BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
INSTRUCTION DIVISION
SECOND SEMESTER 2015 - 2016
COURSE HANDOUT (PART II)

Date: 15 / 01 / 2016

In addition to Part I (General Handout for all courses appended to the timetable) this portion gives further specific details regarding the course.

Course No : **CS F342**
Course Title : **Computer Architecture**
Instructor-in-charge : Mrs. MAYURI DIGALWAR
Instructors : Mr. Srinivas Reddy

1. Scope and Objective:

This course aims at introducing the concept of computer architecture and organization. It involves design aspects, and deals with the current trends in computing architecture. System resources such as memory technology and I/O subsystems needed to achieve proportional increase in performance will also be discussed.

2. Text Book:

(T1) Patterson, David A & J L Hennenssy, *Computer Organisation & Design*, Elsevier, 3rd Ed., 2009.
(T2) Samir Palnitkar, *Verilog HDL: A Guide to Digital Design and Synthesis*, Pearson Education Asia, 2003.
(T3) W. Stallings, *Computer Organisation & Architecture,* PHI, 9th ed., 2012

3. Reference Books:

(i) J.L. Hennessy & D.A. Patterson, *Computer Architecture: A Quantitative Approach*, Morgan Kauffmann, 5th Ed, 2012.

4. Course Plan:

Lecture No.	Topics to be covered	Reference to T1
01	Introduction	Ch. 1
02, 03, 04	MIPS Architecture & Instruction Set	Ch. 2
05	Computer Arithmetic	Ch. 3
06, 07	Floating Point Arithmetic	Ch. 3
08, 09	Role of Performance	Ch. 4
10,11, 12, 13, 14	Data path Design and Control	Ch. 5
15, 16, 17	Exceptions & Microprogramming	Ch. 5
18, 19	Memory Organization- Introduction	Ch. 7
20, 21	Cache Memory Organization	Ch. 7
22, 23, 24	Cache Performance	Ch. 7
25, 26	Pipelining – Design Issues	Ch. 6
27, 28	Data Hazards	Ch. 6
29, 30	Control Hazards	Ch. 6
31, 32	Static Branch Prediction	Notes
33	Dynamic Branch Prediction	Notes

34	Advanced Concepts in pipelining	Ch. 6
35, 36	I/O Organization	Ch. 8
37, 38, 39,40	Modern Processors	Ch. 9

5. Evaluation Scheme:

EC No.	Evaluation Component	Duration (min)	Weightage	Date, Time & Venue	Nature of Component
1	Mid Semester Test	90	75 (37.5%)	14/3 2:00 -3:30 PM	Closed Book
2	Lab Test and Lab Attendance	-----	45 (22.5%)	-----	Closed/Open Book
3	Comprehensive Exam	180	80 (40%)	4/5 FN	Partly Open Book

** Details of assignments will be announced in the class & on course web page.
Text book **T2** will be used for Lab Assignments.

6. Chamber Consultation Hours:

7. Notices: Notices regarding the course will be put up on the CS notice board.

Instructor - in - charge
CS F342