, 2002.
6. Kernighan and d. Ritchie, "The ANSI C Programming Language", 2000.
7. StephennPrata**, "**C Primer Plus" Fourth Edition, 2001.
8. Schaum's Outline Series, "Programming with C", 2nd Edition, 1996.

Course Name: Programming with C Lab

Course Code: CSEC14101

Course Outline:

List if Experiments (Not limiting to)

1. Write a program sum of two numbers
2. Write a program to check either the number is even or odd
3. Write a program calculate simple interest.
4. Write a program to calculate the marks of four subject and percentage.
5. Write a program to check either the year is leap year or not.
6. Write a program to find out the grade using if/else if statement.
7. Write a program to find out the greater number between two number.
8. WAP to read base and height of a triangle, calculate the area using formula :
   Area =1/2*base*height
9. WAP to read marks obtained and maximum marks of a student and calculate its percentage and display it.
10. Write a program to print even number up to n.
11. Write a program to print odd number up to n.
12. Write a program to print table.

Course Name: Electronics and Electrical Technology

Course Code: CSEC14102

Objectives:

- The main motive of this subject to make students aware about basic electrical and electronics technology. This subject includes all the information related to electrical engineering as well electronics devices. By study we can be familiar with daily use electrical and electronics component.

Course Outline:

Unit I: Introduction
Basic electrical quantities, Electric circuit sources and circuit elements and their behavior (Active and passive).**Supply Systems:** AC Supply system (Singlephase, Three phase–three wire, Three phase–four wire), DC supply system, Their specifications and Comparison. D.C. Networks: Mesh and Nodal Analysis, Star–Delta Transformation, Superposition theorem, Thevenin's theorem, Norton'stheorem, Maximum power transfer theorem, Step voltage response of RL and RC series circuits.

Unit II: Sinusoidal Steady-State Response of Circuits
Concept of Phasors, Phasor representation of circuit elements, Complex notation representation, Series and parallel circuits, Power and power factors, Resonance in series and parallel circuits, Balanced 3phase voltage, Current and power relations, 3phase power measurement.

Unit III: Magnetic Circuits
Concept of Magnetic circuits, BH curve, Calculation of Magnetic Circuits, Iron Losses. **Single Phase Transformers:** Constructional feature, EMF equation, Ideal transformer, Open and short circuit tests, Voltage regulation and efficiency.

Unit IV: Rotating Electrical Machines
Construction, Operating principles and Applications of DC generator, DC motor, Three phase Induction motor and Single phase induction motors. **Electrical safety and Wiring:** Electrical safety and standards, House hold wiring and electric appliances.

Unit V: Energy Management
Conservation efforts, Auditing **Electronic Devices:** P–N diode, BJT, SCR, FET, MOSFET, Their V–I characteristics and applications (Diode as rectifier, Zener diode as voltage regulator).

Suggested Readings:

1. Smith, I.M., Hiley, J. and Brown, K., Electrical and Electronic Technology, Dorling

Kingsley (2007) 9th ed.
2. Nagrath, I.J. and Kothari, D.P., Basic Electrical Engineering, Tata McGraw–Hill (2002) 2nd ed.
3. Naidu, M.S. and Kamashaiah, S., Introduction to Electrical Engineering, TataMcGraw–Hill (2004).
4. Chakrabarti, A., Basic Electrical Engineering, Tata McGraw–Hill (2008).
5. Del Toro, V., Electrical Engineering Fundamentals, Prentice–Hall of India Private Limited (2008) 2nd edition.

Course Name: Electronics and Electrical Technology Lab

Course Code: CSEC14103

Course Outline:

The primary objective of this lab course is to familiarize students with basic electrical and electronics technology through hands-on practice. It covers essential information related to both electrical engineering and electronic devices. Through practical experiments, students will gain familiarity with commonly used electrical and electronic components encountered in daily life.

List of Experiments

1. To get familiar with working knowledge of the following Instruments
   (a) Cathode Ray Oscilloscope
   (b) The Multimeter Structure
   (c) Function generator f
   (d) Regulated power supply
2. Study of Electronic components and equipment
   (a) To measure phase difference between two waveforms using CRO.
   (b) To measure unknown frequency from lissajous figures using CRO.
3. Plot the forward and reverse V-I Characteristics of a PN junction Diode.
   (a) Calculation of cut in voltage
   (b) (Study of Zener diode in Breakdown region.
4. To plot and study the input and output chacterstics of BJT in Common Emitter Configuration.
5. To find the frequency response of given(RC coupled) Amplifier and calculate its bandwidth.
6. To get familiar with pin configuration of typical OP-AMP 741 and its use as:
   (a) Inverting amplifier
   (b) Non-Inverting amplifier
   (c) summing amplifier
   (d) difference amplifier
7. Use of OP-AMP as:

(a) Integrator
(b) Differentiator

8. Verification of Truth tables of logic gates(NAND, NOR, EX-OR, AND, OR, NOT).
9. Verification of Truth tables of Flip-Flops (S-R,J-K).
10. Verification of Thevenin's theorem
11. Verification of Superposition theorem
12. To get familiar with the working and use of seven segment display.
13. To Study Half – Wave Rectifier.
14. To study Light Emitting Diode
15. Residential house wiring using switches, fuse, indicator, lamp and energy meter.
    (a) Fluorescent lamp wiring.
    (b) Stair case wiring
16. Measurement of electrical quantities voltage, current, power & power factor in RLCcircuit.
17. Measurement of energy using single phase energy meter and measurement of resistance to earth of electrical equipment.
18. Resistor, colour coding measurement of AC signal parameter (peak-peak, rms period, frequency)using CRO and Multimeter.

