

	COURSE PLAN	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **Abhay Kumar**
 Designation: **ASSOC PROFESSOR**
 Department:: **CSE**

COURSE DETAILS

Name Of The Programme::	BTech	Batch::	2013
Designation::	ASSOC PROFESSOR		
Year	2015-2016	Semester	I
Department::	CSE		
Title of The Subject	PRINCIPLES OF PROGRAMMING LANGUAGES	Subject Code	6755025
No of Students	118		

	COURSE PLAN	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
 Designation: **ASSOC PROFESSOR**
 Department:: **CSE**

1. TARGET

- a) Percentage Pass **100**
 b) Percentage I class **90**

2. COURSE PLAN

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.)

- a) coverage of Units by lectures
 b) design exercises
 c) demonstration of models
 d) by assignments

3. METHOD OF EVALUATION

3.1. ☒ Continuous Assessment Examinations (CAE 1, CAE 2)

3.2. ☐ Assignments / Seminars

3.3. ☐ Mini Projects

3.4. ☐ Quiz

3.5. ☐ Term End Examination

3.6. ☐ Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

Signature of HOD
 Date:

Signature of Faculty
 Date:



GUIDELINES TO STUDY THE SUBJECT

2015-16

Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**

Designation: **ASSOC PROFESSOR**

Department:: **CSE**

Guidelines for Preparing the Course:

Course Description:

This course is to provide students with an overview of the concepts and fundamentals of Principles of Programming Languages. Topics to be covered include: Reasons to study PPL, Syntax and Semantics, BNF and EBNF, Axiomatic semantics and denotational semantics, Data types, design and implementation issues related to use of data types, Expressions and Statements, use of Control Structures, Subprograms and Blocks, methods for parameter passing, Abstract Data Types (ADT), use of ADT in object-oriented programming languages, Exception Handling features, Functional Programming Languages examples, Scripting Languages features and examples.

Course Objectives (CO):

1. To master syntax related concepts including context - free grammars, parse trees, recursive descent parsing, printing, and interpretation.
2. To master analyzing semantic issues associated with function implementations, including variable binding, scoping rules, parameter passing, and exception handling.
3. To familiar with design issues of object - oriented and functional languages.
4. To familiar with language abstraction constructs of classes, interfaces, packages, and procedures.
5. To expose to logic languages.

Learning Outcomes (LO):

1. Master syntax related concepts including context - free grammars, parse trees, recursive descent parsing, printing, and interpretation.
2. Master analyzing semantic issues associated with function implementations, including variable binding, scoping rules, parameter passing, and exception handling.
3. Be familiar with design issues of object - oriented and functional languages.
4. Be familiar with language abstraction constructs of classes, interfaces, packages, and procedures.
5. Be exposed to functional and scripting languages.

	COURSE OBJECTIVES	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
 Designation:: **ASSOC PROFESSOR**
 Department:: **CSE**

On completion of this Subject / Course the student shall be able to:

S.No.	Objectives (CO)	Outcomes (LO)
1.	To master syntax related concepts including context - free grammars, parse trees, recursive descent parsing, printing, and interpretation.	1
2.	To master analyzing semantic issues associated with function implementations, including variable binding, scoping rules, parameter passing, and exception handling.	1,2
3.	To familiar with design issues of object - oriented and functional languages.	2,3
4.	To familiar with language abstraction constructs of classes, interfaces, packages, and procedures.	4
5.	To expose to functional and Scripting languages.	5

Signature of Faculty
Date:

Note: For each of the OBJECTIVE indicate the appropriate OUTCOMES to be achieved.
 Kindly refer Page 16, to know the illustrative verbs that can be used to state the objectives.

	COURSE SCHEDULE	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **PRINCIPLES OF PROGRAMMING LANGUAGES**

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Introduction to PPL, Preliminary Concepts	29/6/2015	11/7/2015	10
2.	Syntax and Semantics	13/7/2015	25/7/2015	10
3.	Data Types	27/7/2015	8/8/2015	10
4.	Expressions and Statements	10/8/2015	22/8/2015	10
5.	Subprograms and Blocks	31/8/2015	12/9/2015	10
6.	Abstract Data Types (ADT)	14/9/2015	26/9/2015	10
7.	Exceptional Handling	28/9/2015	10/10/2015	10
8.	Functional Programming Languages and Scripting Languages	12/10/2015	24/10/2015	10

Total No. of Instructional periods available for the course: 80 Periods (50 minutes per period)

Text Books:

TB1 – Concepts of Programming Languages by Robert W. Sebesta, 8th Edition, Pearson education, 2008.

