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** |

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| **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
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| **No of Students** |  25-30 |

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| **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** |

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| --- | --- | --- | --- | --- |
| **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** |

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| **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**

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| --- | --- |
| **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**

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| --- | --- | --- |
| **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 |