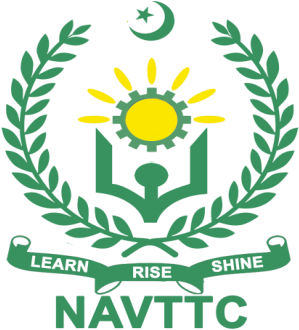
Government of Pakistan

**National Vocational and Technical Training Commission**

**Blended International IT Trainings –**

**BIITT 2025**



**Course Contents/ Lesson Plan**

**Course Title:** Meta Back-End Developer Professional Certificate

**Duration: 3** Months

|  |  |
| --- | --- |
| **Trainer Name** |  |
| **Course Title** | **Meta Back-End Developer Professional Certificate** |
| **Objective of Course** | Prepare for a career in the fast-growing field of back-end development. In this program, you’ll learn in-demand skills like Python, Django, APIs, and database management to get job-ready in as little as 3 months.  Back-end development focuses on building and maintaining the server-side logic, databases, and application programming interfaces (APIs) that power modern web and mobile applications. The demand for skilled back-end developers is rapidly increasing as businesses of all sizes continue to expand their digital platforms.  This program will equip you with the core technical skills employers seek for back-end development roles. You’ll not only gain the knowledge to start your career as a back-end developer but also build a strong foundation for future growth in specialized areas such as cloud computing, DevOps, full-stack development, or systems architecture.  You’ll learn the latest tools and frameworks used by industry professionals, including Python, Django, MySQL, REST APIs, and version control with Git. You’ll work on hands-on projects to design, build, and deploy server-side applications, integrate APIs, manage databases, and optimize performance. By the end of the program, you’ll have a portfolio of projects to showcase to potential employers and the confidence to succeed in this high-demand career path. |
| **Course Execution Plan** | Total Duration of Course: **3 Months (12 Weeks)** |
| Class Hours: **3 Hours per day** |
| **Theory: 30% Practical: 70%** |
| Weekly Hours: **15 Hours Per week** |
| Total Contact Hours: **200 Hours** |

|  |  |
| --- | --- |
| **Learning Outcome of the Course** | Throughout the program, you’ll complete hands-on projects and coding assignments to build the core technical skills required for designing, developing, testing, and deploying back-end systems. You will:   * Gain the technical skills required to become a qualified back-end developer * Gain the technical skills required to become a qualified back-end developer * Build a portfolio using your new skills and begin interview preparation including tips for what to expect when interviewing for engineering jobs * Learn in-demand programming skills and how to confidently use code to solve problems   At the end of the program, you complete a real-world capstone project specifically designed to showcase your newly learned data analyst skills. |
| **Companies Offering Jobs in the respective trade** | These companies value the skills gained through the program:   * Systems Limited * S&P Global * Careem * ibex. Pakistan * Zameen.com * Afiniti * Contour Software * Oracle * SAP * Accenture * Cisco * Deloitte * Freelancing |
| **Job Opportunities** | * Back-End Developer * Software Engineer * API Developer * Database Developer * Cloud Application Developer * Web Application Developer * Integration Engineer |
| **No of Students** | 25-30 |

