AdvancedPythonProgramming

CourseCode	23CS6401	**Year**	II	**Semester**	II
Course Category	Honors	**Branch**	CSE	**CourseType**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Python Programming
Continuous Internal Evaluation:	30	**SemesterEnd Evaluation:**	70	**TotalMarks:**	100

CourseOutcomes		
Uponsuccessfulcompletionofthecourse,thestudentwillbeableto		
CO1	UnderstandbasicPythonprogrammingconceptsandtheirapplicationstosolve problems.	**L2**
CO2	Applyfunctionalprogrammingtechniquesforefficientdatamanipulationand implement JSON/XML parsing.	**L3**
CO3	ApplyNumPyandPandasLibrariestoperformadvancednumericalcomputations.	**L3**
CO4	Applythreadingconceptstomanagethreadsandnetworkingtechniquestobuild client-server applications.	**L3**
CO5	AnalyzerelevantPythonlibrariesformachinelearning tasks.	**L4**

Syllabus		
UnitNo.	**Contents**	**MappedCO**
I	Overview of Python, Functional Programming- Lambda Functions, Map, Filter, Reduce, Iterators, Generators, List Comprehension, JSON AND XML with Python, Regular Expressions operations	**CO1,CO2**
II	Numpy Basics-Creating ndarrays, Datatypes, Indexing, Universal Functions, Array oriented Programming with arrays, File Input and output with arrays.	**CO1,CO3**
III	Introducing Pandas Data structures, Essential functionality -Indexing, Selection, Filtering, Summarizing Descriptive statistics, Data Cleaning and Preparation, Data Wrangling: join, Combine and Reshape.	**CO1,CO3**
IV	MultithreadingNetworks&Client/serverProgramming:Threadsand Processes, Readers and Writers Problem, Networks Clients and Servers.	**CO1,CO4**
V	PythonLibraries–Tensorflow- CreatingandmanipulatingTensors,Keras – Modelcreation,DefiningLayers,ModelTraining,Datapreprocessing.	**CO1,CO5**

LearningResources
TextBooks
1. WesMcKinney,PythonforDataAnalysis:DataWranglingwithPandas,NumPy,andIPython2nd Edition, O'Reilly Media. 2. KennethLambert,“FundamentalsofPython:FirstPrograms”,CengageLearning,2019 3. “IntroductiontoPythonProgramming”,Gowrishankar.S,VeenaA,CRCPress, 2019,TaylorandFrancisGroup
ReferencesTextBook
1. ModernPythonStandardLibraryCookbook,AlessandroMolina,2018,Packt. 2. ThePythonLibraryReference:Release3.6.4-Book1of2,GuidoVanRossum, Python Development Team, 2018, 12th Media Services.
e-ResourcesandotherDigitalMaterial
1. https://media.oiipdf.com/pdf/21fee97b-17fd-4581-8eed-5d3fcdd0c86a.pdf 2. https://docs.python.org/3/library/index.html 3. https://github.com/lanzhiwang/python3-standard-library-example/tree/master/source 4. https://github.com/packtpublishing/modern-python-standard-library-cookbook