KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

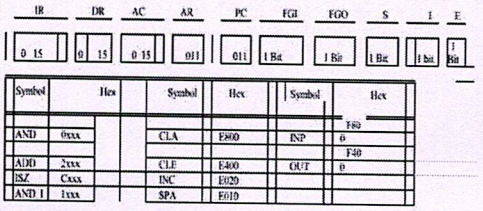
COURSE CODE: CMSGCOR04T: (Computer System Architecture)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
IV	JANUARY to JUNE	Computer System Architecture	1. **Introduction:** Logic gates, boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexors, registers, counters and memory units.	(10L)	(2L)
			2. **Data Representation and basic Computer Arithmetic:** Number systems, complements, fixed and floating point representation, character representation, addition, subtraction, magnitude comparison.	(6L)	(2L)
			3. **Basic Computer Organization and Design:** Computer registers, bus system, instructionset, timing and control, instruction cycle, memory reference, input-output and interrupt.	(14L)	(4L)
			4. **Central Processing Unit:** Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control.	(08L)	(2L)
			5. **Programming the Basic Computer:** Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming.	(6L)	(2L)
			6. **Input-output Organization**: Peripheral devices, I/O interface, Modes of data transfer, direct memory access.	4(L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA
DEPARTMENT OF COMPUTER SCIENCE
TEACHING PLAN
COURSE CODE: CMSGCOR04P: (Computer System Architecture Lab.)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				PRACTICAL	TUTORIAL
IV	JANUARY to JUNE	Computer System Architecture Lab.	Create a machine based on the following architecture: Register Set 	(60L)	

Symbol	Hex	Symbol	Hex	Symbol	Hex
					F80
AND	0xxx	CLA	E800	INP	0
					F40
ADD	2xxx	CLE	E400	OUT	0
ISZ	Cxxx	INC	E020		
AND I	Ixxx	SPA	E010		

i) Create the micro operations and associate with instructions as given in the chapter (except interrupts). Design the register set, memory and the instruction set. Use this machine for the assignments of this section.
ii)Create a Fetch routine of the instruction cycle.
iii) Simulate the machine to determine the contents of AC, E, PC, AR and IR registers in hexadecimal after the execution of each of following register reference instructions: a. CLA e. CIR i. SNA b. CLE f. CIL j. SZA c. CMA g. INC k. SZE d. CME h. SPA l. HLT Initialize the contents of AC to (A937)16, that of PC to (022)16 and E to 1.

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

			2. Simulate the machine for the following memory-reference instructions with I= 0 and address part = 082. The instruction to be stored at address 022 in RAM. Initialize the memory word at address 082 with the operand B8F2 and AC with A937. Determine the contents of AC, DR, PC, AR and IR in hexadecimal after the execution. a. ADD f. BSA b. AND g. ISZ c. LDA d. STA e. BUN 3. Simulate the machine for the memory-reference instructions referred in above question with I= 1 and address part = 082. The instruction to be stored at address 026 in RAM. Initialize the memory word at address 082 with the value 298. Initialize the memory word at address 298 with operand B8F2 and AC with A937. Determine the contents of AC, DR, PC, AR and IR in hexadecimal after the execution.		

