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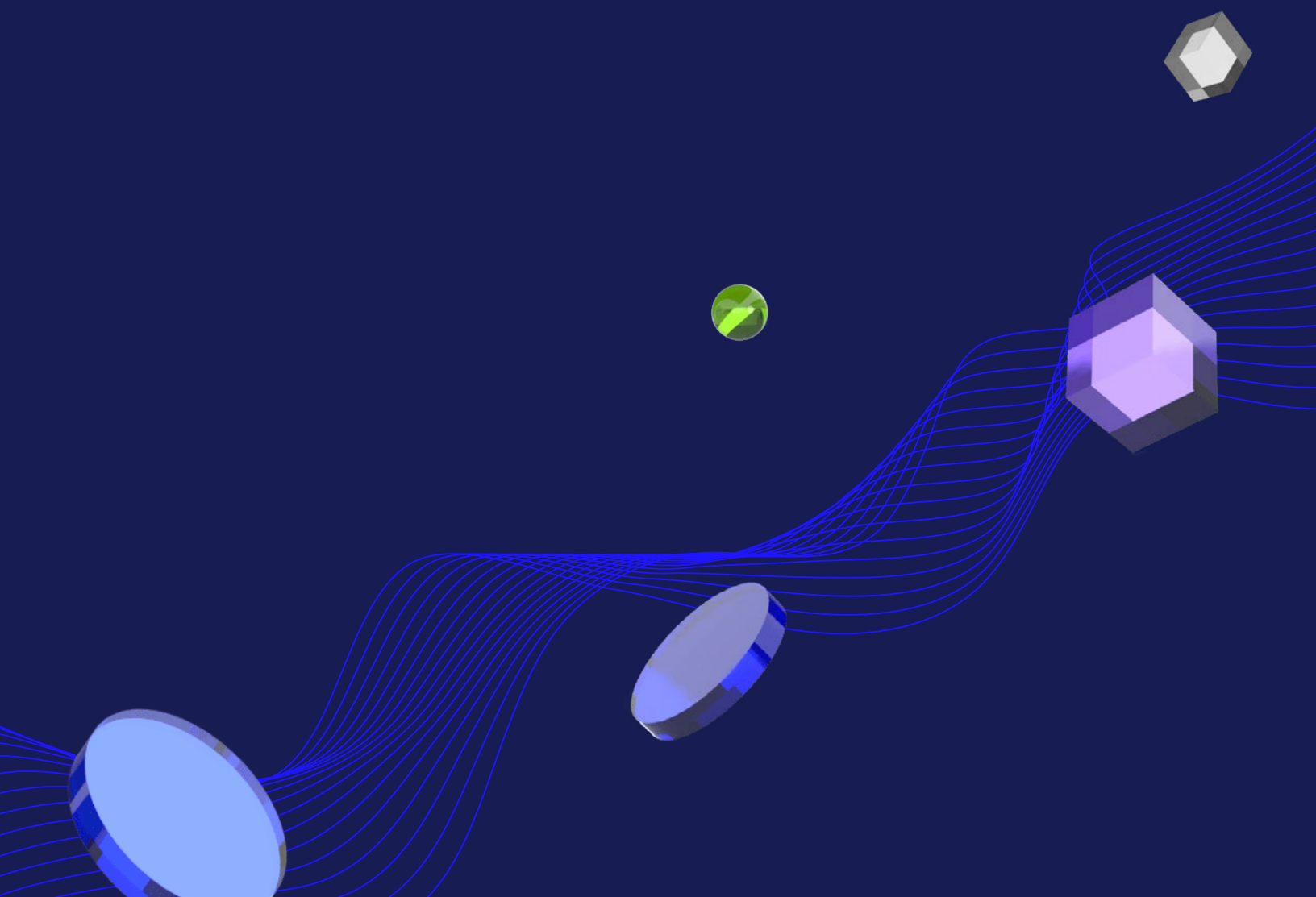
UDACITY

SCHOOL OF PROGRAMMING & DEVELOPMENT

RPA Developer with UiPath

Nanodegree Program Syllabus



Overview

The RPA Developer Nanodegree Program helps students develop professional-level skills focused on developing and deploying software robots. The course assumes no prior knowledge of RPA. It begins by introducing basic RPA concepts, introduces the UiPath RPA platform, and teaches a student how to use free UiPath software to automate business processes while refreshing basic programming skills along the way.

Learning Objectives

A graduate of this program will be able to:

- Code an automation using variables, arguments, sequences, and flowcharts.
- Understand and correctly use the properties of user interface activities to make them robust, reusable, and scalable.
- See how robots use selectors within UI applications in order to identify where to enter or extract data.
- Scrape and extract data and store those values in an Excel spreadsheet.
- Implement debugging techniques to ensure your code is free from errors.
- Understand Orchestrator queues and assets.
- Design and build the automated solution in UiPath Studio.

