ROBOTIC PROCESS AUTOMATION DESIGN & DEVELOPMENT

Course Code: CSE552 **Credits: 3:0:0**
Prerequisites: Nil **Contact Hours: 42**
Course Coordinator/s: Ganeshayya I Shidaganti

Course Contents:

UNIT I

PROGRAMMING BASICS: Introduction to Programming, Data and Data Structure, Algorithms**,** Variables and Arguments**,** Software Application and Software Development Life Cycle (SDLC)**,** Frameworks and Languages
AUTOMATION AND RPA: History of Automation, Automation and its benefits, Introduction to RPA, Automation vs RPA, Process and Flowchart ,RPA Programming Constructs, Robots in RPA, Introduction to Robots, Types of Robots, Benefits and Implementation of RPA

UNIT II

RPA TOOL INTRUDUCTION AND BASICS: RPA Development Life Cycle, How does RPA Work, Challenges in RPA, Variables and Types of Variables, Variables vs. Arguments, Namespaces, and Importing New Namespace.
CONTROL FLOW ACTIVITY: Sequences, Control Flow and its types, Decision control-IF, Switch, IF vs Switch, Loops-Do While, While, For each, Other control flow activities - Delay, Break, Assign, Continue and Parallel

UNIT III

DATA MANIPULATION:
Data Manipulation and Its Importance, String Manipulations, Data Table Manipulations, Collection, Its Types and Manipulations.
UI AUTOMATION & SELECTORS: UI interactions, Input actions and Input methods, Containers, Recording & its types, Selectors, Types of Selectors- Full and Partial, Containers and Partial Selectors, Dynamic Selectors

UNIT IV

AUTOMATION CONCEPTS AND TECHNIQUES: Desktop and Web Recording, Extraction and its techniques- Screen scraping, Data scraping and PDF Extraction. Automation Techniques- Workbook and Excel automation (read/write).
EMAIL AUTOMATION: Incoming Email automation - Sending Email automation

Unit V

ERROR AND EXCEPTION HANDLING: Errors, Error handling approach, Try Catch, Retry Scope, Exception Handling, Types of Exceptions, Global Exception Handler, Best Practice for Error Handling

ORCHESTRATOR: Overview, Orchestrator Functionalities, Orchestrator User Interface-Automations, Management and Monitoring

Text Books:

1. Alok Mani Tripathi, Learning Robotic Process Automation, Publisher: Packt Publishing Release Date: March 2018 ISBN: 9781788470940.

Reference Book:

1. Frank Casale (Author), Rebecca Dilla (Author), Heidi Jaynes (Author), Lauren Livingston (Author), Introduction to Robotic Process Automation: a Primer, Institute of Robotic Process Automation.
2. Richard Murdoch, Robotic Process Automation: Guide To Building Software Robots, Automate Repetitive Tasks & Become An RPA Consultant
3. Srikanth Merianda,Robotic Process Automation Tools, Process Automation and their benefits: Understanding RPA and Intelligent Automation
4. https://www.uipath.com/rpa/robotic-process-automation

Course Outcomes (COs):

At the end of the course, students should be able to:

1. Understand Basic Programming concepts and the underlying logic/structure (PO-2, 3, 4, 5, PSO-2)
2. Describe RPA, where it can be applied and how it's implemented. (PO-1, 2, 4, PSO-2)
3. Describe the different types of variables, Control Flow and data manipulation techniques(PO-1, 2, 4, PSO-2)
4. Identify and understand Image, Text and Data Tables Automation (PO-2,3,4,5, PSO-2)
5. Describe automation to Email and various types of Exceptions and strategies to handle(PO-3, PO-4, PSO-2)