**17CS3105 – WEB APPLICATION DEVELOPMENT USING PYTHON**

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| **Course Category:** | Program Core | **Credits:** | 3 |
| **Course Type:** | Implementation and Documentation | **Lecture – Tutorial – Practical:** | 3-0-0 |
| **Prerequisite:** | Student needs to have basic knowledge of any programming language | **Sessional Evaluation:**  **Univ. Exam Evaluation:**  **Total Marks:** | 40  60  100 |
| **Course Objectives** | * Introduce Python programming fundamentals * Learn to apply fundamental problem solving techniques for application development and prototyping using Python. * Incorporate best practices in navigation, usability and written content to design websites that give users easy access to the information. * Provide conceptual and practical knowledge and skills required to develop web applications and web services using Django Framework. | | |

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| **Course Outcomes** | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand basic structure and key features of Python. |
| CO2 | Know possibilities with the Django Framework and foundations of developing Web-based applications. |
| CO3 | Understand the Application Programs to build using Django Framework. |
| CO4 | Comprehend the way URLs are processed by Django along with the usage of Django’s timesaving generic views. Django’s template language and its form-handling mechanisms are also learnt. |
| CO5 | A first-hand feels of applications. |
| CO6 | Exposure to advanced Django like Extending template system using ORM etc. |

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| **Course Content** | UNIT-I  Practical Python For Django: Python Skills Are Django Skills, Getting Started: Python’s Interactive Interpreter, Python Basics, Python Standard Types, Flow Control, Exception Handling, Files, Functions, Object-Oriented Programming, Regular Expressions, Common Gotchas, Coding Style (PEP 8 and Beyond).  UNIT-II  **Django for the Impatient - Building a Blog :** Creating the Project, Running the Development Server, Creating the Blog Application, Designing Your Model, Setting Up the Database, Setting Up and trying out the Automatic admin Application, Making Your Blog’s Public Side, Finishing Touches.  **Starting Out:** Dynamic Web Site Basics, Communication, Data Storage, Presentation, Putting It All Together, Understanding Models, Views, and Templates, Overall Django Architecture, Core philosophies of Django.  UNIT-III  **Defining and Using Models:** Defining Models – Why Use an ORM, Django’s Rich Field Types, Relationships Between Models, Model Inheritance, Meta Inner Class, Admin Registration and Options. Using Models - Creating and Updating Your Database Using manage.py, Query Syntax, Utilizing SQL Features Django Doesn’t Provide.  UNIT-IV  URLS, HTTP Mechanisms, and Views: URLs, Modeling HTTP: Requests, Responses and Middleware, Views/Logic.  Templates and Form Processing: Templates - Understanding Contexts, Template Language Syntax. Forms - Defining Forms, Filling Out Forms, Validation and Cleaning, Form Display, Widgets.  UNIT-V  Django Applications By Example: Photo Gallery – Application of “Don’t Repeat Yourself” Convention. Liveblog – Usage of Advanced JavaScript and AJAX Toolkit with Django.  UNIT-VI  Advanced Django Programming: Customizing the Admin, Using Syndication, Generating Downloadable Files, Enhancing Django’s ORM with Custom Managers, Extending the Template System. |
| **Text Books and References** | **Text Books:**   1. Jeff Forcier, Paul Bissex, Wesley Chun, “Python Web Development with Django”, Pearson Education, 2009.   **Reference Books:**   1. Marty Alchin “Pro Django”, Apress, 2013. 2. Holovaty, Adrian, Kaplan-Moss, Jacob, “The Definitive Guide to Django Web Development Done Right”, Apress, 2009. 3. Steve Holden, “Python Web Programming”, New Riders, 2002. |
| **E-Resources** | 1. [**https://wiki.python.org/moin/WebProgrammingBooks**](https://wiki.python.org/moin/WebProgrammingBooks) 2. [**https://realpython.com/tutorials/web-dev/**](https://realpython.com/tutorials/web-dev/) 3. [**https://nptel.ac.in/courses**](https://nptel.ac.in/courses) 4. [**https://freevideolectures.com/uiversity/iitm**](https://freevideolectures.com/uiversity/iitm) |