|  |  |
| --- | --- |
| **Learning Place** | Labs |
| **Instructional Resources** | The following link will be accessible for students once they are enrolled in the program:  https://www.coursera.org/professional-certificates/ibm-data-analyst |
| **Scheme of Study** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Sr. No** | **Main Topics** | **Theory Hrs.** | **Practical Hrs.** | **Total Hrs.** | | **1.** | Introduction to Back-End Development | **12** | **3** | **15** | | **2.** | Programming in Python | **5** | **10** | **15** | | **3.** | Programming in Python | **4** | **11** | **15** | | **4.** | Programming in Python | **3** | **12** | **15** | | **5.** | Version Control | **5** | **10** | **15** | | **6.** | Introduction to Databases for Back-End Development | **5** | **10** | **15** | | **7.** | Introduction to Databases for Back-End Development / Django Web Framework | **4** | **11** | **15** | | **8.** | Django Web Framework | **4** | **11** | **15** | | **9.** | Django Web Framework | **4** | **11** | **15** | | **10.** | APIs | **3** | **12** | **15** | | **11.** | The Full Stack | **2** | **13** | **15** | | **12.** | Back-End Developer Capstone | **3** | **12** | **15** | | **Total** | | **54** | **126** | **180** | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scheduled Week** | **Module Title** | **Day** | **Learning Units** | **Tasks** |
| Week 1/12 | Introduction to Back-End Development | Day 1 | Get started with web development | Improve your Bio page with Bootstrap |
| Day 2 | Introduction to HTML |
| Day 3 | Introduction to CSS |
| Day 4 | UI Frameworks |
| Day 5 | UI Frameworks – Continued |
| Week 2/12 | Programming in Python | Day 1 | End-of-Course Graded Assessment | Use control flow and loops to solve a problem |
| Day 2 | Getting Started with the Python |
| Day 3 | Getting Started with the Python - Continued |
| Day 4 | Getting Started with the Python - Continued |
| Day 5 | Basic Programming with Python |
| Week 3/12 | Programming in Python | Day 1 | Basic Programming with Python - Continued | Functions, loops and data structures |
| Day 2 | Basic Programming with Python - Continued |
| Day 3 | Programming paradigms |
| Day 4 | Programming paradigms - Continued |
| Day 5 | Programming paradigms - Continued |
| Week 4/12 | Programming in Python | Day 1 | Programming paradigms - Continued | Programming in Python |
| Day 2 | Modules, packages, libraries and tools |
| Day 3 | Modules, packages, libraries and tools - Continued |
| Day 4 | Modules, packages, libraries and tools - Continued |
| Day 5 | End-of-Course Graded Assessment |
| Week 5/12 | Version Control | Day 1 | Software collaboration | Managing a project in GitHub |
| Day 2 | Command Line |
| Day 3 | Working with Git |
| Day 4 | Working with Git – Continued |
| Day 5 | Graded Assessment |
| Week 6/12 | Introduction to Databases for Back-End Development | Day 1 | Introduction to Databases | Create Database, create table and insert data |
| Day 2 | Create, Read, Update and Delete (CRUD) Operations |
| Day 3 | Create, Read, Update and Delete (CRUD) Operations - Continued |
| Day 4 | Create, Read, Update and Delete (CRUD) Operations - Continued |
| Day 5 | SQL Operators and sorting and filtering data |
| Week 7/12 | Introduction to Databases for Back-End Development / Django Web Framework | Day 1 | SQL Operators and sorting and filtering data - Continued | ORDER BY and WHERE |
| Day 2 | Database design |
| Day 3 | Database design - Continued |
| Day 4 | Graded assessment |
| Day 5 | Introduction to Django |
| Week 8/12 | Django Web Framework | Day 1 | Introduction to Django - Continued | Creating a view and URL configuration |
| Day 2 | Views |
| Day 3 | Views - Continued |
| Day 4 | Views - Continued |
| Day 5 | Models |
| Week 9/12 | Django Web Framework | Day 1 | Models - Continued | Design and build a simple Django app |
| Day 2 | Models - Continued |
| Day 3 | Templates |
| Day 4 | Templates - Continued |
| Day 5 | Course summary and Graded project assessment |
| Week 10/12 | APIs | Day 1 | REST APIs | Little Lemon API project |
| Day 2 | REST APIs – Continued |
| Day 3 | Django REST framework |
| Day 4 | Advanced API development |
| Day 5 | Final project assessment |
| Week 11/12 | The Full Stack | Day 1 | Introduction to the full stack | Little Lemon booking system |
| Day 2 | Front-end technologies |
| Day 3 | Front-end technologies - Continued |
| Day 4 | The full stack using Django |
| Day 5 | Final project |
| Week 12/12 | Back-End Developer Capstone | Day 1 | Starting the Project | Capstone Project |
| Day 2 | Project Functionality |
| Day 3 | Security and Testing |
| Day 4 | Security and Testing - Continued |
| Day 5 | Project Assessment |

List of Machinery / Equipment

1. **Software List**

|  |  |
| --- | --- |
| **Sr. No** | **Software Name** |
| 1. | MS Office(Installed on each PC) |
| 2. | Operating System (Windows, Linux or other Operating Systems) |
| 3. | Programming Languages including Pyhton, SQL, HTML & CSS |

1. **Minimum Qualification of Teachers / Instructor**

The qualification of teachers / instructor of this course should be a minimum of bachelor’s in computer science / software engineering with minimum 3 years of development experience in relevant trade.

1. **Eligibility for the trainees:**

As defined by NAVTTC

1. **List of Machinery/Equipments**

|  |  |  |
| --- | --- | --- |
| **Sr. No** | **Name of item as per curriculum** | **Quantity physically available at the training location** |
| 1 | Computers Minimum Core-i5 8th Generation   * LCD Display 17” with built in speakers | 25 |
| 2 | DSL Internet Connection (Minimum 5 MB) | Available on every PC |
| 3 | **Accessories/Devices**   * Connectors * Multimedia * Audio/visual aid * White Board * Flip Chart Board | 25 each |
| 4 | **Wires, data cables, power plugs, power supply** | For every PC |
| 5 | **UPS** | Available |
| 6 | **Generator / Solar Backup** | Available |
| 7 | **Air Conditioner (2 Tons)** | Available |