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| 13CS42E4 | - | ADVANCED COMPUTER ARCHITECTURE |

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| Hours / Week | : | 4 |  | Sessional Marks | : | 40 |
| Credits | : | 4 |  | End Examination Marks | : | 60 |

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| **UNIT - I** |
| **Introduction to parallel processing**: Evolution of computer systems, Parallelism in uniprocessor systems, Parallel computer structures, Architectural classification schemes, Parallel processing applications. |
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| **UNIT – II** |
| **Memory and Input Output subsystems**: Hierarchical memory structures, Virtual memory system, Cache memory and management, Input - Output subsystems**Principles of pipelining and vector processing**: Pipelining, Instruction and Arithmetic pipelines, principles of designing pipelined processors, Vector processing requirements. |
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| **UNIT – III** |
| **Structures and Algorithms for Array processors**: SIMD Array processor, SIMD Interconnection networks, Parallel algorithms for array processors, Associative Array processing**SIMD computers and performance enhancement**: The space of SIMD computers, Massively parallel processor, Performance enhancement methods. |
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| **UNIT – IV** |
| **Multiprocessor Architecture and programming**: Functional structures, Interconnection networks, Parallel memory organizations, Multiprocessor operating systems, Exploiting concurrency for Multiprocessing. |
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| **UNIT – V** |
| **Data Flow Computers**: Data driven computing and languages, Data flow computer Architecture, VLSI computing structures, VLSI matrix athematic process. |
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| TEXT BOOKS |
| 1. Computer Architecture and Parallel Processing, Kai Hwang and Faye A. Briggs.
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| REFERENCE BOOKS |
| 1. Advanced Computer Architecture, Kai Hwang, Tata McGraw Hill.
2. John L. Hennessey and David A. Patterson, Computer architecture – A quantitative approach, Morgan Kaufmann / Elsevier Publishers, 4th. edition, 2007.
3. K.Hwang, Advanced Computer Architecture, Parallelism, Scalability, Programmability, McGraw Hill, 1993.
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