TB2 - Programming Languages Design Concepts, D. A. Watt, Willy Dreamtech, rp-2007.

	SCHEDULE OF INSTRUCTIONS UNIT - I	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	29/6/2015	1	Introduction of PPL	CO1, CO2, LO1	TB1 Page No 19 to 20
2	30/6/2015	2	Reasons for Studying, Concepts of Programming Languages.	CO1, CO2, LO1	TB1 Page No 20 to 23
3	01/7/2015	3	Programming Domains	CO1, CO2, LO1	TB1 Page No 23 to 25
4	02/7/2015	4	Languages Evaluation Criteria,	CO1, CO2, LO1	TB1 Page No 25 to 38
5	03/7/2015	5	Influences on Languages Design.	CO1, CO2, LO1	TB1 Page No 38 to 41
6	04/7/2015	6	Language Categories	CO1, CO2, LO1	TB1 Page No 42 to 43
7	06/7/2015	7	Paradigms- Imperative Programming	CO1, CO2, LO1	TB2 Page No 265 to 293
8	07/7/2015	8	Object Oriented Programming	CO1, CO2, LO1	TB2 Page No 297 to 328
9	08/7/2015	9	Functional Programming and Logical programming	CO1, CO2, LO1	TB2 Page No 367 to 410
10	10/7/2015	10	Language implementation - Compilation and virtual machine, Programming environments	CO1, CO2, LO1	TB1 Page No 44 to 52

Signature of Faculty
Date

- Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - II	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	13/7/2015	1	Syntax and Semantics:	CO2 CO3 LO2	TB1 Page No 134 to 135
2	14/7/2015	2	general Problem of Describing Syntax and Semantics	CO2 CO3 LO2	TB1 Page No 135 to 137
3	15/7/2015	3	Formal methods of describing syntax -BNF	CO2 CO3 LO2	TB1 Page No 137 to 141
4	16/7/2015	4	EBNF for common programming languages features	CO2 CO3 LO2	TB1 Page No 149 to 152
5	17/7/2015	5	Parse trees,	CO2 CO3 LO2	TB1 Page No 141 to 142
6	20/7/2015	6	Ambiguous grammars	CO2 CO3 LO2	TB1 Page No 142 to 143
7	21/7/2015	7	Attribute grammars	CO2 CO3 LO2	TB1 Page No 152 to 158
8	22/7/2015	8	Denotational semantics	CO2 CO3 LO2	TB1 Page No 173 to 179
9	23/7/2015	9	Axiomatic semantics	CO2 CO3 LO2	TB1 Page No 158 to 173
10	25/7/2015	10	Axiomatic semantics for common programming language features	CO2 CO3 LO2	TB1 Page No 161 to 173

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - III	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	27/7/2015	1	Data Types: Introduction	CO4 CO5 LO3	TB1 Page No 266 to 267
2	28/7/2015	2	Primitive, character, user defined	CO4 CO5 LO3	TB1 Page No 267 to 281
3	29/7/2015	3	Arrays, associative, record, union	CO4 CO5 LO3	TB1 Page No 281 to 309
4	30/7/2015	4	Pointer and reference types	CO4 CO5 LO3	TB1 Page No 309 to 323
5	31/7/2015	5	Design and implementation uses related to these above types	CO4 CO5 LO3	TB1 Page No 267 to 323
6	01/8/2015	6	Names	CO4 CO5 LO3	TB1 Page No 221 to 223
7	03/8/2015	7	Variables	CO4 CO5 LO3	TB1 Page No 223 to 225
8	04/8/2015	8	Concepts of binding	CO4 CO5 LO3	TB1 Page No 225 to 236
9	05/8/2015	9	Type compatibility	CO4 CO5 LO3	TB1 Page No 237 to 242
10	07/8/2015	10	Named constants, variable initialization.	CO4 CO5 LO3	TB1 Page No 254 to 257