Suggested Readings

1. K.Jeyachandran, S.Natarajan& S, Balasubramanian, "A Primer on engineering practices Laboratory", Anuradha Publications, (2007).
2. T.Jeyapoovan, M.Saravanapandian & S.Pranitha, "Engineering Practices Lab Manual ", Vikas Publishing House Pvt.Ltd, (2006)
3. H.S. Bawa, "Workshop Practice", Tata McGraw –Hill Publishing Company Limited,(2007).
4. Rajendra Prasad & P.M.M.S. Sarma, "Workshop Practice", Sree Sai Publication, (2002).
5. P.Kannaiah& K.L.Narayana, "Manual on Workshop Practice", Scitech Publications, (1999).

Course Name: Manufacturing Processes

Course Code: CSEC14104

Objectives:

- The objective of this subject is to study various types of Manufacturing process, various Machining methods such as LBM,EDM ,USM,EBM and various welding process- Faculty

- To motivate and challenge students to understand and develop an appreciation of the processes in correlation with material properties which change the shape, size and

form of the raw materials into the desirable product by conventional or unconventional manufacturing methods AICTE

Course Outline:

Unit I: Introduction

Common engineering materials and their important mechanical and manufacturing properties General classification of manufacturing processes.Metal casting: Principles of metal casting, Patterns, their functions, types, materials and pattern allowances, Characteristics of molding sand, Types of cores, chaplets and chills; their materials and functions. Moulds and their types. Requisites of a sound casting. ntroduction to die casting.

Unit II: Metal forming and shearing

Forging, rolling, drawing, extrusion, bending, spinning, stretching, embossing and coining. Die and punch operation in press work, shearing, piercing and blanking, notching, and lancing,

Unit III: Joining processes

Electric arc, Gas, Resistance and Thermit welding, Soldering, Brazing and Braze welding, Adhesive bonding

Suggested Readings:

1. "Processes and Materials of Manufacture", Lindberg, PHI
2. "Manufacturing Engineering And Technology", Kalpakjian and Schmid, Pearson
3. "Manufacturing Processes", Kalpakjian and Schmid, Pearson
4. "Manufacturing Processes", H. N .Gupta, R. C. Gupta, Arun Mital, New Age

Course Name: Manufacturing Processes/Workshop Lab

Course Code: CSEC14105

Course Objective:

The primary objective of this course is to provide students with a fundamental understanding of manufacturing technology. It covers essential concepts related to various manufacturing processes and techniques. Through practical applications, students will gain familiarity with the tools, equipment, and materials commonly used in manufacturing industries, preparing them for real-world manufacturing scenarios.

List of Experiments

1. **Wood/Carpentry Working Shop:** Making of various joints, Pattern making.
2. **Foundry Shop:** Bench moulding with single piece pattern and two piece pattern.
    a. Floor moulding – Making of bend pipe mould etc.
3. **Fitting Shop:** Learning use of fitting hand tools, marking tools, marking gauge.

a. Exercises: Jobs made out of MS Flats, making saw – cut filling V-cut taper at the corners,

circular cut, fitting square in square, triangle in square.

4. **Welding Shop:** Electric arc welding, Edge preparations, Exercises making of various joints. Bead formation in horizontal, vertical and overhead positions.
5. **Gas Welding:** Oxy-Acetylene welding and cutting of ferrous metals.
6. **Soldering:** Dip soldering.
7. **Brazing:** With Oxy-Acetylene gas.
8. **Sheet Metal Shop:** Learning use of sheet-metal tools, Exercises: Making jobs out of GI sheet metal. Cylindrical, Conical and Prismatic shapes.
9. **Black smithy Shop Aim: To make an S-hook from a given round rod, by following hand forging operation.**
10. **To make an S-hook from a given round rod, by following hand forging operation.**
11. **To make a Square rod from a given round rod, by following hand forging operation.**
12. **Project Shop**: Extrusion of soft metals, Plastic coating of copper wires, Plastic moulding.

Course Name: Applied Mathematics-I

Course Code: BSCC15100

Objectives:

- The purpose of this course is to provide participants with the skills, knowledge and attitudes required to perform fundamental mathematical procedures and processes for solution of engineering problems, particularly the use of calculus and vector analyses. The course aims to show the relevance of mathematics to engineering and applied science.-Faculty

Course Outline:

Unit I: Successive Differentiation
Leibniz Theorem, Mean Value Theorems and Their Geometrical Interpretation; Cartesian Graphing with First and Second Derivatives, Asymptotes and Dominant terms, Graphing of Polar curves, Polar Equations for Conic Sections

Unit II: Introduction to Sequences, Infinite Series, Tests for Convergence/Divergence
Limit Comparison Test, Ratio Test, Root Test, Integral Test, Cauchy Condensation Test. Alternating series: Absolute Convergence and Conditional Convergence.

Unit III: Series Expansions
Power Series, Taylor Series, Integration, Differentiation, Multiplication and Division Process in Power Series, Partial Differentiation: Functions of Several Variables, Limits and Continuity, Chain Rules, Change of Variables, Partial Differentiation of implicit Functions.

Taylor Series of Two Variables, Directional Derivatives and its Properties, Jacobian of Transformation, Maxima and Minima by Using Second Order Derivatives.

Unit IV: Vector Calculus

Rules for Differentiations, Tangent Vector, Velocity and Acceleration Vectors Normal Vector, Curvature and Torsion and TNB frame; Double Integrals, Change of Order of Integration, Change of Variables, Triple Integrals, Application of Multiple Integrals to Areas and Volumes;

Unit V: Gradient

Divergence, Curl, Line Integrals, Green's Theorem in Plane, Classification and Construction of Differential Equations, Exact Differential Equations, Riccati Equation, Claiurat Form.

