C. Online Part-Time Accelerated Course Descriptions and Objectives

Course Title	Length	Lecture Hours	Lab Hours	Total Course Hours	Expected Outside Hours
Required courses (stacks)					
Web Fundamentals	4 weeks	8	76	84	*20*
Python	8 weeks	16	152	168	*60*
Projects & Algorithms	4 weeks	8	76	84	*20*
Total	**16 weeks**	**32**	**304**	**336**	***100***
Based on stack bundle selected, students can add the following courses (stacks)					
MERN	8 weeks	16	152	168	*60*
Java	8 weeks	16	152	168	*60*

*Online Part-Time has the same program and course objectives, just over a longer period of time to allow for students to work at a more flexible pace.

*Please note that specific course offerings are subject to change due to industry demand, however the course offerings **will** be chosen from the listed stacks.

The Online Part-Time Accelerated Software Development Program is 16 to 32 weeks, depending on the number of bundled stacks.

With express pre-approval from campus staff, and subject to our retake policy, students have a maximum time to complete the program, not including valid leave of absence or postponement. See below for a breakdown based on bundling options.

- One stack - 32 active weeks
- Two stacks - 40 active weeks

- Three stacks - 48 active weeks

A student may use up both retakes before hitting the maximum number of weeks permitted in the list above. If a student is unable to complete the program within the aforementioned active weeks of enrollment, the student will be placed in review for Academic Dismissal. A student who is withdrawn under such circumstances must re-enroll to receive a Certificate of Achievement.

Web Fundamentals

Length: 4 weeks
Course Hours: 84 (8 lecture, 76 lab)

Prerequisite: None

Course Description:
Each student starts by learning the basics of front-end development. This subject introduces students to HTML, CSS, JavaScript, jQuery, basic algorithms and Terminal, and Git. Upon completion of this subject, students will be able to build out basic web pages with JavaScript interactivity.

Performance Objectives:
- Analysis and recreation of web page layouts in HTML and CSS.
- Separation of web page assets into separate files/directories for HTML, CSS, JS and static files (images, etc).
- Enabling webpage interactivity through incorporation of JS-based libraries such as jQuery, Bootstrap and others.
- Interact with External APIs using JavaScript and jQuery
- Use Ajax to interactively update front-end UI without web page refresh.
- Rudimentary source control mechanics.
- Basics of computer algorithms in JavaScript.

Technologies / Languages / Frameworks / Libraries:
- HTML and HTML5
- CSS and CSS3
- Twitter Bootstrap, LESS
- jQuery, jQuery UI/Mobile
- HTTP Request Response
- Git/GitHub

Skills:
- Basic Algorithms
- Wireframes and Mockups
- Responsive Web Design
- Code Version Control
- APIs
- Ajax

Python

Length: 8 Weeks
Course Hours: 168 hours (16 lecture, 152 lab)

Prerequisite: Web Fundamentals

Course Description:
This subject introduces students to Python full-stack programming and associated technologies. Upon completion of this subject, students will have Python Language Familiarity, OOP knowledge, and know how to operate MySQL. They will also have experience with Test Driven Development, and popular frameworks such as Django and/or Flask.

Performance Objectives:
- Basics of procedural Python, and creation of command line utilities.
- Object-oriented programming concepts, and OOP in Python.
- Creation of a model-view-controller framework using the Flask microframework.
- Creation of a login/registration system in Python, using SQLAlchemy.
- Creation of multi-view web applications for create/read/update/delete scenarios such as eCommerce sites.
- Beginning computer algorithms, in JavaScript.
- Analysis of basic data requirements and construction of Entity Relationship Diagrams (ERDs).
- Creation of databases with MySQL and the basics of querying SQL databases.

Technologies / Languages / Frameworks / Libraries:
- Python
- MySQL
- PostgreSQL
- Flask
- Django

Skills:
- OOP & MVC Framework
- ERD/Database Design
- Web Security (basics)
- Object Relational Mapper
- Scaling Web Apps

MERN

Length: 8 Weeks
Course Hours: 168 hours (16 lecture, 152 lab)

Prerequisite: Web Fundamentals AND Python

Course Description: This subject introduces students to Javascript full-stack programming and associated technologies. Upon completion of this subject, students will have Javascript language familiarity, and be able to build webapps using MongoDB, Express, React, and NodeJS.

Performance Objectives:
- Basics of procedural JavaScript.
- Advanced object-oriented, prototype, and closure concepts in JavaScript.
- Recreation of a model-view-controller paradigm using the Express framework.
- Usage of Socket.IO to connect clients to servers, enabling push notifications.
- Usage of MongoDB and interface with node servers using Mongoose.
- Componentizing the UI layer of your applications with a front-end framework.
- Creating real-time apps with socket.io, NodeJS, Front-End Framework and MongoDB.
- Advanced computer algorithms, in JavaScript.

Technologies / Languages / Frameworks / Libraries:
- Advanced JavaScript
- MongoDB
- Express
- React
- Node.js
- Socket.IO

Skills:
- OOP & MVC Framework
- Closures & Prototypes
- Creating Custom JS Libraries
- Web sockets
- NoSQL Database
- Building Real-time apps

Java

Length: 8 Weeks
Course Hours: 168 hours (16 lecture, 152 lab)

Prerequisite: Web Fundamentals AND Python

Course Description:
This course provides intermediate students with a base knowledge in procedural programming in Java, object-oriented programming, and further MVC patterns using popular Java frameworks . Java is a statically-typed, high-level programming language that revolutionized the way languages have been developed since post its release. It did this by providing complete support for cross-platform execution through its JVM system. Due to this, it has been widely adopted by a majority of companies and institutions in the industry going strong for 20+ years.

Performance Objectives:
- Basics of Java
- Object Oriented Programming with Java
- Usage of Servlets and JSPs
- MVC Design Pattern
- Usage of Spring Data JPA to store and retrieve data
- Usage of MySQL as the database management system

Technologies / Languages / Framework / Libraries:
- Java 8
- JSP
- Spring MVC
- Spring Boot
- Spring Security
- MySQL
- (JPA) Hibernate
- ThymeLeaf
- Tomcat
- JVM

Skills:
- OOP in Java
- MVC
- ORM
- Dependency Injection and Inversion of Control
- Authentication and Authorization
- SQL
- Application Deployment

Projects & Algorithms

Length: 4 Weeks
Course Hours: 84 hours (8 lecture, 76 lab)

Course Description:
Specifically for the Online Part-Time programs, this course is designed to showcase a student's skills gained from the prior bootcamp courses, by facilitating two capstone projects: one solo project and one group project. Lecture time will be dedicated to guiding students through the process of designing/planning their projects using Agile development principles, as well as an emphasis on Git and GitHub. Additionally, students in this course will be guided through a series of Algorithm and Data Structure challenges to best prepare them for technical interviewing as well as to provide them with a fundamental understanding of programming and problem solving principles.

Performance Objectives:
- Applied git and GitHub skills geared towards collaboration
- API integration
- Algorithm/Data Structure series:
  - Arrays
  - String
  - Singly Linked Lists
  - Recursion
  - Binary Search Trees