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - IV	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	10/8/2015	1	Expressions and Statements : Introduction	CO4 CO5 LO3	TB1 Page No 330 to 330
2	11/8/2015	2	Arithmetic expressions	CO4 CO5 LO3	TB1 Page No 331 to 346
3	12/8/2015	3	Relational and Boolean expressions, Short circuit evaluation	CO4 CO5 LO3	TB1 Page No 346 to 350
4	13/8/2015	4	Assignment Statements	CO4 CO5 LO3	TB1 Page No 350 to 355
5	14/8/2015	5	Mixed mode assignment	CO4 CO5 LO3	TB1 Page No 355 to 356
6	17/8/2015	6	Control Structures – Introduction	CO4 CO5 LO3	TB1 Page No 362 to 363
7	18/8/2015	7	Statement Level, Compound Statements	CO4 CO5 LO3	TB1 Page No 362 to 363
8	19/8/2015	8	Selection Statements , Iteration Statements	CO4 CO5 LO3	TB1 Page No 364 to 389
9	20/8/2015	9	Unconditional Statements	CO4 CO5 LO3	TB1 Page No 389 to 390
10	22/8/2015	10	Guarded commands	CO4 CO5 LO3	TB1 Page No 390 to 394

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - V	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ____ to ____
1	31/8/2015	1	Sub Programs and Blocks: Introduction	CO4 CO5 LO3	TB1 Page No 402 to 402
2	01/9/2015	2	Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope,	CO4 CO5 LO3	TB1 Page No 402 to 411
3	02/9/2015	3	Design issues of subprograms and operations.	CO4 CO5 LO3	TB1 Page No 412 to 412
4	03/9/2015	4	Local referencing environments	CO4 CO5 LO3	TB1 Page No 413 to 415
5	04/9/2015	5	Parameter passing methods	CO4 CO5 LO3	TB1 Page No 415 to 436
6	07/9/2015	6	Generic sub-programs	CO4 CO5 LO3	TB1 Page No 440 to 447
7	08/9/2015	7	Parameters that are sub programs Overloaded sub-programs	CO4 CO5 LO3	TB1 Page No 436 to 440
8	09/9/2015	8	Design issues for functions	CO4 CO5 LO3	TB1 Page No 447 to 448
9	10/9/2015	9	User defined overloaded operators	CO4 CO5 LO3	TB1 Page No 448 to 449
10	11/9/2015	10	Co- routines	CO4 CO5 LO3	TB1 Page No 449 to 452

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VI	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	14/9/2015	1	Introduction to Abstract Data Types	CO4 CO5 LO3	TB1 Page No 488 to 489
2	15/9/2015	2	Abstractions and encapsulation	CO4 CO5 LO3	TB1 Page No 488 to 489
3	16/9/2015	3	Introduction to data abstraction	CO4 CO5 LO3	TB1 Page No 489 to 491
4	17/9/2015	4	Design issues for Abstract Data Types, Language examples	CO4 CO5 LO3	TB1 Page No 492 to 508
5	18/9/2015	5	C++ parameterized ADT	CO4 CO5 LO3	TB1 Page No 508 to 512
6	21/9/2015	6	Object oriented programming in small talk, C++	CO4 CO5 LO3	TB1 Page No 534 to 547
7	22/9/2015	7	Object oriented programming in small Java , C#, ADA 95	CO4 CO5 LO3	TB1 Page No 548 to 558
8	23/9/2015	8	Subprogram level concurrency	CO4 CO5 LO3	TB1 Page No 577 to 581
9	24/9/2015	9	Semaphores, Monitors	CO4 CO5 LO3	TB1 Page No 581 to 588
10	25/9/2015	10	Message passing, Java Threads and C# threads	CO4 CO5 LO3	TB1 Page No 588 to 610

