

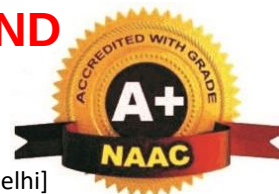


VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

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Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301. Phone: 96529 10002/3



COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

VR24 – III B.Tech II Semester : Course Outcomes & CO-PO/PSO

Mapping

ML601PC: MACHINE LEARNING

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
ML601PC.1	Understand supervised, unsupervised, and semi-supervised learning.	2
ML601PC.2	Apply classifiers for linear and non-linear data.	3
ML601PC.3	Use ensemble methods to improve accuracy.	3
ML601PC.4	Apply dimensionality reduction and evolutionary algorithms.	3
ML601PC.5	Understand reinforcement and probabilistic learning models.	2

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
ML601PC.1	3	3	2	2	2	2	2	1	2	2	2	3	3	2
ML601PC.2	3	3	3	3	3	2	2	2	2	2	2	3	3	2
ML601PC.3	3	3	3	3	3	2	2	2	2	2	2	3	3	2
ML601PC.4	3	3	3	3	3	2	2	2	2	2	3	3	3	2
ML601PC.5	3	3	3	3	3	3	3	2	2	2	3	3	3	3
Average	3	3	2.8	2.8	2.8	2.2	2.2	1.8	2	2	2.4	3	3	2.2

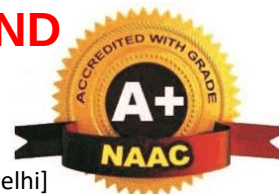


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IT602PC: AUTOMATA THEORY AND COMPILER DESIGN

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
IT602PC.1	Able to employ finite state machines for modeling and solving computing problems.	3
IT602PC.2	Able to design context free grammars for formal languages.	6
IT602PC.3	Able to distinguish between decidability and undecidability.	4
IT602PC.4	Demonstrate the knowledge of patterns, tokens & regular expressions for lexical analysis.	2
IT602PC.5	Acquire skills in using lex tool and design LR parsers	6

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
IT602PC.1	3	3	2	2	2	-	1	2	2	1	3	3	3	2
IT602PC.2	3	3	3	2	3	1	1	2	2	1	3	3	3	2
IT602PC.3	3	3	3	2	3	1	1	2	2	1	3	3	3	2
IT602PC.4	3	3	2	3	2	1	2	2	2	1	3	2	3	2
IT602PC.5	3	3	3	3	2	1	2	3	3	2	3	3	3	3
Average	3	3	2.6	2.4	2.4	1	1.4	2.2	2.2	1.2	3	2.8	3	2.2

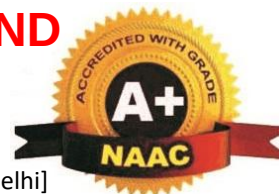


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DS603PC: BIG DATA ANALYTICS

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS603PC.1	Understand the importance of big data analytics and its types	2
DS603PC.2	Perform analytics on big data	3
DS603PC.3	Proficiency in big data storage and processing in Hadoop	3
DS603PC.4	Data analytics through MongoDB	3
DS603PC.5	Data analytics through R	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS603PC.1	3	2	-	-	2	-	-	-	-	-	-	3	2	-
DS603PC.2	3	3	2	2	3	-	-	-	-	-	-	3	3	2
DS603PC.3	3	2	2	2	3	-	-	-	-	-	-	3	3	2
DS603PC.4	3	3	2	1	3	-	-	-	-	-	-	3	3	2
DS603PC.5	3	3	2	1	3	-	-	-	-	-	-	3	3	3
Average	3.0	2.6	2.0	1.5	2.8	-	-	-	-	-	-	3.0	2.8	2.3

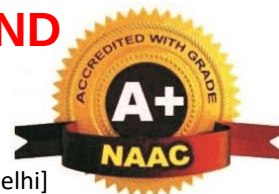


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(Professional Elective – III)

DS631PE: SOFTWARE TESTING METHODOLOGIES

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS631PE.1	Understand purpose of testing and path testing	2
DS631PE.2	Understand strategies in data flow testing and domain testing	2
DS631PE.3	Develop logic-based test strategies	6
DS631PE.4	Understand graph matrices and its applications	2
DS631PE.5	Implement test cases using any testing automation tool	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS631PE.1	3	2	-	1	-	-	-	-	-	-	-	3	2	-
DS631PE.2	3	2	-	2	-	-	-	-	-	-	-	3	2	-
DS631PE.3	3	3	3	2	1	-	-	-	-	-	-	3	3	1
DS631PE.4	2	2	-	2	-	-	-	-	-	-	-	2	2	-
DS631PE.5	3	2	2	1	3	-	-	-	-	-	-	3	3	2
Average	2.8	2.2	2.5	1.6	2.0	-	-	-	-	-	-	2.8	2.4	1.5