Suggested Readings:

1. B. S. Grewal,"Higher Engineering Mathematics" Khanna Publications.
2. R. K. Jain and S.R.K. Iyengar,"Advanced Engineering Mathematics "Narosa Publications.
3. E. kresyzig," Advance Engineering Mathematics", Wiley publications
4. G.Hadley, " Linear Algebra" Narosa Publication
5. N.M. Kapoor, " A Text Book of Differential Equations", Pitambar publication.
6. Wylie R, " Advance Engineering mathematics" , McGraw-Hill
7. Schaum's Outline on Linear Algebra, Tata McGraw-Hill
8. Polking and Arnold, "Ordinary Differential Equation using MatLab" Pearson.

Course Name: Applied Physics -I

Course Code: BSCC16100

Objectives:

- The objective of the paper is to facilitate the student with the basics of Applied Physics aspects that are required for his understanding of basic physics.The main objectives are to provide the student with a clear and logical presentation of the basic concepts and principles of physics, to develop strong problem-solving skills and to strengthen an understanding of the concepts and principles through a broad range of interesting applications. Faculty

Course Outline:

Unit I:Sound Waves

Introduction, Reverberation, Eyring's Formula, Absorption coefficient, Conditions for good acoustical design, Production and detection of ultrasonic waves and their applications.

Unit II:Electromagnetic Waves

Introduction, Maxwell's equations in differential and integral forms, Concept of displacement current, Electromagnetic wave equations for free space, Conducting and dielectric medium, Poynting theorem, Concept of wave guides.

Unit III: Light

Interference: thin films, wedge-shaped films, non-reflecting films, Newton rings,Michelson interferometer, Diffraction: single, double and multiple slits, Dispersive and resolving powers. Polarization, its production, and detection

Unit IV: Quantum Mechanics

Origin of quantum hypothesis, de-Broglie hypothesis of matter waves, Uncertainty principle, Wave function and wave mechanics, Schrodinger equation: steady state form, Quantum mechanical operators, Expectation value, One dimensional solutions: zero potential, step potential, potential barrier and potential well.

Unit V: Laser

Basic concepts, Laser properties, Laser systems: ruby, Nd:YAG, He-Ne, excimer, and semiconductor lasers.

Suggested Readings:

1. David, J. G., Introduction to Electrodynamics, Pearson Education (2003).
2. Ghatak, A., Optics, Tata McGraw Hill Publishing Co. Ltd, New Delhi (2006).
3. Beiser, A., Concept of Modern Physics, Tata McGraw Hill Publishing Co. Ltd, New Delhi (2003).
4. RajendranBaldev Raj and Palanichary P.V., Science & Technology of UltrasonicsIst Edition, Narosa Publications (2007).
5. Schiff L. I., Quantum Mechanics, 3rd Edition MC- Graw Hill, (2007)
6. Chattopadhyay D. and Rakshit P.C., Practical Physics, 7th Edition, New Central Book Agency (2002)

Course Name: Applied Physics I Lab
Course Code: BSCC16101

Course Outline:

List of Experiments

1. To find the refractive index and Cauchy's constants of a prism using Spectrometer.
2. To determine the frequency of an A.C. using Sonometer.
3. To determine the wavelength of Sodium light by Newton's Rings.
4. To compare the capacitances of two condensers by De-sauty's Bridge method Using Head phone.
5. To study photovoltaic cell and hence to verify the inverse square law.
6. To determine the Resolving Power of a Telescope.
7. Determine the wavelength of sodium light by Fresnel's biprism.

8. To plot a graph between the distance of the knife-edge from the center of the gravity and the time period of bar pendulum. From the graph, find
   (a) The acceleration due to gravity
   (b) The radius of gyration and the moment of inertia of the bar about an axis.
9. To determine the moment of inertia of a flywheel about its own axis of rotation.
10. To determine the frequency of electrically maintained turning fork by Melde's method.
11. To determine the numeral aperture (NA) of a Optical Fibre.
12. Compute simulation (simple application of Monte Carlo) e.g. Brownian motion, charging & discharging of capacitor.
13. To verify the laws of vibrating strings by Melde's experiment that is to show that = constant
14. To study the characteristics of PN diode and Zener diode.
15. To determine the frequency of AC Mains by using a sonometer and an electro-magnet.
16. To determine the impedance of A.C. Circuits.
17. Determination of Young's modulus of the material – Non uniform bending.
18. Determination of Rigidity modulus by Torsional Pendulum.

Course Name: Business Communication

Course Code: GEC066001

Objective:

- To equip students of the B. Tech course effectively to acquire skills in reading, writing, comprehension and communication, as also to use electronic media for business communication.To provide an overview of the various business communication skills and groomstudents professionally

Course Outline:

Unit I: Introduction

Theory of Communication, Types and modes of Communication Fundamentals of Communication: Communication defined, Models of Communication, barriers in communication, perception and communication, essentials of good communication.

Unit II: Language of Communication

Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication Modes of human communication: Basic differences in the principal modes of human communication – reading, writing, listening, speaking and non-verbal communication. Spoken

Communication: Importance of spoken communication, designing receiver-oriented messages, comprehending cultural dimension. Speaking Skills Monologue Dialogue Group Discussion Effective Communication/ Mis- communication Interview Public Speech;

Unit II: Making Oral presentations

Functions of presentations, defining objective, audience analysis, collection of materials, organization of materials, body language, effective delivery techniques.Written communication: Fundamentals of sentence structure, writing as a process. Reading and Understanding Close Reading Comprehension Summary Paraphrasing Analysis and Interpretation Translation (from Indian language to English and vice-versa) Literary/Knowledge Texts Writing Skills Documenting Report Writing Making notes Letter writing

Unit IV: Fundamental of technical writing
Special features of technical writing, the word choice, developing clarity and conciseness, Report writing, Business letters, Applications and resumes. Transactional Analysis: Three human ego states, 4 life positions, different types of transactions.