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VII	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No__ to __
1	28/9/2015	1	Exception handling: Introduction	CO4 CO5 LO3	TB1 Page No 620 to 622
2	29/9/2015	2	Exceptions, exception propagation	CO4 CO5 LO3	TB1 Page No 622 to 626
3	30/9/2015	3	Exception handler in ADA	CO4 CO5 LO3	TB1 Page No 626 to 633
4	01/10/2015	4	Exception handler in C++	CO4 CO5 LO3	TB1 Page No 633 to 638
5	02/10/2015	5	Exception handler in Java	CO4 CO5 LO3	TB1 Page No 638 to 648
6	05/10/2015	6	Introduction to Logical Programming Language	CO4 CO5 LO3	TB1 Page No 702 to 708
7	06/10/2015	7	Overview of logic programming	CO4 CO5 LO3	TB1 Page No 708 to 710
8	07/10/2015	8	Basic elements of prolog	CO4 CO5 LO3	TB1 Page No 711 to 725
9	08/10/2015	9	Application of logic programming	CO4 CO5 LO3	TB1 Page No 731 to 733
10	09/10/2015	10	Application of logic programming continued	CO4 CO5 LO3	TB1 Page No 731 to 733

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VIII	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**
Designation: **ASSOC PROFESSOR**
Department:: **CSE**

The Schedule for the whole Course / Subject is:: **10**

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	12/10/2015	1	Functional programming languages: Introduction	CO4 CO5 LO3	TB1 Page No 660 to 663
2	13/10/2015	2	Fundamental of FPL, LISP	CO4 CO5 LO3	TB1 Page No 663 to 668
3	14/10/2015	3	ML, Haskell, Applications of Functional programming languages	CO4 CO5 LO3	TB1 Page No 685 to 694
4	15/10/2015	4	Comparison of functional and imperative Languages	CO4 CO5 LO3	TB1 Page No 694 to 696
5	16/10/2015	5	Scripting Language: Pragmatics, Key concepts	CO4 CO5 LO3	TB2 Page No 413 to 417
6	19/10/2015	6	Case study on Python - Values and Types, Variables, storage and control	CO4 CO5 LO3	TB2 Page No 417 to 420
7	20/10/2015	7	Case study on Python - Bindings and scope, Procedural Abstraction	CO4 CO5 LO3	TB2 Page No 421 to 422
8	21/10/2015	8	Case study on Python - Data Abstraction	CO4 CO5 LO3	TB2 Page No 422 to 424
9	22/10/2015	9	Case study on Python - Separate Compilation	CO4 CO5 LO3	TB2 Page No 424 to 425
10	23/10/2015	10	Case study on Python - Modular Library	CO4 CO5 LO3	TB2 Page No 425 to 427

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	COURSE COMPLETION STATUS	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**

Subject:: **PPL**

Subject Code: **6755025**

Department:: **CSE**

Actual Date of Completion & Remarks, if any

Units	Remarks (Completed on dates given below)	Nos. of Objectives Achieved
Unit 1	11/7/2015	2
Unit 2	25/7/2015	2
Unit 3	08/8/2015	2
Unit 4	22/8/2015	2
Unit 5	12/9/2015	1
Unit 6	26/9/2015	1
Unit 7	10/10/2015	1
Unit 8	24/10/2015	2

Signature of Dean of School
Date:

Signature of Faculty
Date:

NOTE: AFTER THE COMPLETION OF EACH UNIT MENTION THE NUMBER OF OBJECTIVES ACHIEVED.

	TUTORIAL SHEETS - I	2015-16
		Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**

Designation: **ASSOC PROFESSOR**

Department:: **CSE**

The Schedule for the whole Course / Subject is:: **PRINCIPLES OF PROGRAMMING LANGUAGES**

Date: 11/7/2015

This Tutorial corresponds to Unit Nos. I, II, III and IV

Time: 1pm

Q1. Explain in detail the compilation process using block diagram [1].

Q2. Explain BNF using grammars and derivations [3].

Q3. Explain denotational semantics using examples [5].

Q4. Explain arithmetic expressions in detail using examples [5].

Q5. Explain parse trees and ambiguity using examples [2].

Q6. Explain the following data types a) Primitive data types b) Character string [3].

Q7. Explain EBNF using examples [4].

Q8. Explain the following data types a) Record types b) Union types c) Pointers [5].

Q9. Explain the concept of binding in detail [2].

Q10. Explain axiomatic semantics for a) Assignment b) Sequence statements [3].

