

**RENCANA PEMBELAJARAN SEMESTER
PASCA SARJANA TERAPAN S2 TEKNIK INFORMATIKA
POLITEKNIK ELEKTRONIKA NEGERI SURABAYA**



Mata Kuliah	Advanced Data Science Practice		
Bobot SKS	3		
Kelompok MK	MK Pilihan	Jam/minggu	3
Tim Pengampu MK	Tessy Badriyah		Nold: RF-DTEL-PSTE-4.05.Rev.01[031]

Capaian Pembelajaran	- Mahasiswa dapat menggunakan Python dan tools-toolsnya (Numpy, Pandas, Scikit-learn, matplotlib dan R) untuk mengimplementasikan konsep data science dan topik data science lanjutan dalam penyelesaian persoalan di dunia nyata.
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Pokok Bahasan	<ol style="list-style-type: none"> 1. Mempersiapkan lingkungan pengembangan dengan bahasa Python untuk Data Science 2. Melakukan analisa data menggunakan bahasa Python dengan library Numpy dan Pandas. 3. Menggunakan package scientific computing dengan NumPy 4. Menggunakan package analisa data dengan library Panda 5. Menggunakan tools Scikit-Learn untuk melakukan teknik Machine Learning pada Data Science
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Referensi	<ol style="list-style-type: none"> 1. Teknomo, Kardi (2017). Python for Data Science, http://people.revoledu.com/kardi/tutorial/Python. 2. MADHAVAN, S. Mastering Python for Data Science. Packt Publishing, 2015. 294 ISBN 1784390151, 9781784390150. 3. MUELLER, J. P.; MASSARON, L. Python for Data Science For Dummies. Wiley, 2015. ISBN 9781118843987. Disponível em: < https://books.google.co.id/books?id=iCnvCQAAQBAJ >.
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MK Prasyarat	Algoritma dan Pemrograman
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Media Pembelajaran	Software: OS Windows, Python Hardware: PC/Laptop, LCD Projector
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Mgg Ke-	Topik	Bahan Kajian (Materi Pembelajaran)
(1)	Getting Started with Python for Data Science	- Installing Anaconda - Anaconda configuration with jupyter, numpy, pandas, matplotlib, R
(2)	Reviewing Python Programming	Brief review Python Programming
(3)	Simple Data Analysis using Python	Short Introduction of data analysis using Python
(4)	Learning Numpy	Learn basic data structure of array and matrices: Numpy
(5)	Learning Pandas	Learn the world most famous data analysis modules: Pandas
(6)	SVM in Python	Use Scikit-learn for Support Vector Machine to do Machine Learning
(7)	Practices Neural Networks in Python	Use Perceptron and Multi-Linear Preceptron to train and predict the data
UJIAN TENGAH SEMESTER (UTS)		
(8)	Automatic Geocoding using Python	Convert your tons of street, locations and cities into latitude and longitude coordinates
(9)	Displaying Location using Heatmap	Visualize the geocoded latitude and longitude coordinates into heatmap
(10)	Video Analysis using OpenCV	Practice session of learning video processing using OpenCV-Python
(11)	Python for Recommender System	Implementing how a recommendation system works in Python
(12)	Collaborative Filtering Recommender System	Implementing Collaborativ filtering recommender system in Python

(13)	Pushing Boundaries with Ensemble Models	<ul style="list-style-type: none">- Create a model and use it as a prediction- Make an ensemble models to get improved data performance
(14)	Analyzing Unstructured Data with Text Mining	<ul style="list-style-type: none">- Preprocessing data- Plotting a wordcloud from data and Text Mining process
	UJIAN AKHIR SEMESTER (UAS)	