Unit V: The significance of communication in a business organization
Channels of communication – Downwards, Upwards, Horizontal, Consensus, and Grapevine. Literary discussions: Analysis and discussion of the novel The Funda of Mix-ology and short stories from the books Under the banyan tree and other stories and Popular short stories.

Laboratory work: Audio-visual aids for effective communication: The role of technology in communication, the role of audio-visuals, designing transparencies, computer-aided presentation software, Software-aided activities in developing communication skills: Proper pronunciation, Learning to use the correct tense, Business writing, Report writing, Connected speech, Building up vocabulary, Awareness about the common errors in the usage of English, etc. Case studies, group discussions, presentations;

Suggested Readings:

1. Sen, L., Communication Skills. Prentice Hall of India (2004).
2. Dhar, M., The Funda of Mixology: What bartending teaches that IIM does not, Srishti Publications (2008).
3. Narayan, R. K., under the banyan tree and other stories. Penguin Classics. (2007).

Course Name: Ability & Skill Enhancement I
Course Code: SEC077001

Objectives:

- To make students understand the usage of Grammar in day to day life and improve their fluency and confidence while speaking English.

Course Outline -Final Assessment – Written Paper

Unit I: Ice Breaking Session & Recap of Language Skills
Ice Breaking Session, Phrase, Clause, Sentence, Word Classes (Parts of Speech).

Unit II: Recap of Language Skills
Tenses (Present, Past Future), Modals, Articles (a, an, the);

Unit III: Reading Skills & Fluency Building
Reading Process, Importance & Types of Reading, Techniques of Reading, and Strategies to Improve Reading Abilities, Comprehension, Reading Aloud, Reading News;

Unit IV: Writing Skills
Generating ideas/gathering data, organizing ideas, Note taking, Outlining, drafting, Editing, and Proof Reading, Story Writing (through pictures/videos), Dialogue Writing, Email Writing;

Unit V: Listening & Speaking Skills
Types and Essentials of good listening, Listening Process, Barriers to Listening and Strategies to improve Listening, Listening to Inspirational Movies/Clips, Listening News Techniques of Effective Speaking, Introducing Oneself and others, Extempore, Situational Conversations (Practicing Short Dialogues).

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In Case there are changes in curriculum due to review, students would be intimated in writing.

9. Lesson Plans

CSEC14100 – Introduction to Programming with C

Unit	Particulars	Class No.	Pedagogy of Class
Unit I	Introduction to Computer and Programming language	C1	Lecture
Unit I	Concept of algorithms, Flow Charts, Data Flow diagrams etc.,	C2	Lecture
Unit I	Introduction to the Editing tools such as vi or MS-VC editors,	C3	Lecture
Unit I	Concepts of the finite storage, bits bytes, kilo, mega and gigabytes.	C4	Lecture
Unit I	Concepts of character representation, Number Systems & Binary Arithmetic.	C5	Lecture
Unit I	Number Systems & Binary Arithmetic.	C6	Lecture
Unit I	Number Systems & Binary Arithmetic.	C7	Lecture
Unit I	Introduction to C History of C Overview of Procedural Programming	C8	Lecture
Unit I	Clarification Class 1	C9	Clarification Class
Unit II	Data Types, Variables, Constants,	C10	Lecture
Unit II	Operators and Basic I/O: Declaring, Defining and Initializing Variables, Scope of Variables, Using Named Constants,	C11	Lecture
Unit II	Keywords, C Data Types: int, char, float, etc, Casting of Data Types, C expressions,	C12	Lecture
Unit II	arithmetic operation, relational and logic operations,	C13	Lecture
Unit II	Using Comments in programs, Character I/O (getc, getchar, putc, putcharetc),	C14	Lecture
Unit II	Formatted and Console I/O (printf(), scanf()), Using Basic Header Files (stdio.h, iostream.h, conio.hetc), Using main() function, Example of some simple C program.	C15	Lecture
Unit II	C – Operators- Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Assignment Operators	C16	Lecture
Unit II	Clarification Class 2	C17	Clarification Class
Unit II	Presentation	C18	Presentation
Unit III	Expressions, Conditional Statements and Iterative Statements:	C19	Lecture
Unit III	C - Decision Making Statements, conditional executing using if, else.	C20	Lecture
Unit III	Understanding syntax and utility of Iterative Statements (while, do-while, and for loops),	C21	Lecture
Unit III	Use of break and continue in Loops, Using Nested Statements (Conditional as well as Iterative)	C22	Lecture
Unit III	Programming Example	C23	Lecture
Unit III	Clarification Class 3	C24	Clarification Class
Unit IV	Functions and Arrays	C25	Lecture
Unit IV	Utility of functions, call by Value, call by Reference,	C26	Lecture

Unit IV	Functions returning value, Functions with variable number of Arguments.	C27	Lecture
Unit IV	Programming Example	C28	Lecture
Unit IV	Creating and Using One Dimensional Arrays (Declaring and Defining an Array, initializing an Array, accessing individual elements in an Array, manipulating array elements using loops),	C29	Lecture
Unit IV	Two dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns),	C30	Lecture
Unit IV	Programming of 2D Array	C31	Lecture
Unit IV	Introduction to Multi-dimensional arrays.	C32	Lecture
Unit IV	Clarification Class 4	C33	Clarification Class
Unit IV	Class Room Assignment 1	C34	Class Assignment
Unit IV	Webinar 1	C35	Webinar
Unit IV	Guest lecture 1	C36	Guest lecture
Unit V	Pointers Understanding a Pointer Variable, Simple use of Pointers (Declaring and Dereferencing Pointers to simple variables),	C37	Lecture
Unit V	Pointers Understanding a Pointer Variable, Simple use of Pointers (Declaring and Dereferencing Pointers to simple variables),	C38	Lecture
Unit V	Programming Example	C39	Lecture
Unit V	Pointers to Pointers, Passing pointers as function arguments,	C40	Lecture
Unit V	Returning a pointer from a function, using arrays as pointers, Passing arrays to functions,	C41	Lecture
Unit V	Structures and Unions,	C42	Lecture
	Clarification Class 5	C43	Clarification Class
	Webinar 2	C44	Webinar
	Guest lecture 2	C45	Guest lecture
	Take Home Assignments		Home Assignments

