

MANGALORE UNIVERSITY

DEPARTMENT OF M.Sc. COMPUTER SCIENCE

MASTER OF COMPUTER APPLICATIONS (MCA) PROGRAMME

MCAH202 :SYSTEM SOFTWARE		
Hours/Week: 4 Credits : 4		I.A. Marks: 30 Exams. Marks: 70
<u>Course Outcomes:</u> CO1: To compare the machine dependent and machine independent assembler features CO2: To implement assembly language programs using MASM CO3: To implement the assembly code using MSDOS linker CO4: To analyze the functions and capabilities of debugging system CO5: To estimate the user interface criteria		
	UNIT-I	12 Hours
Introduction System software and machine architecture The Simplified Instructional Computer (SIC) – Machine architecture - Data and instruction formats - addressing modes - instruction sets - I/O and programming. Assemblers Basic assembler functions - A simple SIC assembler – Assembler algorithm and data structures Machine dependent assembler features Instruction formats and addressing modes - Program relocation- Machine independent assembler features - Literals Symbol defining statements - Expressions –One pass assemblers and Multi pass assemblers - Implementation example - MASM assembler.		
	UNIT-II	12 Hours
Loaders and linkers Basic loader functions - Design of an Absolute Loader – A Simple Bootstrap Loader -Machine dependent loader features - Relocation – Program Linking –Algorithm and Data Structures for Linking Loader -Machine-independent loader features -Automatic Library Search – Loader Options - Loader design options - Linkage Editors –Dynamic Linking – Bootstrap Loaders - Implementation example - MSDOS linker.		
	UNIT-III	12 Hours
Macro processors Basic macro processor functions - Macro Definition and Expansion Macro Processor Algorithm and data structures, Machine independent macro processor features - Concatenation of Macro Parameters Generation of Unique Labels Conditional Macro Expansion – Keyword Macro Parameters-Macro within Macro-Implementation example - MASM Macro Processor – ANSI C Macro language.		

	UNIT-IV	12 Hours
System software tools Text editors - Overview of the Editing Process - User Interface – Editor Structure. -Interactive debugging systems - Debugging functions and capabilities –Relationship with other parts of the system – User-Interface Criteria.		
REFERENCE BOOKS 1. Leland L. Beck, “System Software – An Introduction to Systems Programming”, 3rd Edition, Pearson Education Asia, 2000 2. D. M. Dhamdhere, “Systems Programming and Operating Systems”, Second Revised Edition, Tata McGraw-Hill, 1999. 3. John J. Donovan “Systems Programming”, Tata McGraw-Hill Edition, 1972. 4. John R. Levine, Linkers & Loaders, Harcourt India Pvt. Ltd., Morgan Kaufmann Publishers, 2000.		

