VIDYASAGAR UNIVERSITY

Midnapore, West Bengal

PROPOSED CURRICULUM & SYLLABUS (DRAFT) OF

BACHELOR OF SCIENCE WITH COMPUTER SC.

(MULTIDISCIPLINARY STUDIES)

3-YEAR UNDERGRADUATE PROGRAMME

(w.e.f. Academic Year 2023-2024)

Based on

Curriculum & Credit Framework for Undergraduate Programmes

(CCFUP), 2023 & NEP, 2020

VIDYASAGAR UNIVERSITY

BACHELOR OF SCIENCE IN MULTIDISCIPLINARY STUDIES with COMPUTER SCIENCE

(*under CCFUP, 2023*)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	TOTAL
B.Sc. in Physical Sc./ Math. & Comp. Sc. with Computer Science	1st	I	**SEMESTER-I**							
			Major (Disc.-A1)	**COSPMJ101**	**T: Introduction to Computers** ***(To be studied by the students taken Computer Science as Discipline-A)***	**4**	**3-0-1**	**15**	**60**	**75**
			SEC	**SEC01**	***To be chosen from SEC-01 of Discipline A/B/C of their Hons. prog.***	**3**	**0-0-3**	**10**	**40**	**50**
			AEC	**AEC01**	Communicative English-1 (***common for all programmes***)	**2**	**2-0-0**	**10**	**40**	**50**
			MDC	**MDC01**	Multidisciplinary Course-1 (***to be chosen from the list***)	**3**	**3-0-0**	**10**	**40**	**50**
			VAC	**VAC01**	VAC-01: ENVS (***common for all programmes***)	**4**	**2-0-2**	**50**	**50**	**100**
			Minor (Disc.-C1)	**COS MI 01/C1**	**T: Computer Fundamental** ***(To be studied by the students taken Computer Science as Discipline-C)***	**4**	**3-0-1**	**15**	**60**	**75**
			Semester-I Total			**20**				**400**
		II	**SEMESTER-II**							
			Major (Disc.-B1)		***To be decided*** ***(Same as like A1 for students taken Computer Science as Discipline-B)***	**4**	**3-0-1**	**15**	**60**	**75**
			SEC	**SEC02**	***To be chosen from SEC-02 of Discipline A/B/C of their Hons. prog.***	**3**	**0-0-3**	**10**	**40**	**50**
			AEC	**AEC02**	MIL-1 (***common for all programmes***)	**2**	**2-0-0**	**10**	**40**	**50**
			MDC	**MDC02**	Multi Disciplinary Course-02 (***to be chosen from the list***)	**3**	**3-0-0**	**10**	**40**	**50**
			VAC	**VAC02**	VAC-02 (***to be chosen from the list***)	**4**	**4-0-0**	**10**	**40**	**50**
			Minor (Disc.-C2)	**COS MI 02/C2**	**T:Introduction to Programming ; 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**

P MJ= Major Programme (Multidisciplinary), MI = Minor, A/B = Choice of Major Discipline; C= Choice of Minor Discipline; SEC = Skill Enhancement Course, AEC = Ability Enhancement Course, MDC = Multidisciplinary Course, VAC = Value Added Course; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical, MIL = Modern Indian Language, ENVS = Environmental Studies

MAJOR (MJ)

MJ A1/B1: Introduction to Computers **Credits 04 (FM: 75)**

MJ A1/B1T: Introduction to Computers **Credits 04**

Course contents:

MODULE- I: Introduction

Definition of computer. Characteristics of computer. Generation of computer. Classificationof computer (Micro, Mini, Mainframe, Super), Application of computer, Basic concept aboutSoftware& Hardware, Bit, Byte, Word Nibble, Computer Languages (Low, High & assembly LevelL anguage)

MODULE-II: Basic Components of Computer

Basic organization of digital computer (CPU, CU, ALU, Register set, Communication Path way, Input / Output Devices, Memory Module).CPU: Basic explanation about CU, ALU &Register set as well as all over CPU. Communication Pathway: Definition of Bus, Internal &External Bus,Control, Address & Data Bus. Input devices: Keyboard, Pointing device, handheld device, Opticaldevice, Audio visual device. Output device: Soft copy devices & hard copy devices. MemoryHierarchy (Definition, function, classification, Advantages & Disadvantages): Primary Memory, Secondary Memory, Cache Memory, Virtual Memory.

MODULE-III: Number System

Definition, Positional & non positional number system, Binary,Decimal, octal & hexadecimal number system, Conversion between them, Binary-Decimal-Octal Hexadecimal arithmetic, Signed & Unsigned number, Complement notation (r's & (r-1)'s complement), Addition &Subtraction operation using complement notation, Floating point representation of number, Computer codes(Weighted binary codes (BCD 8421/2421,Reflective, sequential), Non-weighted binary codes(Excess-3, Gray), Error detecting & correcting codes, Alphanumeric codes(ASCII, EBCDIC, Hollerith),BCDaddition, Gray to Binary & Binary to Gray conversion.

MODULE-IV: Data communication and Computer network

Definition of data communication, Characteristics of data communication, Component of data communication, mode of dataCommunication, Media of data communication (guided & unguided), Channel capacity.Computer Network: Definition, Network topology (Bus, Ring, Star, Mesh, Tree, Hybrid), Types of network (LAN, MAN, WAN, CCAN, PAN), Network devices (Hub, Repeater, Switch, Bridge, Router,Gateway), Basic idea about e-mail, Search engines, Chatting, Internet conferencing, Intranet.

MODULE-V: Operating System

Definition of OS, Function of OS, Need of OS, Classification of OS(CUI & GUI, Single user, Multi User), Concept of Multi Programming, Multi Tasking& Multi Processing.Booting Process), Basic Concept of Assembler, Loader, Linker, 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. DreamtechPress.Acharya, S., &Kamath, M. V. (2017). Computer Fundamentals. Prentice

MINOR (MI)

MI-1/C1: Same as Minor-1 (COSMI01) of Computer Science (Hons) programme **Credits 04**
Full Marks: 75

MI-2/C2: Same as Minor-2 (COSMI02) 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)