Birla Institute of Technology & Science, Pilani – K K Birla Goa Campus
Second Semester: 2013-2014
Course Handout (Part II)

In addition to Part -I (General Handout for all courses appended to the Time-Table) this portion gives further details pertaining to the course.

***Course No.* : CS F363/IS F342**
***Course Title*: Compiler Construction/Compiler Design.**
***Instructor-in-Charge*: RAMPRASAD JOSHI.**
***Professional Assistant*: Gunjan Kumar Patel**
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Course Description:

Review of compiler process, phases and passes, bootstrapping of compilers; formal languages, grammars and abstract machines; lexical analysis, regular expressions and finite automata; context-free grammars and push-down automata; recursive-descent, LL and LR parsers; tools to design and produce a compiler; semantic analysis, attribute grammar, type checking, intermediate representation; run-time environments; code optimization and code generation.

1. Scope & Objective:

This course aims at understanding the fundamental concepts and components of compiler design like translators, parsers and scanners. The primary objective is to emphasize design and implementation issues with a hands-on approach to compiler construction tools for the systems programmer. It also aims at providing the student adequate background so as to enable him / her to gain good design skills needed for designing and building tools around a programming language, tools other than compilers and interpreters, like IDEs and smart editors. Skills in text-processing for text-based data mining also are expected to be acquired along the way.

2. Text Book:

T_1. Aho, Lam, Sethi, Ullman. Compilers - Principles, Techniques and Tools, 2/e. Pearson, (Indian Reprint) 2007. (Called *dragonbook* on the Net.)

3. Reference Books:

R_1. Michael L. Scott. *Programming Language Pragmatics (3/e)*. Morgan Kaufmann/Elsevier Indian Reprint, 2010.

R_2. Cooper, K. D. and Torczon, L. Engineering a Compiler, 2/e. Elsevier India, 2011.

4. Course Plan:

Lectures	Topic	Text/Ref
1	Introduction, review of programming languages.	Notes,
2-10	Lexical Analysis, Regular Expressions, and Finite Automata	**T_1** Ch 3
11-20	Syntax Analysis, Context-Free Grammars, and Top-Down Parsing	**T_1** Ch 4, 4.1-4.4
21-28	Bottom-up Parsing	**T_1** Ch 4, 4.5-4.8
29-31	Semantic Analysis : Syntax-Directed Translation	**T_1** Ch 5
32-35	Code Generation	**T_1** Ch 9
1-10	Tutorials : Use of `flex` and `bison` and other tools	Manuals, notes.

5. Evaluation Scheme:

#	Evaluation Component	Weightage	Date Time	Mode*
1	Test-1	25%	Consult the Time-table	Partly Open Book
2	Test-2	25%	Consult the Time-table	Partly Open Book
3	Compre	50%	Consult the Time-table	Partly Open Book

*Details will be declared in the class before each exam.

6. Chamber Consultation: Thursdays 1230-1300 hrs.

7. Notices: All notices concerning this course will be mainly declared in the class and tutorial sessions. Attempt will be made to use photon and dc for quick communication. Also see **CS/IS** notice board. Keep an eye on the ID/ARC notices as well. To get matters clarified, email rsj@goa.bits-pilani.ac.in.

8. Make-up Policy: Prior permission is needed. Otherwise, zero will be awarded for that component without make-up. Granting make-up is the sole discretion of the IC.

Instructor-In-Charge, CS C362

February 4, 2014