

**NIRMA UNIVERSITY**  
**SCHOOL OF TECHNOLOGY, INSTITUTE OF TECHNOLOGY**  
**B.Tech. Electronics & Communication Engineering**  
**Semester - V**  
**Department Elective I**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>3</b>	<b>-</b>	<b>2</b>	<b>4</b>

<b>Course Code</b>	<b>2ECDE55</b>
<b>Course Title</b>	<b>Scripting Language</b>

**Course Outcomes (COs):**

At the end of the course, the students will be able to

1. Develop programmes for automation of scripts in EDA tool design flow in the Linux environment.
2. Produce scripts using Python for scientific programming.
3. Build Perl scripts for automation in the IC design flow.

**Syllabus:**

**Teaching Hours:45**

**UNIT I: Linux Basics**

**08**

Introduction to Linux, File System of the Linux, General usage of Linux kernel & basic commands, Linux users and group, Permissions for file, directory and users, Searching a file & directory, zipping and unzipping concepts, Introduction to Networking in Linux, Network basics & tools, File transfer protocol in Linux, Network file system, Shell Scripting

**UNIT II: Perl Scripting**

**15**

Introduction, working with Simple Values, Lists and Hashes, Loops and Decisions, Regular Expressions, Files and Data in Perl Scripting, References & Subroutines, Running and Debugging Perl, Modules, Object-Oriented Perl.

**UNIT III: Python Scripting**

**15**

Introduction to Python, Program Development Cycle, Data types and Expressions, More about Data Output, Performing Calculations, Loops and lists, Data Structures, Modules, Input and Output, Errors and Exceptions, Classes, Functions and Modules, Floating Point Arithmetic, Tour of the Standard Python Libraries.

**UNIT IV: Scientific Programming with Python**

**07**

Computing with formulas, Array computing and curve plotting, Dictionaries and strings, Introduction to classes, basics of Object-oriented programming. Python Libraries

**Self-Study:**

The self-study content will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study contents

**Laboratory Work:**

Laboratory work will be based on the above syllabus with a minimum of 10 experiments to be incorporated.

**Suggested Readings:**

1. Ganesh Sanjiv Naik, Learning Linux Shell Scripting, Packet Publishing Ltd.
2. Guido Van Rossum and Fred L. Drake Jr, An Introduction to Python, Network Theory Ltd.
3. Hans Petter Langtangen, A Primer on Scientific Programming with Python, Springer
4. Larry Wall, Tom Christiansen, and John Orwant, Programming Perl, O'Reilly Publications
5. Quan Nguyen, CAD Scripting Languages: A Collection of Perl, Ruby, Python, TCL & SKILL Scripts: Programming Guide for Design Engineers by Design Engineer, RAMACAD INC.

L = Lecture, T = Tutorial, P = Practical, C = Credit