CSEC14101 – Programming with C Lab

S. No.	Particulars	Class No.	Pedagogy of Class
1	Write a program sum of two numbers	P1-P2	Practical
2	Write a program to check either the number is even or odd	P3-P4	Practical
3	Write a program calculate simple interest.	P5-P6	Practical
4	Write a program to calculate the marks of four subject and percentage.	P7-P8	Practical
5	Write a program to check either the year is leap year or not.	P9-P10	Practical
6	Write a program to find out the grade using if/else if statement.	P11-P12	Practical
7	Write a program to find out the greater number between two number.	P13-P14	Practical
8	WAP to read base and height of a triangle, calculate the area using formula: Area =1/2* base*height	P15-P16	Practical
9	WAP to read marks obtained and maximum marks of a student and calculate its percentage and display it.	P17-P18	Practical
10	Write a program to print even number up to n.	P19-P20	Practical
11	Write a program to print odd number up to n.	P21-P22	Practical
12	Write a program to print table.	P23-P24	Practical
13	Presentation	P25-P26	
14	Quiz	P27-P28	
15	Workshop	P29-P30	

CSEC14102 – Electronics and Electrical Technology

Unit	Particulars	Class No.	Pedagogy of Class
UNIT 1	Introduction of Subjects	C1	Lecture
UNIT 1	Difference between Electrical and Electronics, Application of Electrical and Electronics	C2	Lecture
UNIT 1	Charge, Properties of charge, application of charge	C3	Lecture
UNIT 1	AC Supply System, DC Supply System, Their application and comparison	C4	Lecture
UNIT 1	KCL and KVL	C5	Lecture
UNIT 1	Parallel and Series Circuit	C6	Lecture
UNIT 1	Current Divider and Voltage divider	C7	Lecture
UNIT 1	Nodal Analysis, Superposition theorem	C8	Lecture
UNIT 1	Presentation -1	C9	Presentation
UNIT 1	Thevnin Theorem	C10	Lecture
UNIT 1	Norton Theorem, Maximum Power Transfer theorem	C11	Lecture
UNIT 1	Step Voltage Response of RL and RC Series	C12	Lecture
UNIT 1	Step Voltage Response of RL and RC Series	C13	Lecture
UNIT 1	Clarification Class -I	C14	Clarification Class
UNIT 2	SINUSOIDAL STEADY STATE RESPONSE OF CIRCUITS		
UNIT 2	Sinusoidal Steady State Response of Circuits, Phasor representation of circuit elements,	C15	Lecture
UNIT 2	Phasor Diagram	C16	Lecture
UNIT 2	Series and Parallel circuits, Power and Power Factor	C17	Lecture
UNIT 2	Amplitude of AC wave form	C18	Lecture
UNIT 2	Sine Wave Generation, Amplitude of AC waveform	C19	Lecture
UNIT 2	Phase Shift	C20	Lecture
UNIT 2	Class Assignment - 1	C21	Class Assignment
UNIT 2	Phasor Diagram-II	C22	Lecture
UNIT 2	Phasor Algebra	C23	Lecture
UNIT 2	Clarification Class -2	C24	Clarification Class
UNIT 3	MAGNETIC CIRCUITS		
UNIT 3	3 Phase Power Measurement	C25	Lecture
UNIT 3	Class Assignment -II	C26	Class Assignment
UNIT 3	Concepts of Magnetic Circuits	C27	Lecture
UNIT 3	BH Curve, Calculation of Magnetic Circuits	C28	Lecture
UNIT 3	Iron Losses	C29	Lecture
UNIT 3	Constructional Features of Transformer	C30	Lecture
UNIT 3	EMF Equations, Ideal transformer	C31	Lecture
UNIT 3	Clarification Class -3	C32	Clarification Class
UNIT 4	ROTATING ELECTRIC MACHINES		
UNIT 4	Voltage Regulation and Efficiency	C33	Lecture
UNIT 4	Guest Lecture	C34	Guest lecture
UNIT 4	Construction, Operating Principle and Application	C35	Lecture
UNIT 4	DC Motor and 3 Phase DC Motor	C36	Lecture
UNIT 4	Clarification Class - 4	C37	Lecture
UNIT 5	ENERGY MANAGEMENT		
UNIT 5	Electrical Safety and Standard	C38	Lecture
UNIT 5	Home Assignment - I		Home Assignments
UNIT 5	Seminar	C39	Seminar

UNIT 5	P-N diode, BJT	C40	Lecture
UNIT 5	SCR, FET, MOSFET	C41	Lecture
UNIT 5	V-I Characteristics	C42	Lecture
UNIT 5	Rectifier	C43	Lecture
UNIT 5	Clarification Class -5	C44	Clarification Class
UNIT 5	Webinar	C45	Webinar