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



TUTORIAL SHEETS - II

2015-16

Regulation: R13

FACULTY DETAILS:

Name of the Faculty:: **ABHAY KUMAR**

Designation: **ASSOC PROFESSOR**

Department:: **CSE**

The Schedule for the whole Course / Subject is:: **PRINCIPLES OF PROGRAMMING LANGUAGES**

Date: 22/8/2015

This Tutorial corresponds to Unit Nos. V, VI, VII and VIII

Time: 1pm

- Q1. Explain design issues related to sub-programs [1].
- Q2. Explain parameter passing methods [3].
- Q3. Explain Abstract Data Types [4].
- Q4. Explain object oriented programming in Java and C# [2].
- Q5. Explain Exception handler in Ada and C++ [3].
- Q6. Explain basic elements of prolog [4].
- Q7. Explain basic elements of LISP [5].
- Q8. Explain basic elements of Haskell [5].
- Q9. Explain Scripting languages [4].
- Q10. Explain basic elements of Python [5].

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



ILLUSTRATIVE VERBS FOR STATING INSTRUCTIONAL OBJECTIVES

2015-16

Regulation: R13

These verbs can also be used while framing questions for Continuous Assessment Examinations as well as for End – Semester (final) Examinations.

ILLUSTRATIVE VERBS FOR STATING **GENERAL OBJECTIVES**

Know
Comprehend

Understand
Apply

Analyze
Design

Generate
Evaluate

ILLUSTRATIVE VERBS FOR STATING **SPECIFIC OBJECTIVES:**

A. Cognitive Domain

1	2	3	4	5	6
Knowledge	Comprehension Understanding	Application of knowledge & comprehension	Analysis of whole w.r.t. its constituents	Synthesis combination of ideas/constituents	Evaluation judgement
Define Identify Label List Match Reproduce Select State	Convert Defend Describe (a procedure) Distinguish Estimate Explain why/how Extend Generalize Give examples Illustrate Infer Summarize	Change Compute Demonstrate Deduce Manipulate Modify Predict Prepare Relate Show Solve	Breakdown Differentiate Discriminate Distinguish Separate Subdivide	Categorize Combine Compile Compose Create Devise Design Generate Organize Plan Rearrange Reconstruct Reorganize Revise	Appraise Compare Conclude Contrast Criticize Justify Interpret Support

B. Affective Domain

Adhere
Assist
Attend
Change
Develop
Help
Influence
Initiate

Resolve
Select
Serve
Share

C. Psychomotor Domain (skill development)

Bend
Calibrate
Compress
Conduct
Connect
Convert
Decrease
Demonstrate

Dissect
Draw
Extend
Feed
File
Grow
Handle
Increase

Insert
Keep
Elongate
Limit
Manipulate
Move precisely
Operate
Paint

Perform
Prepare
Remove
Replace
Report
Reset
Run
Set

Straighten
Strengthen
Time
Transfer
Type
Weigh

	LESSON PLAN Unit-1	2015-16
		Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **I**

INSTRUCTIONAL OBJECTIVES: To have a thorough understanding of the basic concepts of PRINCIPLES OF PROGRAMMING LANGUAGES.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction,	50	TB1	Chalkboard
2	Reasons for Studying, Concepts of Programming Languages.	50	TB1	Demonstration
3	Programming Domains, Languages Evaluation Criteria,	50	TB1	Chalkboard
4	Influences on Languages Design.	50	TB1	Chalkboard
5	Language Categories, Paradigms- Imperative	50	TB2	Chalkboard
6	Object Oriented, functional Programming,	50	TB2	Chalkboard
7	Logical programming	50	TB2	Chalkboard
8	Language implementation	50	TB1	Chalkboard
9	Compilation and virtual machine	50	TB1	Chalkboard
10	Programming environments	50	TB1	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. Understand and explain the concepts of Principles of Programming Languages and its components



ASSIGNMENT
Unit-I

2015-16

Regulation: R13

Assignment / Questions

Understand the basic concepts of PPL and how it is related to other subjects.

Course Objectives: To have a thorough understanding of the basic concepts of PPL.