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA
DEPARTMENT OF COMPUTER SCIENCE
TEACHING PLAN
COURSE CODE: CMSSSEC02M(R-Programming)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
IV	JANUARY TO JUNE	**R-Programming**	Introduction: Overview and History of R, Getting Help, Data Types, Subsetting, Vectorized	(5L)	
			Operations, Reading and Writing Data.	(5L)	
			Control Structures, Functions, lapply, tapply, split, mapply, apply, Coding Standards.	(5L)	
			Scoping Rules, Debugging Tools, Simulation, R Profiler.	(5L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGDSE02T(Discrete Structures)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
V	JULY To DECEMBER	**Discrete Structures**	1. **AdditionalTutorial.**	(15 L)	
			2. **Introduction:** Introduction to Sets, Finite and Infinite Sets, Unaccountably Infinite Sets. Introduction to Functions and relations, Properties of Binary relations, Closure, Partial Ordering Relations. .	(15L)	
			3. **Unit-II:** Pigeonhole Principle, Permutation and Combinations, Mathematical Induction, Principle of Inclusion and Exclusion.	(15L)	
			4. **Unit-III** : Asymptotic Notations	(5L)	
			5. **Recurrence Relations**: Introduction, Generating Functions, Linear Recurrence Relations with constant coefficients and their solution.	(15L)	
			6. **Graphs Theory:** Basic Terminology of Graphs, Models and Types, Multigraphs, Weighted Graphs, Graph Representation.	(15L)	
			7. **Inference Theory**: Introduction, Logical Connectives, Well Formed Formulas, Tautologies, Equivalence	(10L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGDSE01T(Programming in Java)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
V	JULY To DECEMBER	Programming in Java	1. **AdditionalTutorial.**	15 L	
			2. **Introduction to Java:** Features of Java, JDK Environment.	(2L)	
			3. **Object Oriented Programming Concept** :Overview of Programming .	(12L)	
			4. **Java Programming Fundamental** :Structure of java program, Data types, Variables .	(12L)	
			5. **Classes and Objects**: Creating Classes and objects, Memory allocation for objects, Constructor ect.	(12L)	
			6. **Arrays and Strings**.	(8L)	
			7. **Abstract Class**, Interface and Packages.	(10L)	
			8. **Exception Handling**.	(6L)	
			9. **File Handling**: Byte Stream, Character Stream .	(6L)	
			10. **Applet Programming:** Introduction, Types Applet, Applet Life cycle, Creating Applet, Applet tag .	(7L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGDSE03T:(**Software Engineering)**

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
VI	JANUARY To JUNE	**Software Engineering**	1. **AdditionalTutorial.**	15 L	
			2. **Software Process**: Introduction, S/W Engineering Paradigm ect.	(10L)	
			3. **Software requirements**: Functional and non-functional ,, software prototyping, prototyping in the software process.	(12L)	
			4. **Design Concepts and Principles:** Design process and concepts, modular design, designheuristic, design model and document, Architectural design, software architecture, data design, architectural design ect.	(15L)	
			5. **Software Configuration Management**: The SCM process, Version control, Change control, Configuration audit, SCM standards.	(10L)	
			6. **Software Project Management**: Measures and measurements, S/W complexity and sciencemeasure, size measure, data and logic structure measure, information flow measure. Estimations.	(12L)	
			7. **Testing**: Taxonomy of software testing, levels, test activities, types of s/w test, black box testingtesting boundary conditions, structural testing ect.	(10L)	
			8. **Trends in Software Engineering:** Reverse Engineering and Re-engineering – wrappers – Case Study of CASE tools..	(6L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGDSE04T:(**Computer Networks**)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
VI	JANUARY To JUNE	**Computer Networks**	1. **AdditionalTutorial.**	15 L	
			2. **Basic concepts :** Components of data communication, standards and organizations, NetworkClassification, Network Topologies ; network protocol; layered network architecture; overview of OSI reference model; overview of TCP/IP protocol suite.	(20L)	
			3. **Physical Layer** : Cabling, Network Interface Card, Transmission Media Devices- Repeater, Hub, Bridge, Switch, Router, Gateway.	(8L)	
			4. **Data Link Layer** : Framing techniques; Error Control; Flow Control Protocols; Shared media protocols - CSMA/CD and CSMA/CA.	(10L)	
			5. **Network Layer** : Virtual Circuits and Datagram approach, IP addressing methods – Subnetting; Routing Algorithms (adaptive and non-adaptive) .	(10L)	
			6. **Transport Layer:** Transport services, Transport Layer protocol of TCP and UDP.	(8L)	
			7. **Application Layer** : Application layer protocols and services – Domain name system, HTTP, WWW, telnet, FTP, SMTP .	(12L)	
			8. **Network Security** : Common Terms, Firewalls, Virtual Private Networks .	(7L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGCOR03T:(Operating Systems)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
III	JULY TO DECEMBER	**Operating Systems**	1. **Introduction**: System Software, Resource Abstraction, OS strategies.	2L	
			2. **Types of operating systems :** Multiprogramming, Batch, Time Sharing, Single user and Multiuser, Process Control & Real Time Systems.	2L	
			3. **Operating System Organization:** Factors in operating system design, basic OS functions,implementation consideration; process modes, methods of requesting system services – system calls and system programs.	08L	02L
			4. **Process Management :** System view of the process and resources, initiating the OS, processaddress space, process abstraction, resource abstraction, process hierarchy, Thread model (15L) Scheduling: Scheduling Mechanisms, Strategy selection, non-pre-emptive and pre-emptive	10L	02L
			5. **Memory Management**: Mapping address space to memory space, memory allocation strategies, fixed partition, variable partition, paging, virtual memory	10L	02L
			6. **Shell introduction and Shell Scripting .**	5L	02L

