DARBHANGA COLLEGE OF ENGINEERING

DARBHANGA

COURSE FILE OF
PRINCIPLES OF PROGRAMMING LANGUAGES
(05 1610)

DEPARTMENT
OF
COMPUTER SCIENCE AND ENGINEERING

FACULTY NAME
MR. ZOHEB HASAN
(Assistant Professor)

Institute/College Name:	Darbhanga College of Engineering
Program Name:	B.Tech (CSE, 6th semester)
Course Code:	051610
Course Name:	Principles of programming languages
Lecture/Tutorial(per week):	3
Course Credits:	3
Course Co-coordinator Name:	Mr. Zoheb Hasan

1. Scope and Objective of Course

1. To introduce the major programming paradigms, and the principles and techniques involved in design and implementation of modern programming languages.
2. To introduce notations to describe syntax and semantics of programming languages.
3. To analyze and explain behavior of simple programs in imperative languages using concepts
4. Such as binding, scope, control structures, subprograms and parameter passing mechanisms.
5. To introduce the concepts of ADT and object oriented programming for large scale software development.
6. To introduce the concepts of concurrency control and exception handling.

2. Textbooks

1. Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.
2. Programming Languages: Concepts and Constructs by R. Sethi, Pearson Education

3. Reference Books

1. Fundamentals of Programming Languages by E. Horowitz, Galgotia,
2. Programming Languages , Paradigm and Practice by D. Appleby, McGraw Hill

Other readings and relevant websites

S. No.	Link of journals, Magazines, websites and Research papers
1.	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE

2.	https://www.youtube.com/watch?v=27DvDMjl_bA&list=PLTo1TmBz2ekof8VsYaoTxP-9VgJ9P-dTO

Course plans

Lecture No.	Date of Lecture	Topics	Web Links for Videos Lecture	Text Books/Reference books/Reading Materials	Page No. of Text Books
1-3		**Language Design Issues** Impact on Programming paradigm, Role of Programming Environment.	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	16-38
4-6		**Impact of Machine Architecture** Computer H/w, Firmware Computer, Transistor and virtual Architecture	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB2) Programming Languages: Concepts and Constructs by R. Sethi, Pearson Education	45-64
7-10		**Language Translation Issues** Programming Language Syntax, Stages in translation, Formal Translation model (BNF Grammars, etc.), Formal properties of Languages, Languages Semantics Program Verification.	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	67-105

		Assignment-1			
10-13		**Data Types** Properties of Types and Objects, Scalar Data Types, Composite Data Types, Structures Data Types, Abstract Data Types, Encapsulation by subprogram, Type Definitions.	https://www.youtube.com/watch?v=EYZ_A-Q3_pw	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	145-236
14-16		**Inheritance** Derived class, Abstract Class, Inheritance & software Reuse, Polymorphism.	https://www.youtube.com/watch?v=EYZ_A-Q3_pw	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	245-270
17-19		**Sequence Control** Implicit & Explicit Sequence control, Sequencing with Arithmetic Expression Sequence control, between statements, sequencing with Non-arithmetic Expression.	https://www.youtube.com/watch?v=EYZ_A-Q3_pw	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	273-315
		Assignment-2			
20-22		**Subprogram Control** Subprogram sequence control, Attributes of Data Control Parameter	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889	(TB1) Programming Languages: Design and Implementatio	319-371

		transmission, Static Scope, Dynamic scope, Block Structure.	CE	n, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	
23-25		**Storage Management** Element Requiring Storage. Programmer and system Controlled Storage, Static storage management, Heap storage management.	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	377-392
26-28		**Distributed Processing** Exceptions & Exception Handlers, Co-routines, Scheduled Subprogram, Parallel Programming, Persistence data & Transaction Systems, Network & Client server Computing.	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	395-432
29-31		**Case Study** Comparison between Ada, C, C++, Fortran, Java, LISP, ML, Perl, Prolog, Smalltalk, Postscript	https://www.youtube.com/watch?v=EbNJ05EVXs0&list=PLF7C73918190889CE	(TB1) Programming Languages: Design and Implementation, 4/e by Terrance W. Pratt, Marvin V. Zelkovitz, T. V.Gopal, Pearson Education.	463-555

		Assignment-3

Syllabus

Topics	No. of Lectures	Weightages
Language Design Issues : Impact on Programming paradigm, Role of Programming Environment	**3**	**8%**
Impact of Machine Architecture : Computer H/w, Firmware Computer, Transistor and virtual Architecture	**5**	**6%**
Language Translation Issues: Programming Language Syntax, Stages in translation, Formal Translation model (BNF Grammars, etc.), Formal properties of Languages, Languages Semantics Program Verification.	**5**	**14%**
Data Types : Properties of Types and Objects, Scalar Data Types, Composite Data Types, Structures Data Types, Abstract Data Types, Encapsulation by subprogram, Type Definitions.	**4**	**12%**
Inheritance: Derived class, Abstract Class, Inheritance & software Reuse, Polymorphism	**4**	**8%**
Sequence Control: Implicit & Explicit Sequence control, Sequencing with Arithmetic Expression Sequence control, between statements, sequencing with Non-arithmetic Expression.	**5**	**12%**
Subprogram Control: Subprogram sequence control, Attributes of Data Control Parameter transmission, Static Scope, Dynamic scope, Block Structure.	**5**	**12%**
Storage Management: Element Requiring Storage. Programmer and system Controlled Storage, Static storage management, Heap storage management.	**4**	**10%**
Distributed Processing: Exceptions & Exception Handlers, Co-routines, Scheduled Subprogram, Parallel Programming, Persistence data & Transaction Systems, Network & Client server Computing.	**4**	**8%**
Case Study: Comparison between Ada, C, C++, Fortran, Java, LISP, ML, Perl, Prolog, Smalltalk, Postscript.	**4**	**10%**
total	**43**	**100**

Evaluation and Examination Blue Prints:

Internal assessment is done through quiz tests, presentations, assignments and projects work. Two sets of question paper are asked from each faculty and out of these two, without the knowledge of faculty, one question paper is chosen for the concerned examination. Examination rules and regulations are uploaded on the student's portals. Evaluation is a very transparent process and the answer sheets of sessional tests, internal assessment assignments are returned back to the students.

The components of evaluation along with their weightage followed by the university are given below:

Component-1	Sessional test-1	30%
	Sessional test-2	
	Sessional test-3	
Component-2	Assignments, Quiz's, Test, Seminars	10%
Component-3	End Term Examination	60%
Totals		100%

Designation	**Name**	**Signature**
Course Coordinator	Mr. Zoheb Hasan	
H.O.D	Dr._____	
Principal	Dr._____	
Date	…../…./…….	