CSEC14103– Electronics and Electrical Technology Lab

S. No.	Particulars	Class No.	Pedagogy of Class
1	To get familiar with following instruments CRO, Multimeter, Function Generator and Power Supply	P1-P2	Practical
2	Verification of Superposition Theorem, Thevenin Theorem	P3-P4	Practical
3	Resistor Color Coding	P5-P6	Practical
4	Verification of Logic Gates, Superposition Theorem	P7-P8	Practical
5	Universal gates	P9-P10	Practical
6	Resistor Color Coding Revision	P11-P12	Practical
7	V-I Properties of Diode	P13-P14	Practical
8	V-I Properties of Zener Diode	P15-P16	Practical
9	Fluorescent Lamp	P17-P18	Practical
10	Half wave Rectifier	P19-P20	Practical
11	Presentation	P21-P22	Practical
12	Activity	P23-P24	Activity
13	Quiz	P25-P26	Practical
14	Class Room Assignment	P27-P28	Class Assignment
15	Group Discussion	P29-P30	Group discussions

CSEC14104– Manufacturing Processes

Unit	Particulars	Class No.	Pedagogy of Class
unit-1	INTRODUCTION		
unit-1	Introduction: Common Engineering Materials and their important Mechanical and Manufacturing Properties	C1	Lecture
unit-1	General classification of manufacturing processes. Metal casting, principle of metal casting	C2	Lecture
unit-1	patterns, their functions, types, material and pattern allowances, characteristics of molding sand	C3	Lecture
unit-1	types of cores. chaplets and chills; their material and functions, Mould and their types.	C4	Lecture
unit-1	Requisites of a sound casting. Introduction to die casting.	C5	Lecture
unit-1	Clarification Class-1	C6	Clarification Class
unit-2	METAL FORMING AND SHEARING	C7	
unit-2	Metal forming and shearing: forging rolling, drawing, extrusion	C8	Lecture
unit-2	Bending, spinning, stretching, embossing and coining	C9	Lecture
unit-2	Die and punch operation in press work shearing piercing and blanking, notching and lancing	C10	Lecture
unit-2	clarification Class-2	C11	Clarification Class
unit-3	JOINING PROCESSES	C12	
unit-3	Joining Processes: Electric Arc and Gas welding Resistance and Thermit welding	C13	Lecture
unit-3	soldering, Brazing and Braze welding, Adhesive Bonding	C14	Lecture
unit-3	clarification Class-3	C15	Clarification Class

CSEC14105– Manufacturing Process/Workshop Lab

S. No.	Particulars	Class No.	Pedagogy of Class
2	Wood/Carpentry Working Shop: Making of various joints, Pattern making.	P1- P2	Practical
3	Foundary Shop: Bench moulding with single piece pattern and two piece pattern. Floor moulding – Making of bend	P3- P4	Practical
5	Learning use of fitting hand tools, marking tools, marking gauge. Jobs made out of MS Flats, making saw.	P5	Practical
6	cut filling V-cut taper at the corners, circular cut, fitting square in square, triangle in square.	P6	Practical
7	Welding Shop: Electric arc welding, Edge preparations, Exercises making of various joints. Bead formation diff. posit.	P7	Practical
8	Gas Welding: Oxy-Acetylene welding and cutting of ferrous metals.	P8	Practical
9	Soldering: Dip soldering. Brazing: With Oxy-Acetylene gas.	P9	Practical
10	Sheet Metal Shop: Learning use of sheet-metal tools,	P10	Practical
11	Exercises: Making jobs out of GI sheet metal. Cylindrical, Conical and Prismatic shapes.	P11	Practical
12	Black smithy Shop Aim: To make an S-hook from a given round rod, by following hand forging operation.	P12	Practical
13	To make an S-hook from a given round rod, by following hand forging operation.	P13	Practical
14	To make a Square rod from a given round rod, by following hand forging operation.	P14	Practical
15	Project Shop: Extrusion of soft metals, Plastic coating of copper wires, Plastic moulding.	P15	Practical

BSCC15100– Applied Mathematics- I

Unit	Particulars	Class No.	Pedagogy of Class
I	Successive differentiation: a) Introduction b) Calculation of 1st, 2nd, 3rd & higher order derivatives	C1-C2	Lecture
I	Calculation of nth derivative: some standard results Application of successive differentiation Leibnitz's theorem: Introduction, statement	C3-C5	Lecture
	Assignment - I		Home-Assignment
I	Clarification Class	C6	Clarification Class
I	Cartesian Graphing with First and Second Derivatives	C7 - C8	Lecture
	Assignment - II		Home Assignments
I	Asymptotes and Dominant terms Graphing of Polar curves Polar Equations for Conic Sections.	C9 - C12	Home Assignments
II	Introduction to Sequences, Infinite Series	C13	Lecture
II	Tests for Convergence/Divergence: Limit Comparison Test	C14-C15	Lecture
	Assignment - III		
II	Ratio Test		Home Assignments
II	Root Test	C18-C19	Lecture
II	Integral Test	C20-C21	Lecture
	Assignment - IV		
II	Cauchy Condensation Test		Class Assignment
III	Alternating series: Absolute Convergence and Conditional Convergence.	C24-C25	Lecture
III	Series Expansions: a) Power Series b) Taylor Series	C26-C28	Lecture
III	Integration, Differentiation, Multiplication and Division Process in Power Series	C29-C30	Lecture
	Assignment - V		
III	Partial Differentiation: a) Functions of Several variable b) Limits and Continuity		Class Assignment
III	Chain Rules Change of Variables Partial Differentiation of implicit Functions	C33-C34	Lecture
III	Taylor Series of Two Variables	C35-C36	Lecture
III	Directional Derivatives and its Properties Jacobian of Transformation	C37-C38	Lecture
	Assignment - VI		
IV	Maxima and Minima by Using Second Order Derivatives.		Home Assignments
IV	Vector Calculus: Rules for Differentiations	C40-C41	Lecture
IV	Tangent Vector	C42-C43	Lecture
IV	Velocity and Acceleration Vectors, Normal Vector	C44-C45	Lecture
	Assignment - VII	C46-C47	Class Assignment
IV	Double Integrals		Take Home Assignments
IV	Change of Order of Integration, Change of Variables	C48-C49	Lecture