Built in collaboration with:

UiPath™

Program information

Estimated Time

4 months at 10hrs/week*

Skill Level

Beginner

Prerequisites

A well-prepared learner is already able to:

- Use Microsoft applications, understand data manipulation, and understand basic logical sequence flows (like Visio).

While the following experience is not required to complete the Nanodegree program, learners may benefit from:

- Proficiency in a programming language and scripting in a programming language to review, implement, and modify code; VB.NET/VBA/C# experience is a plus.
- An understanding of the .NET framework.

Required Hardware/Software

A student must have access to a Windows-based machine with Microsoft applications like Excel and Outlook or a VM running a Windows Environment.

Minimum hardware and software requirements:

- CPU: 2 x 1.8GHz 32-bit (x86)
- RAM: 4 GB
- Windows 7+, Chrome, and Microsoft Office

*The length of this program is an estimation of total hours the average student may take to complete all required coursework, including lecture and project time. If you spend about 5-10 hours per week working through the program, you should finish within the time provided. Actual hours may vary.

Course 1

Intro to RPA with UiPath

In this course, students will learn about RPA using UiPath, specifically how to use UiPath Studio to develop automation solutions. Learners will first get a deep dive into Studio and how to use activities to program the robot to mimic actions. Learners will understand how data is stored and passed between applications and actions while understanding the logical flow of execution of the actions. Learners will understand how to ensure data is valid and in any format needed while learning what's available to leverage from the Microsoft coding language used in Studio. Finally, students will learn about selectors, which are the heart of user interface identification and automation, and how the robots use them to work within UI applications to successfully identify where to enter or extract data and actions.

Course Project

Sorting Annual Reports

Organizing several annual reports from your company, but create an automation to click one button and automatically sort future reports. Get a webpage where all the reports are currently stored and create an automation to sort them based on the name of the reports.

Lesson 1

Introduction to UiPath

- Install and update the UiPath components and extensions, taking into account the versioning scheme.
- Use the user interface of the UiPath Studio to interact with the application and design automation workflows.
- Search, install, save, use and reuse activities in UiPath Studio.

Lesson 2

Variables, Arguments & Control Flow

- Code an automation using variables and arguments.
- Understand and utilize the correct data types.
- Code an automation using both sequences and flowcharts.
- Code an automation which loops through data.

Lesson 3

Data & String Manipulation & UI Activity Properties

- Pescribe data manipulation and its importance.
- Apply data manipulation methods suitable for RPA to different types of data structures and variables.
- Explain collection, its types, and manipulations.
- Understand and correctly use the properties of user interface activities to make them robust, reusable, and scalable.
- Using VB.NET string methods, dynamically store all the files in the folder in an array variable.
- Using validation methods, check the file names against constraints and move the files depending on the process requirements.

Lesson 4

Selectors

- Understand what is a selector and what makes a selector robust, stable, and dynamic.
- Create stable and dynamic selectors.
- Debug selectors to fine-tune them in order to improve element manipulation precision.
- Understand the structure of selectors and what tags and attributes refer to.
- Use Anchors to manage difficult situations.

Course 2

UiPath Advanced Automation Techniques & Design

In this course, learners will cover more advanced automation techniques to make them confident automating various software, web applications, and beyond. They'll learn how to extract, manipulate, and insert data within Excel and PDF documents. Students will learn about the recording options in studio to assist them in quickly building automation projects and how to code automation emails for input, output, and email management. In addition, students will learn how to implement debugging techniques to ensure their code is free from errors and runs end to end. Finally, they'll be introduced to UiPath Orchestrator, a web-based management tool, so they can manage their projects and use the developer functionalities to make their projects robust and scalable.

Course Project

Invoice Scraping

Develop an automation for a process that will scrape data from and then process invoices. The robot will read through emails and download the invoices received in the form of an email attachment. It will extract specific data and store those values in an Excel spreadsheet and a subset of values will be uploaded to the Orchestrator Queue. Finally, the robot will email the spreadsheet to when finished.

Lesson 1

Excel, Data Tables & PDF Automation

- Understand the concept of DataTable and its manipulation technique.
- Identify the common methods of data manipulation for DataTables.
- Code an automation using an Excel spreadsheet, datatables, and PDFs.
- Automate creating and populating new Excel files from datatable variables using the Excel and Workbook automation packages within UiPath Studio.
- Extract text segments from PDF using the PDF activities.

Lesson 2

Recording, UI Interactions & Advanced Citrix Automation

- Use the recorder to automate actions.
- Differentiate between actions that can be recorded automatically and actions that have to be manually recorded in UiPath.
- Use basic, desktop and web recording and know the situations in which each of them is appropriate.
- Use the screen scraping wizard and configure input and output methods as appropriate to the context.
- Use the data scraping functionality of UiPath in the appropriate contexts.
- Code an automation to scrape data from various sources (web, PDF, applications) using data scraping wizard and screen scraping wizard.
- Perform basic Image and text automations as well as virtual machine application automations.

