Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	TOTAL
					SEMESTER-I					
B.Sc. in Physical Sc./ Math. & Comp. Sc. with Computer Science	1st	I	Major (Disc.-A1)	CSGMJ101	**T: Introduction to Computers** *(To be studied by the students taken Computer Science as Discipline-A)*	4	3-0-1	15	60	75
			SEC	SEC101	*To be chosen from SEC-01 of Discipline A/B/C of their Hons. prog.*	3	0-0-3	10	40	50
			AEC	AEC101	Communicative English-1 (*common for all programmes*)	2	2-0-0	10	40	50
			MDC	MDC101	Multidisciplinary Course-1 (*to be chosen from the list*)	3	3-0-0	10	40	50
			VAC	VAC101	VAC-01: ENVS (*common for all programmes*)	4	2-0-2	50	50	100
			Minor (Disc.-C1)	CSG MN 01/C1	**T: Computer Fundamental** **P: Office Automation** ~~(Using M.S Office)~~ *(To be studied by the students taken Computer Science as Discipline-C)*	4	3-0-1	15	60	75
					Semester-I Total	20				400
					SEMESTER-II					
		II	Major (Disc.B1)	CSGMJ201	**T: Introduction to Programming ~~using C~~** **P: Programming in C Lab** *(Same as like A1 for students taken Computer Science as Discipline-B)*	4	3-0-1	15	60	75
			SEC	SEC201	*To be chosen from SEC-02 of Discipline A/B/C of their Hons. prog.*	3	0-0-3	10	40	50
			AEC	AEC201	MIL-1 (*common for all programmes*)	2	2-0-0	10	40	50
			MDC	MDC201	Multi-Disciplinary Course-02 (*to be chosen from the list*)	3	3-0-0	10	40	50
			VAC	VAC201	VAC-02 (*to be chosen from the list*)	4	4-0-0	10	40	50
			Minor (Disc.-C2)	CSG MN 02/C2	**T: Introduction to Programming using C** **P: Programming in C Lab** *(To be studied by the students taken Computer Science as Discipline-C)*	4	3-0-1	15	60	75
			Summer Intern.	CS	Community Service	4	0-0-4	-	-	50
					Semester-II Total	24				400
					TOTAL of YEAR-1	44	-	-	-	800

26.04.2024

Explore Communicative English

(MULTIDISCIPLINARY STUDIES)

MAJOR

MJ A1: Introduction to Computer — Credits 04 (FM: 75)

Course Objectives:

- Understand the fundamental concepts and characteristics of computers, including their generation and classification.
- Comprehend the basic components of a digital computer, including CPU, ALU, CU, Register set, and memory hierarchy.
- Gain knowledge of communication pathways, input/output devices, and the primary, secondary, cache, and virtual memory.
- Demonstrate proficiency in number systems, including binary, decimal, octal, and hexadecimal, along with arithmetic operations and complement notation.
- Understand data communication principles, components, and modes, as well as the basics of computer networks, network topologies, and types.
- Familiarize themselves with operating systems, their functions, classification, and the concepts of multi-programming, multi-tasking, and multi-processing.
- Gain insights into the booting process and the role of assembler, loader, linker, and interpreter in program execution.

Course Outline:

Introduction to Computers: (60 Lectures)

1. Introduction: (8 Lectures)

- Explore the intricacies of computers, including definition and characteristics.
- Examine various generations and classifications (Micro, Mini, Mainframe, Supercomputers).
- Discuss applications, gain insights into Software/Hardware concepts, and understand terminology (Bit, Byte, Word, Nibble).
- Delve into different Computer Languages.

2. Basic Components of Computer: (12 Lectures)

- Investigate foundational organization (CPU, CU, ALU, Register set, Communication Pathway, Input/output Devices, Memory Module).
- Understand CPU components: Control Unit (CU), Arithmetic Logic Unit (ALU), and Register set.
- Explore Communication Pathway: Bus, Internal & External Bus, Control, Address & Data Bus.
- Examine Input devices (Keyboard, Pointing devices) and Output devices (Soft copy, hard copy devices).
- Delve into Memory Hierarchy: Primary Memory, Secondary Memory, Cache Memory, Virtual Memory.

3. Number System: (15 Lectures)

- Grasp different number systems, positional and non-positional..
- Cover Binary, Decimal, Octal, Hexadecimal systems and inter conversion.
- Explore Binary-Decimal-Octal Hexadecimal arithmetic, signed & unsigned numbers.
- Learn Complement notation (r's & (r-1)'s complement), Addition & Subtraction using complement notation.

- Dive into Floating point representation, Computer codes (Weighted binary, Non-weighted binary, Alphanumeric), BCD addition, Gray to Binary & Binary to Gray conversion.

4. **Data Communication and Computer Network: (15 Lectures)**
   - Define data communication, examine characteristics, and components.
   - Explore modes, media (guided & unguided) for data transmission.
   - Understand Channel capacity; delve into Computer Network concepts (Network topology, Types of networks).
   - Explore network devices (Hub, Repeater, Switch, Bridge, Router, and Gateway).
   - Gain basic understanding of e-mail, Search engines, Chatting, Internet conferencing, and Intranet.

5. **Operating System: (10 Lectures)**
   - Define Operating System (OS), understand functions, necessity, classification (CUI & GUI, Single-user, Multi-user).
   - Explore concepts: Multi-Programming, Multi-Tasking, Multi-Processing, Booting Process.
   - Understand basics of Assembler, Loader, Linker, and Interpreter.

Suggested Readings:

1. Sinha, P. K., & Sinha, P. (2017). "Computer Fundamentals: Concepts, Systems & Applications." BPB Publications.
2. Rajaraman, V. (2017). "Fundamentals of Computers.", PHI Learning.
3. Prakash, S. (2019). "Computer Fundamentals and Programming in C." Laxmi Publications.
4. Pradhan, S. (2017). ," Computer Fundamentals: Architecture and Organization." Oxford University Press.
5. Bharadwaj, A. S. (2017).," Computer Fundamentals and Applications." Wiley India.
6. Deo, N. (2017). ,"Fundamentals of Computers.", Dreamtech Press.
7. Acharya, S., & Kamath, M. V. (2017). ,"Computer Fundamentals.", Prentice

MJ B1: : Same as Minor-2 (CSMN201) of Computer Science (Hons) programme
Credits 04 **Full Marks: 75**

MINOR (MN)

MN-1/C1: Same as Minor-1 (CSMN101) of Computer Science (Hons) programme
Credits 04 **Full Marks: 75**

MN-2/C2: Same as Minor-2 (CSMN201) of Computer Science (Hons) programme
Credits 04 **Full Marks: 75**

SKILL ENHANCEMENT COURSE (SEC)

TO BE CHOSEN FROM THE BUCKET OF SECs OF SELECTED DISCIPLINE A/B/C
(As per A/B/C Hons. Prog. Syllabus)