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA
DEPARTMENT OF COMPUTER SCIENCE
TEACHING PLAN
COURSE CODE: CMSGCOR03P:(Operating Systems)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
III	JULY TO DECEMBER	**Operating Systems**	**Following exercises can be performed using Linux or Unix** 1. Usage of following commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd. 2. Usage of following commands: cal, cat(append), cat(concatenate), mv, cp, man, date. 3. Usage of following commands:chmod, grep, tput (clear, highlight), bc. 4. Write a shell script to check if the number entered at the command line is prime or not. 5. Write a shell script to modify "cal" command to display calendars of the specified months. 6. Write a shell script to modify "cal" command to display calendars of the specified range of months. 7. Write a shell script to accept a login name. If not a valid login name display message – "Entered login name is invalid". 8. Write a shell script to display date in the mm/dd/yy format.	60L	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

			9. Write a shell script to display on the screen sorted output of "who" command along with the total number of users. 10. Write a shell script to display the multiplication table any number, 11. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file. 12. Write a shell script to find the sum of digits of a given number. 13. Write a shell script to merge the contents of three files, sort the contents and then display them page by page. 14. Write a shell script to find the LCD(least common divisor) of two numbers. 15. Write a shell script to perform the tasks of basic calculator. 16. Write a shell script to find the power of a given number. 17. Write a shell script to find the factorial of a given number. 18. Write a shell script to check whether the number is Armstrong or not. 19. Write a shell script to check whether the file have all the permissions or not. 20. Program to show the pyramid of special character "*".		

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA
DEPARTMENT OF COMPUTER SCIENCE
TEACHING PLAN
COURSE CODE: CMSSSEC01M(Programming in Python)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
III	JULY TO DECEMBER	**Programming in Python**	**Planning the Computer Program:** Concept of problem solving, Problem definition, Programdesign, Debugging, Types of errors in programming, Documentation. (2L)	(2L)	
			Techniques ofProblem Solving: Flowcharting, decision table, algorithms, Structured programming concepts,Programming methodologies viz. top-down and bottom-up programming	(2L)	
			Overview of Programming : Structure of a Python Program, Elements of Python	(3L)	
			Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation.Atoms, Identifiers and keywords, Literals, Strings, Operators(Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator).	(4L)	
			Creating Python Programs : Input and Output Statements, Control statements(Branching,Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments.	(4L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGCOR02T: (Database Management Systems)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
II	January TO JUNE	**Database Management Systems**	1. **Introduction to Database Management Systems:**Characteristics of database approach, datamodels, DBMS architecture and data independence	08L	02L
			2 **.Entity Relationship and Enhanced ER Modeling:** Entity types, relationships, SQL99: Schema Definition , constraints, and object modeling.	10L	05L
			3. **Relational Data Model**: Basic concepts, relational constraints, relational algebra, SQLqueries.	10L	05L
			4. **Database design** : ER and EER to relational mapping, functional dependencies, normal forms up to third normal form.	15L	05L