Lesson 3

Email Automation

- Identify activities suited for email automation.
- Code an automation to read emails using mail activities.
- Code an automation to filter and download attachment from the mail.
- Code an automation to send emails using message template.

Lesson 4

Debugging, Exception Handling & Testing

- Use debugging techniques to find errors.
- Define exception handling and use of different types of exceptions in finding errors.
- Run and test your automations with default values and reusable code.

Lesson 5

Introduction to Orchestrator

- Define Orchestrator and its functions.
- Understand the concept of processes and publishing package.
- Connect your studio robot to Orchestrator and identify types of robots in Orchestrator.
- Understand Orchestrator queues and assets.
- Define the process for scheduling of robots.

Course 3

RPA Team Best Practices

As an RPA developer, one needs to understand how to handle anything thrown their way with consistent and successful methods. This course will give learners the tools they need to be successful as an RPA developer. First, learners will understand how to identify and handle common challenges with RPA projects. Then, students will learn the best way to design solutions and have clean, organized project solutions. They'll learn standard best practices to make working within a team a breeze and ensure that they consider the most important aspects of well-written code in Studio. Next, learners will cover an advanced topic, the Robotic Enterprise Framework, which is necessary for production-level projects. Finally, learners will understand how RPA teams work together, how automation is an end-to-end process, how it relates to AI and other technologies, and how to learn more and connect with the RPA community.

Course Project

RPA Code Review

As an RPA developer, one will often be called on by other RPA developers on their team to review their work. Team members review each other's code routinely before completing the end-to-end automation solution. As the RPA developer leading the project, it is one's job to finish the design specification document (DSD) when the development and testing is done for hand-off to the COE.

Lesson 1

Automation Challenges

- Code an automation that interacts with a user.
- Verify stability of the automation.
- Catch all errors and handle them in a graceful way by reprocessing, retrying, or letting the user know when an action failed and must be manually handled.
- Understand the common exceptions thrown in UiPath Studio.

Lesson 2

Project Organization

- Organize a project in an efficient and understandable way.
- Ensure all business requirements from a process definition document are met throughout a project (all use cases stated, all known and unknown exceptions handled, etc.).
- Test and debug each workflow (unit testing) as well as the overall project workflow.

Lesson 3

Best Practices

- Demonstrate advanced knowledge of best practices by correcting the project in areas of readability, logging, reusability, and naming conventions.
- Build and test dynamic selectors and highlight relevant tags and attributes of those selectors.
- Complete project documentation and necessary sections of the design specification document.

Lesson 4

RE Framework

- Understand the production-level framework, state machines, audit logs, and retry mechanisms.

Lesson 5

Capstone Work

- Understand how RPA fits into digital transformation.
- Understand expectations of each role on an RPA team.

Capstone Project

Personal Use Automation

Apply the skills developed throughout this Robotic Process Automation (RPA) Developer with UiPath Nanodegree program to build an automation of a process in one's professional or personal life. To ensure the process is impactful and a good use case for one's portfolio, it will have to be a process which interacts with multiple applications, contains data manipulation, handles errors and exceptions, and has good design and reusable components. First, fill out all the necessary steps of the process and any requirements in the process definition document (PDD). Then, design and build the automated solution in UiPath Studio. Finally, create the resulting development specifications document (DSD) showcasing the solution and any dependencies needed to run it.

Meet your instructors.

Kristina Kaldon

RPA Developer

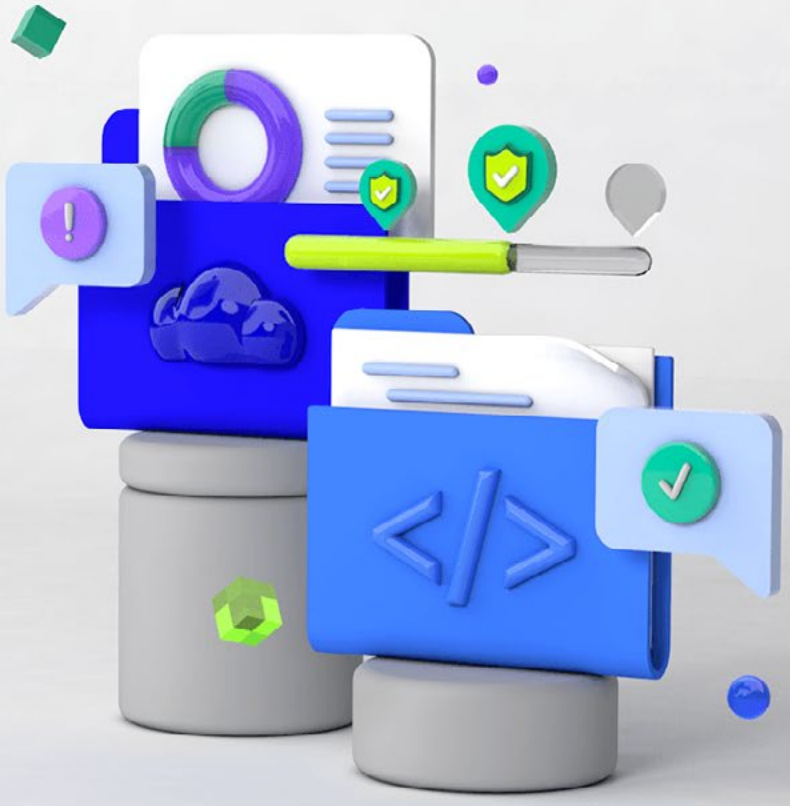
Kristina studied astronomy and physics at Penn State University. After completing her degree, she worked with satellites at MIT Lincoln Laboratory while taking graduate courses in aerospace engineering. She is a self-taught RPA developer and program manager on the UiPath learning team.

