First semester 2015-16

Course Handout   Part II

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

Course No.:   CS G551 / SS G551

Course Title: Advanced Compilation Techniques

Instructor: Abhishek Mishra

Email: abhishek.mishra@pilani.bits-pilani.ac.in

Course Objectives: To learn about some advanced analysis and optimization techniques in Compilers. To learn about the Java Virtual Machine.

Text Book:

[T1] S.S. Muchnick, Advanced Compiler Design Implementation, Elsevier, 1997.

Reference Book:

[R1] T. Lindholm, F. Yellin, G. Bracha, A. Buckley, The Java Virtual Machine Specification: Java SE, Pearson, 2014.

Lecture Plan:

Lecture	Topics	Readings
1	Introduction	T1.1.2, T1.1.4
2 - 4	Intermediate Representations	T1.2.1, T1.4.1 – T1.4.4, T1.4.9
5 - 6	Run-Time Support	T1.5.1 – T1.5.6
7 - 10	Control-Flow Analysis	T1.7

11 – 14	Data-Flow Analysis	T1.8.1 – T1.8.8
15 – 18	Dependence Analysis	T1.9.1 – T1.9.5
19 – 21	Early Optimizations	T1.12.1 – T1.12.5
22 – 24	Redundancy Elimination	T1.13.1 – T1.13.2
25 – 27	Loop Optimizations	T1.14.1
28	Procedure Optimizations	T1.15.1 – T1.15.3
29 – 32	Register Allocation	T1.8.10, T1.16.3
33 – 35	Control-Flow Optimizations	T1.18.1 – T1.18.10
36 – 40	Java Virtual Machine	R1

Evaluation:

Component	Mode	Weightage	Date & Time	Duration	Rema
Surprise Quiz	Open Book	25%		5 x (20 minutes)	Ther five quiz regu lect with noti cove topi last
Mid Semester Exam	Open Book	25%	5/10 10:00 - 11:30 AM	90 minutes	Mid exam appr half syll
Comprehensive Exam	Open Book	50%	1/12 AN	180 minutes	Comp exam the syll

Open Book Policy: Only hard copies are allowed (lecture notes, text book, or reference book).

Make-up Policy: Make-up exam may be arranged only in genuine cases with prior permission.

Malpractise Regulation: A student will get 0 if found cheating.

Chamber Consultation Hour: 12:00 to 13:00 on Saturdays.

Notices: All notices will be sent by e-mail.