V	Triple Integrals, Application of Multiple Integrals to Areas and Volumes.	C50-C53	Lecture
V	Gradient, Divergence	C54	Lecture
V	Curl, Line Integrals	C55	Lecture
V	Green's Theorem in Plane	C56	Lecture
V	Assignment - VIII	C57	Class Assignment
V	Classification and Construction of Differential Equations		Home Assignments
V	Exact Differential Equations	C58	Lecture
V	Riccati Equation	C59	Lecture
V	Claiurat Form	C60	Lecture

BSCC16100– Applied Physics-I

Unit	Particulars	Class No.	Pedagogy of Class
I	Sound Waves:		
I	Introduction to sound waves, Reverberation.	C1	Lecture
I	Eyring's Formula, Absorption coefficient	C2	Lecture
I	Conditions for good acoustical design	C3	Lecture
I	Production and detection of ultrasonic waves	C4	Lecture
I	Numericals	C5	Lecture
I	Applications of ultrasonic waves	C6	Lecture
I	Clarification Class I	C7	Clarification Class
II	Electromagnetic Waves:		
II	Introduction to EMW; Maxwell's equations in differential and integral forms,	C8	Lecture
II	Introduction to EMW; Maxwell's equations in differential and integral forms,	C9	Lecture
II	Class Room Assignment I	C10	Class Assignment
II	Concept of displacement current, Conduction current	C11	Lecture
II	Electromagnetic wave equations for free space,	C12	Lecture
II	Electromagnetic wave equations for free space,	C13	Lecture
II	Electromagnetic wave equations for Conducting medium,	C14	Lecture
II	Electromagnetic wave equations for dielectric medium,	C15	Lecture
II	Poynting theorem.	C16	Lecture
II	Poynting theorem.	C17	Lecture
II	Concept of wave guides.	C18	Lecture
	Concept of wave guides.	C19	Lecture
	Workshop	C20	Workshop
II	Take Home Assignment-I		Home Assignments
II	Clarification Class II	C21	Clarification Class
III	Light: Interference:		
III	Interference in thin films, wedge-shaped films, non-reflecting films,	C22	Lecture
III	Interference in thin films, wedge-shaped films, non-reflecting films,	C23	Lecture
III	Interference in thin films, wedge-shaped films, non-reflecting films,	C24	Lecture
III	Newton rings.	C25	Lecture
III	Newton rings.	C26	Lecture
	Activity I	C27	Activity
III	Michelson interferometer,	C28	Lecture
III	Michelson interferometer,	C29	Lecture
III	Diffraction: single, double and multiple slits, Dispersive and resolving powers.	C30	Lecture
III	Polarization, its production, and detection	C31	Lecture
III	Polarization, its production, and detection	C32	Lecture
III	Clarification Class III	C33	Clarification Class

	Activity II	C34	Activity
IV	Quantum Mechanics:		
IV	Origin of quantum hypothesis,	C35	Lecture
IV	de-Broglie hypothesis of matter waves,	C36	Lecture
IV	Numericals	C37	Lecture
IV	Uncertainty principle,	C38	Lecture
IV	Wave function and wave mechanics,	C39	Lecture
IV	Schrodinger equation: steady state form,	C40	Lecture
IV	Quantum mechanical operators,	C41	Lecture
IV	Expectation value,	C42	Lecture
IV	One dimensional solutions: zero potential, potential step	C43	Lecture
IV	Potential Barrier	C44	Lecture
	Class Room Assignment II	C45	Class Assignment
IV	Potential Well	C46	Lecture
IV	Potential Well	C47	Lecture
IV	Presentation	C48	Presentation
IV	Clarification Class IV	C49	Clarification Class
V	Lasers:		
V	Basic concepts,	C50	Lecture
V	Laser properties	C51	Lecture
V	Laser systems: Ruby laser	C52	Lecture
V	Nd:YAG laser	C53	Lecture
	Quiz	C54	Quiz
V	He-Ne Laser	C55	Lecture
V	Excimer	C56	Lecture
V	Excimer	C57	Lecture
V	Semiconductor lasers	C58	Lecture
V	Semiconductor lasers	C59	Lecture
V	Clarification Class V	C60	Clarification Class

BSCC16101– Applied Physics-I Lab

S. No.	Particulars	Class No.	Pedagogy of Class
1	Introduction to Physics Lab	P1-P2	Practical
2	To find the refractive index and Cauchy's constant of a prism using spectrometer	P3-P4	Practical
2	To find the refractive index and Cauchy's constant of a prism using spectrometer	P5-P6	Practical
3	To determine the wavelength of Sodium light by Newton's ring	P7-P8	Practical
4	To compare the capacitances of two condensers by De-Sauty's bridge method using Head Phone	P9-P10	Practical
5	To study the characteristics of a PN diode	P11-P12	Practical
5	To determine the Resolving Power of a Telescope	P13-P14	Practical
	To find unknown capacitence by the help of De Sauty's bridge	P15-P16	Practical
7	To find the acceleration due to gravity by simple Pendulum.	P17-P18	Practical
8	To determine the characteristics of Zener diode	P19-P20	Practical
9	To determine the Moment of Inertia of a fly wheel about its own axis of rotation	P21-P22	Practical
10	To determine the band gap of a semiconductor	P23-P24	Practical
11	To determine the frequency of electrically maintained tuning fork by Melde's method	P25-P26	Practical
12	Charging and discharging of a capacitor	P27-P28	Practical
13	To study the V-I characteristics using a solar cell	P29-P30	Practical