Niyaz Ahmed

Technical Consultant

Niyaz is a technical consultant and technical trainer at UiPath, where he teaches UiPath to various academic institutions. He formerly worked as a tech mentor at NIIT LTD, where he mentored learners through project-based learning for various programming languages. He has an engineering degree from Mumbai University.

Udacity's learning experience



Hands-on Projects

Open-ended, experiential projects are designed to reflect actual workplace challenges. They aren't just multiple choice questions or step-by-step guides, but instead require critical thinking.

Quizzes

Auto-graded quizzes strengthen comprehension. Learners can return to lessons at any time during the course to refresh concepts.

Knowledge

Find answers to your questions with Knowledge, our proprietary wiki. Search questions asked by other students, connect with technical mentors, and discover how to solve the challenges that you encounter.

Custom Study Plans

Create a personalized study plan that fits your individual needs. Utilize this plan to keep track of movement toward your overall goal.

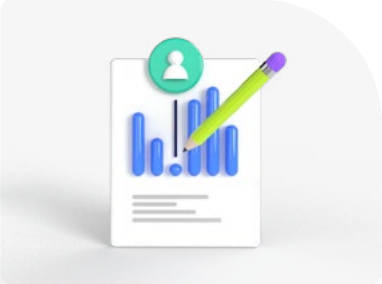
Workspaces

See your code in action. Check the output and quality of your code by running it on interactive workspaces that are integrated into the platform.

Progress Tracker

Take advantage of milestone reminders to stay on schedule and complete your program.

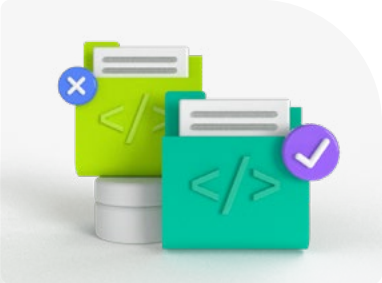
Our proven approach for building job-ready digital skills.



Pre-Assessments

Identify skills gaps.

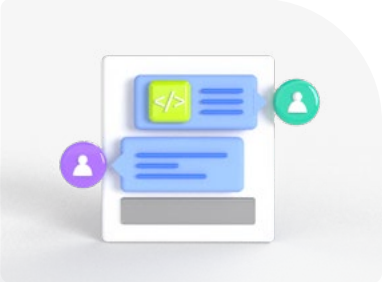
- In-depth assessments benchmark your team's current level of knowledge in key areas.
- Results are used to generate custom learning paths.



Experienced Project Reviewers

Verify skills mastery.

- Personalized project feedback and critique includes line-by-line code review from skilled practitioners with an average turnaround time of 1.1 hours.
- Project review cycle creates a feedback loop with multiple opportunities for improvement—until the concept is mastered.
- Project reviewers leverage industry best practices and provide pro tips.



Technical Mentor Support

24/7 support unblocks learning.

- Learning accelerates as skilled mentors identify areas of achievement and potential for growth.
- Unlimited access to mentors means help arrives when it's needed most.
- 2 hr or less average question response time assures that skills development stays on track.

Mentor Network

Highly vetted for effectiveness.

- Mentors must complete a 5-step hiring process to join Udacity's selective network.
- After passing an objective and situational assessment, mentors must demonstrate communication and behavioral fit for a mentorship role.
- Mentors work across more than 30 different industries and often complete a Nanodegree program themselves.

Dashboard & Reporting

Track course progress.

- Udacity's enterprise management console simplifies management of bulk enrollments and employee onboarding.
- Interactive views help achieve targeted results to increase retention and productivity.
- Maximize ROI while optimizing job readiness.

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