

UNIVERSITY OF MADRAS
B.Sc. DEGREE COURSE IN COMPUTER SCIENCE
SYLLABUS WITH EFFECT FROM 2020-2021

BCE-CSC03

CORE-III: COMPUTER ORGANIZATION

(Common paper to B.C.A.-III Sem.)

I YEAR / II SEM

OBJECTIVES:

- To understand the basic organization of computers and the working of each component and CPU
- To bring the programming features of 8085 Microprocessor and know the features of latest microprocessors.
- To understand the principles of Interfacing I/O devices and Direct Memory accesses

OUTCOMES:

- Describe the major components of a computer system and state their function and purpose
- Describe the microstructure of a processor
- Demonstrate the ability to program a microprocessor in assembly language.
- Classify and describe the operation DMA and peripheral Interfaces.

UNIT - I

Data representation: Data types – Complements- fixed point and floating point representation other binary codes. Register Transfer and Microoperations: Register transfer language- Register transfer- Bus and Memory transfers – Arithmetic, logic and shift micro operations.

UNIT - II

Central processing unit: General register and stack organizations- instruction formats - Addressing modes- Data transfer and manipulation - program control- RISC - Pipelining - Arithmetic and instruction- RISC pipeline - Vector processing and Array processors.

UNIT - III

Microprocessor Architecture and its Operations - 8085 MPU - 8085 Instruction Set and Classifications. Programming in 8085: Code conversion - BCD to Binary and Binary to BCD conversions - ASCII to BCD and BCD to ASCII conversions - Binary to ASCII and ASCII to Binary conversions.

UNIT - IV

Programming in 8085:BCD Arithmetic - BCD addition and Subtraction - Multibyte Addition and Subtraction - Multiplication and Division. Interrupts: The 8085 Interrupt – 8085 Vectored Interrupts –

UNIT - V

Direct Memory Access(DMA)and 8257 DMA controller - 8255A Programmable Peripheral Interface. Basic features of Advanced Microprocessors - Pentium - I3 , I5 and I7

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TEXT BOOKS:

1. M.M. Mano, "Computer System architecture". Pearson, Third Edition, 2007
2. R. S. Gaonkar- "Microprocessor Architecture- Programming and Applications with 8085"- 5th Edition- Penram- 2009.
3. Tripti Dodiya & Zakiya Malek, "Computer Organization and Advanced Microprocessors", Cengage Learning, 2012.

REFERENCE BOOKS:

1. Mathur- "Introduction to Microprocessor"- 3rd Edition- Tata McGraw-Hill-1993.
2. P. K. Ghosh and P. R. Sridhar- "0000 to 8085: Introduction to Microprocessors for Engineers and Scientists"- 2nd Edition- PHI- 1995.
3. NagoorKani- "Microprocessor (8085) and its Applications"- 2nd Edition- RBA Publications- 2006.
4. V. Vijayendran- "Fundamentals of Microprocessors – 8085"- S. Viswanathan Pvt. Ltd.- 2008.

WEB REFERENCES:

- NPTEL & MOOC courses titled Computer organization
- <https://nptel.ac.in/courses/106105163/>
- <https://nptel.ac.in/courses/106103068/>