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA
DEPARTMENT OF COMPUTER SCIENCE
TEACHING PLAN
COURSE CODE: CMSGCOR02P: (Database Management Systems)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				PRACTICAL	TUTORIAL
II	January TO JUNE	**Database Management Systems**	**DDL Commands** Create table, alter table, drop table	10L	
			DML Commands • Select , update, delete, insert statements • Condition specification using Boolean and comparison operators (and, or, not,=,<>,>,=,<=) • Arithmetic operators and aggregate functions(Count, sum, avg, Min, Max) • Multiple table queries (join on different and same tables) • Nested select statements • Set manipulation using (any, in, contains, all, not in, not contains, exists, not exists, union, intersect, minus, etc.) • Categorization using group by……..having • Arranging using order byλ	35L	
			Relational Database Schema – COMPANY:-	15L	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGCOR01T(Problem Solving with Computer)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				THEORY	TUTORIAL
I	JULY TO DECEMBER	**Problem Solving with Computer**	1. **Computer Fundamentals**: Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers	(02L)	(01L)
			2. **Planning the Computer Program**: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation	(03L)	
			3. **Techniques of Problem Solving**: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	(4L)	
			4. **Overview of Programming:** Structure of a Python Program, Elements of Python.	(4L)	
			5. **Introduction to Python**: Python Interpreter, Using Python as calculator, Python shell,Indentation.	(6L)	(2L)
			6. **Creating Python. Programs**: Input and Output Statements, Control statements (LoopingwhileLoop, for Loop .	(7L)	(3L)
			7. **Structures:** Numbers, Strings, Lists, Tuples, Dictionary, Date & Time, Modules, Defining Functions, Exit function, default arguments.	(10L)	
			8. **Introduction to Advanced Python:** Objects and Classes, Inheritance, Regular Expressions,Event Driven Programming, GUI Programming.	(10L)	(4L)

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

KALINAGAR MAHAVIDYALAYA

DEPARTMENT OF COMPUTER SCIENCE

TEACHING PLAN

COURSE CODE: CMSGCOR01P(Problem Solving with Computer)

SEMESTER	PERIOD OF SEMESTER	TOPIC NAME	SUB-TOPIC NAME	NO.OF LECTURE	
				PRACTICAL	TUTORIAL
I	JULY TO DECEMBER	**Problem Solving with Computer**	**Section: A (Simple programs)** 1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user"s choice. 2. WAP to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria : a. Grade A: Percentage >=80 b. Grade B: Percentage>=70 and =60 and =40 and <40 3.Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user. 4. WAP to display the first n terms of Fibonacci series. 5. WAP to find factorial of the given number. 6. WAP to find sum of the following series for n terms: 1 – 2/2! + 3/3! - - - - - n/n! 7. WAP to calculate the sum and product of two compatible matrices.	(30L)	
			Section: B (Visual Python): All the programs should be written using user defined functions, wherever possible. 1. Write a menu-driven program to create mathematical 3D objects I. curve II. sphere III. cone IV. arrow V. ring VI.Cylinder. 2. WAP to read n integers and display them as a	(30L)	

Head
Department of Computer Science
Kalinagar Mahavidyalaya

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

			histogram. 3. WAP to display sine, cosine, polynomial and exponential curves. 4. WAP to plot a graph of people with pulse rate p vs. height h. The values of p and h are to be entered by the user. 5. WAP to calculate the mass m in a chemical reaction. The mass m (in gms) disintegrates according to the formula m=60/(t+2), where t is the time in hours. Sketch a graph for t vs. m, where t>=0. 6. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows: P(t) = (15000(1+t))/(15+ e) where the time t is measured in hours. WAP to determine the size of the population at given time t and plot a graph for P vs t for the specified time interval. 7. Input initial velocity and acceleration, and plot the following graphs depicting equationsof motion: I. velocity wrt time (v=u+at) II. distance wrt time (s=u*t+0.5*a*t*t) III. distance wrt velocity (s=(v*v-u*u)/2*a)		

Teacher-in-charge
KALINAGAR MAHAVIDYALAYA

Head
Department of Computer Science
Kalinagar Mahavidyalaya