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| 13CS3103 | - | PRINCIPLES OF PROGRAMMING LANGUAGES |

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| Hours / Week | : | 4 |  | Sessional Marks | : | 40 |
| Credits | : | 4 |  | End Examination Marks | : | 60 |

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| **UNIT - I** |
| **Preliminaries**: Programming Domains, Language Evaluation Criteria, Influences on Language Design, Language Categories, Language Design Tradeoffs Implementation methods and programming environments. **Describing Syntax and Semantics**: Formal methods of describing Syntax, Attribute Grammars and Dynamic Semantics. |
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| **UNIT – II** |
| **Data Types**: Primitive data types, Character string types, User-defined ordinal types, Array types, Associative arrays, Record types, Union types, Pointer and reference types. **Expression statements and Assignment statements**: Arithmetic expressions, Overloaded operators, Type conversions, Relational and Boolean expressions, Short-Circuit evaluation, Assignment statements, Mixed mode assignment. |
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| **UNIT – III** |
| **Subprograms**: Fundamentals, Design issues, Local referencing environments, Parameter passing methods, Parameters that are subprogram names, Overloaded subprograms, Generic subprograms, Design issues for functions, User-defined Overloaded Operators, Co routines. **Implementing Subprograms**: General Semantics of calls and returns, implementing simple subprograms, implementing subprograms with stack-dynamic local variables. |
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| **UNIT – IV** |
| **Abstract Data Types & Encapsulation Constructs**: Concepts of abstraction, Data Abstraction, Design issues, Language Examples, Parameterized Abstract data types, Encapsulation Constructs, Naming Encapsulations. **Support for OOP**: Object Oriented Programming, Design Issues for OOL, Support for OOP in Smalltalk, C++, Java, C#, Ada95, Ruby and Object model of JavaScript, Implementation of Object Oriented constructs. |
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| **UNIT - V** |
| **Exception Handling**: Introduction to Exception Handling, Exception handling In Ada, C++, Java. **Functional Programming Languages**: Mathematical functions Fundamentals of functional programming languages, introduction to LISP, Scheme. Applications of functional programming languages, Comparison of imperative languages. |
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| TEXT BOOKS |
| 1. Sebesta RW, Concepts of programming languages, 8th edition, Pearson Education 2008.
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| REFERENCE BOOKS |
| 1. Louden KC, Programming Languages - Principles and Practice, 2nd edition, Cenage Learning 2003.
2. Tucker AB, Noonan RE, Programming Languages - Principles and Paradigms, 2nd edition, TMH 2007.
3. Pratt TW, Zelkowitz MV, and Gopal TV, Programming Languages - Design and Implementation, 4th edition, Pearson Education 2006.
4. Ghezzi C. Jazayeri M, Programming Language Concepts, 3rd edition, Wiley-India 1998.
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