Learning Outcomes: Understand and explain PPL and reasons for studying PPL.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-II	2015-16
		Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **II**

INSTRUCTIONAL OBJECTIVES:

1. Be familiar with the syntax and semantics.
2. To understand the BNF, EBNF and axiomatic semantics.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to syntax and semantics	50	TB1	Chalkboard
2	General Problem of Describing Syntax and Semantics	50	TB1	Chalkboard
3	Formal methods of describing syntax --BNF	50	TB1	Chalkboard
4	EBNF for common programming languages features	50	TB1	Chalkboard
5	Parse trees	50	TB1	PPT
6	Attribute grammars	50	TB1	Chalkboard
7	Denotational semantics	50	TB1	Demonstration
8	Axiomatic semantics	50	TB1	Demonstration
9	Ambiguous grammars	50	TB1	Demonstration
10	Examples of axiomatic semantics for common programming language features	50	TB1	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. Identify and understand different forms of syntax methods.
2. Identify and understand different types of semantics.



**ASSIGNMENT
Unit-II**

2015-16

Regulation: R13

Assignment / Questions

Analyze Syntax and Semantics?

Course Objectives: Be familiar with the syntax grammars and semantics.

Learning Outcomes: Understand BNF, EBNF and Axiomatic Semantics.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-III	2015-16
		Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**
Unit **III**

Subject Code **6755025**

INSTRUCTIONAL OBJECTIVES:

1. To have knowledge about various data types.
2. To have understanding about design and implementation issues related to data types.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Data Types: Introduction,	50	TB1	Chalkboard
2	Primitive data types	50	TB1	Chalkboard
3	Character String, User defined Ordinal types	50	TB1	Chalkboard
4	Arrays, Associative, Record, Union	50	TB1	Chalkboard
5	Pointer and reference types	50	TB1	Chalkboard
6	Design and implementation issues related to data types	50	TB1	PPT
7	Names, Variable	50	TB1	PPT
8	Concepts of binding	50	TB1	Chalkboard
9	Type compatibility	50	TB1	Chalkboard
10	Named constants and variable initialization	50	TB1	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. To have knowledge and understanding about design and implementation issues related to various data types.

	ASSIGNMENT Unit-III	2015-16
		Regulation: R13

Assignment / Questions

Analyze various Data Types and its design and implementation issues?

Course Objectives: To have knowledge about various Data Types.

Learning Outcomes: Enumerate with examples various Data Types.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-IV	2015-16
		Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **IV**

INSTRUCTIONAL OBJECTIVES: To have understanding about various expressions and statements at statement level and compound statements level

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Expressions and Statements : Introduction	50	TB1	Chalkboard
2	Arithmetic relational and Boolean expressions	50	TB1	Chalkboard
3	Short circuit evaluation mixed mode assignment.	50	TB1	PPT
4	Assignment Statements	50	TB1	PPT
5	Control Structures – Statement Level	50	TB1	Chalkboard
6	Compound Statements	50	TB1	Chalkboard
7	Selection Statements	50	TB1	Chalkboard
8	Iteration Statements	50	TB1	Chalkboard
9	Unconditional Statements	50	TB1	Chalkboard
10	Guarded commands	50	TB1	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. Familiarity with the various expressions and statements at statement level and compound statements level.

	ASSIGNMENT Unit-IV	2015-16
		Regulation: R13

Assignment / Questions

Analyze Expressions and Statements for different programming languages?

Course Objectives: To have understanding of Expressions and Statements.

Learning Outcomes: Familiarity with the basic concepts of Expressions and Statements in different programming languages.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-V	2015-16
		Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **V**

INSTRUCTIONAL OBJECTIVES: To discuss in detail sub-programs and blocks.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Sub-Programs and Blocks: Introduction, Fundamentals of sub-programs	50	TB1	Chalkboard
2	Scope and lifetime of variable, static and dynamic scope,	50	TB1	PPT
3	Design issues of subprograms and operations.	50	TB1	PPT
4	Local referencing environments, parameter passing methods	50	TB1	Chalkboard
5	Overloaded sub-programs	50	TB1	Chalkboard
6	Generic sub-programs	50	TB1	Chalkboard
7	Parameters that are sub-program names	50	TB1	Chalkboard
8	Design issues for functions	50	TB1	Chalkboard
9	User defined overloaded operators	50	TB1	Chalkboard
10	Co- routines	50	TB1	PPT

On completion of this lesson the student shall be able to (Outcomes)

1. Understand and building the skills on Sub-Programs and Blocks.

	ASSIGNMENT Unit-V	2015-16
		Regulation: R13

Assignment / Questions

Analyze Sub-Programs and Blocks?