SEC077001– Ability & Skill Enhancement – I

Unit	Particulars	Class No.	Pedagogy of Class
UNIT I	Sentence and its types	C-1	Lecture
UNIT I	Story Writing	C-2	Activity
UNIT I	Ice Breaking Session: Introduction to ASE, Introduction and overview of the course	C-3,4	Lecture
UNIT I	Word Classes (Parts of Speech) , Phrases Clauses	C-5	Lecture
UNIT II	Tenses - Present Tense	C-6	Lecture
UNIT II	Present Tenses: Written & spoken exercise	C-7	Activity
UNIT II	Tenses – Past Tense	C-8	Lecture
UNIT II	Past Tenses: Written & spoken exercise	C-9	Activity
UNIT II	Tenses – Future Tense	C-10	Lecture
UNIT II	Future Tenses: Written & spoken exercise	C-11	Activity
	Class Room Assignment	C-12	Class Assignment
UNIT II	Modals & Exercises	C-13	Lecture
UNIT II	Articles	C-14	Lecture
UNIT II	Articles: Exercise	C-15	Activity
	Presentation	C-16	Presentation
	Clarification Class	C-17	Clarification Class
UNIT III	Reading Skills: Reading Process, Importance & Types of Reading, Techniques of Reading, and Strategies to Improve Reading Abilities	C-18	Lecture
UNIT III	Reading aloud, Reading News	C-19	Class Assignment
UNIT III	Reading Comprehension	C-20	Lecture
UNIT IV	Writing Skills: Generating ideas/gathering data, organizing ideas, Note taking, Outlining, drafting, Editing, and Proof Reading,	C-21	Lecture
UNIT IV	Story Writing (through pictures/videos)	C-22	Class Assignment
UNIT IV	Email Writing	C-23	Lecture
UNIT IV	Dialogue Writing	C-24	Lecture
UNIT IV	News Writing	C-25	Activity
	Presentation	C-26	Presentation
UNIT V	Types and Essentials of good listening, Listening Process, Barriers to Listening and Strategies to improve Listening	C-27	Lecture
UNIT V	Listening to Inspirational Movies/Clips	C-28	Activity
UNIT V	Listening News	C-29	Activity
UNIT V	Techniques of Effective Speaking	C-30	Lecture
UNIT V	Introducing Oneself and others	C-31	Activity
UNIT V	Situational Conversations (Practicing Short Dialogues)	C-32	Class Assignment
UNIT V	Public Speaking	C-33	Lecture
UNIT V	Extempore	C-34	Lecture
UNIT V	Extempore	C-35	Class Assignment
	Webinar	C-36	Webinar
	Guest Lecture	C-37	Guest lecture

GEC066001– Business Communication

Unit	Particulars	Class No.	Pedagogy of Class
UNIT I	Process of Communication (What is communication)	C1	Lecture
UNIT I	Importance of Communication	C2	Lecture
UNIT I	Seven C's of Communication	C3	Lecture
UNIT I	Types of Communication - Verbal	C4	Lecture
UNIT I	Types of Communication- Non Verbal	C5	Lecture
UNIT I	Types of Communication (Formal & Informal)	C6	Lecture
UNIT I	Types of Communication (Interpersonal & Interapersonal)	C7	Lecture
UNIT I	Different forms of Communication Barriers to Communication Causes, Linguistic Barriers, Psychological Barriers	C8	Lecture
UNIT I	Interpersonal Barriers, Cultural Barriers	C9	Lecture
UNIT I	Physical Barriers, Organizational Barriers	C10	Lecture
	Classroom Assignment on JAM	C11-C13	Class Assignment
	Clarification Class	C14	Clarification Class
Unit II	Preparing the Resume	C15	Lecture
Unit II	Job Application Letter	C16	Lecture
	Classroom Exercise	C17	Activity
Unit II	Letter Writing	C18-20	Lecture
Unit II	Inviting quotations, Sending quotations, Placing orders	C21	Lecture
Unit II	CV Preparation	C22	Lecture
Unit II	Claim & Adjustment letters, Inviting tenders, Sales letters	C23	Lecture
Unit II	Social Correspondence	C24	Lecture
Unit II	Memorandum, Inter -office Memo,	C25	Lecture
Unit II	Notices	C26	Lecture
Unit II	Agenda	C27	Lecture
Unit II	Minutes	C28	Lecture
	Group Discussion	C29	Group Discussion
	Class Presentation	C30-C33	Presentation
	Clarification Class	C34	Clarification Class
	Home Assignment		Home Assignment
	Quiz	C35	Quiz
	Classroom Exercise	C36-C37	Activity
Unit III	Business reports	C38	Lecture
Unit III	Business Reports: Types, Characteristics	C39	Lecture
Unit III	Business Reports: Importance	C40	Lecture
Unit III	Business Reports: Elements of structure	C41	Lecture
Unit III	Business Reports: Process of writing, Order of writing	C42	Lecture
Unit III	Business Reports: the final draft	C43	Lecture
Unit III	check lists for reports	C44	Lecture
	Classroom Assignment	C45	Class Assignment
	Clarification Class	C46	Clarification Class
Unit IV	Words often confused	C47	Lecture

Unit IV	Words often misspelt	C48	Lecture
Unit IV	Common errors in English	C49	Lecture
	Classroom Exercise	C50	Activity
	Group Discussion	C51	Group Discussion
	Clarification Class	C52	Clarification Class
Unit V	Oral Presentation: Importance, Characteristics, Presentation Plan	C53	Activity
Unit V	Power point Presentation Slide Preparation	C54	Lecture
Unit V	Visual aids	C55	Lecture
	Classroom Exercise	C56	Activity
	Clarification Class	C57	Clarification Class
	Guest Lecture	C58	Guest Lecture
	Webinar	C59	Webinar
	Seminar	C60	Seminar

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