Course Objectives: To discuss Sub-Programs for different programming languages.

Learning Outcomes: Understand and build programs using Sub-Programs and Blocks.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-VI

2015-16

Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **VI**

INSTRUCTIONAL OBJECTIVES: To study different Abstract Data Types with examples.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Abstract Data Types: Introduction	50	TB1	Chalkboard
2	Abstractions and encapsulation	50	TB1	PPT
3	Introduction to data abstraction	50	TB1	PPT
4	design issues, language examples	50	TB1	Chalkboard
5	C++ parameterized ADT	50	TB1	Chalkboard
6	Object oriented programming in small talk C++, Java	50	TB1	Chalkboard
7	Object oriented programming in C#, ADA 95	50	TB1	Chalkboard
8	Subprogram level concurrency, semaphores, monitors, message passing	50	TB1	Chalkboard
9	Java Threads	50	TB1	Chalkboard
10	C# Threads	50	TB1	PPT

On completion of this lesson the student shall be able to (Outcomes)

1. Understand with examples various Abstract Data Types.

	ASSIGNMENT Unit-VI	2015-16
		Regulation: R13

Assignment / Questions

Analyze the Abstract Data Types in various programming languages?

Course Objectives: To study different Abstract Data Types.

Learning Outcomes: Enumerate different Abstract Data Types.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN Unit-VII

2015-16

Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**

Subject Code **6755025**

Unit **VII**

INSTRUCTIONAL OBJECTIVES: To study different Exception handling used in various programming languages.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Exception handling: Introduction	50	TB1	Chalkboard
2	Exception propagation	50	TB1	Chalkboard
3	Exception handler in ADA	50	TB1	Chalkboard
4	Exception handler in C++	50	TB1	Chalkboard
5	Exception handler in Java	50	TB1	Chalkboard
6	Logical Programming Language introduction	50	TB1	Chalkboard
7	Introduction logic programming	50	TB1	Chalkboard
8	Overview of logic programming	50	TB1	PPT
9	Basic elements of prolog	50	TB1	PPT
10	Application of Logic programming	50	TB1	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. Familiarity with different Exception handling used in various programming languages.

	ASSIGNMENT Unit-VII	2015-16
		Regulation: R13

Assignment / Questions

Analyze Exception handling and Understand Logical Programming Language?

Course Objectives: To study different exception handling techniques and logical programming language.

Learning Outcomes: Familiarity with the different exception handling techniques and prolog.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN Unit-VIII

2015-16

Regulation: R13

Name of the Faculty: **ABHAY KUMAR**

Subject **PPL**
Unit **VIII**

Subject Code **6755025**

INSTRUCTIONAL OBJECTIVES:

1. To be familiar with Functional programming languages.
2. To study and understand Scripting language.

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Functional programming languages - Introduction	50	TB1	Chalkboard
2	Fundamental of FPL, LISP, ML, Haskell	50	TB1	PPT
3	Application of functional programming languages	50	TB1	Chalkboard
4	Comparison of functional and imperative Languages	50	TB1	Chalkboard
5	Scripting language – Pragmatics and Key concepts	50	TB2	PPT
6	Case study on Python - Values and Types, Variables	50	TB2	PPT
7	Case study on Python - Storage and control	50	TB2	PPT
8	Case study on Python - Bindings and scope	50	TB2	PPT
9	Case study on Python - Data Abstraction, procedural Abstraction	50	TB2	PPT
10	Case study on Python - Separate Compilation, Modular Library	50	TB2	Chalkboard

On completion of this lesson the student shall be able to (Outcomes)

1. Familiarity with the basic functional programming languages like FPL, LISP, ML, Haskell.
2. Familiarity with the basic Scripting language.

	ASSIGNMENT Unit-VIII	2015-16
		Regulation: R13

Assignment / Questions

Explain the Functional and Scripting programming languages and its features.

Course Objectives: To be familiar with the working of Functional and Scripting programming languages.

Learning Outcomes: Familiarity with the basic of FPL, LISP, ML, Haskell and Python.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.