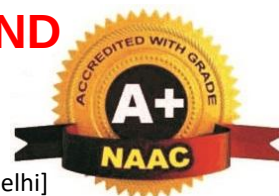


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(Professional Elective – III)

DS632PE: DATA VISUALIZATION TECHNIQUES

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS632PE.1	Identify the different data types, visualization types to bring out the insight.	2
DS632PE.2	Relate the visualization towards the problem based on the dataset to analyze and bring out valuable insight on a large dataset.	4
DS632PE.3	Demonstrate the analysis of a large dataset using various visualization techniques and tools.	3
DS632PE.4	Identify the different attributes and showcasing them in plots. Identify and create various	3
DS632PE.5	Visualizations for geospatial and table data. Ability to create and interpret plots using R/Python	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS631PE.1	3	2	-	-	2	-	-	-	-	-	-	3	2	-
DS631PE.2	3	3	2	2	2	-	-	-	-	-	-	3	3	2
DS631PE.3	3	3	2	2	3	-	-	-	-	-	-	3	3	2
DS631PE.4	3	2	2	1	3	-	-	-	-	-	-	3	3	2
DS631PE.5	3	2	2	1	3	-	-	-	-	-	-	3	3	3
Average	3.0	2.4	2.0	1.5	2.6	-	-	-	-	-	-	3.0	2.8	2.3

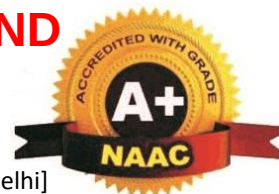


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(Professional Elective – III)

DS633PE: SCRIPTING LANGUAGES

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS633PE.1	Understand the differences between scripting and programming languages.	2
DS633PE.2	Gain programming skills in Ruby for problem-solving and data handling.	3
DS633PE.3	Implement TCL scripts for file, list, and numerical operations.	3
DS633PE.4	Develop Perl scripts for text, file, and data manipulation tasks.	6
DS633PE.5	Apply scripting skills to automate tasks and solve computational problems.	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS633PE.1	3	2	-	-	-	-	-	-	-	-	-	3	2	-
DS633PE.2	3	3	2	1	2	-	-	-	-	-	-	3	3	2
DS633PE.3	3	2	2	1	3	-	-	-	-	-	-	3	3	2
DS633PE.4	3	3	3	1	3	-	-	-	-	-	-	3	3	2
DS633PE.5	3	3	2	2	3	-	-	-	-	-	-	3	3	3
Average	3.0	2.6	2.25	1.25	2.75	-	-	-	-	-	-	3.0	2.8	2.25

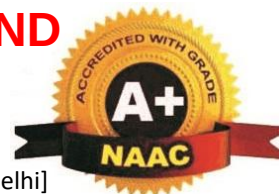


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(Professional Elective – III)

DS634PE: MOBILE APPLICATION DEVELOPMENT

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS634PE.1	Understand and work with the Android OS and application lifecycle.	2
DS634PE.2	Design and develop Android user interfaces using layouts and UI components.	6
DS634PE.3	Handle events, intents, and broadcast receivers in Android applications.	3
DS634PE.4	Implement persistent storage using files and shared preferences.	3
DS634PE.5	Use SQLite and content providers for database-driven Android apps.	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS634PE.1	3	2	-	-	2	-	-	-	-	-	-	3	2	-
DS634PE.2	3	3	3	1	3	-	-	-	-	-	-	3	3	3
DS634PE.3	3	2	2	1	3	-	-	-	-	-	-	3	3	2
DS634PE.4	3	2	2	1	3	-	-	-	-	-	-	3	3	2
DS634PE.5	3	3	2	2	3	-	-	-	-	-	-	3	3	3
Average	3.0	2.4	2.25	1.25	2.8	-	-	-	-	-	-	3.0	2.8	2.5

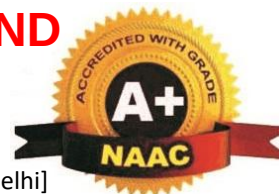


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(Professional Elective – III)

DS635PE: CRYPTOGRAPHY AND NETWORK SECURITY

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS635PE.1	Understand cryptography and security principles.	2
DS635PE.2	Apply symmetric and asymmetric encryption.	3
DS635PE.3	Use hash functions, digital signatures, and key management.	3
DS635PE.4	Implement network and wireless security protocols.	3
DS635PE.5	Analyze email, IP security, and real-world applications.	4

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS635PE.1	3	2	-	-	2	-	-	-	-	-	-	3	2	-
DS635PE.2	3	2	3	-	3	-	-	-	-	-	-	3	3	-
DS635PE.3	3	2	3	-	3	-	-	-	-	-	-	3	3	2
DS635PE.4	2	3	3	2	3	-	-	-	-	-	-	3	3	2
DS635PE.5	2	3	-	3	2	-	-	-	-	-	-	2	3	3
Average	2.6	2.4	3.0	2.5	2.6	-	-	-	-	-	-	2.8	2.8	2.3

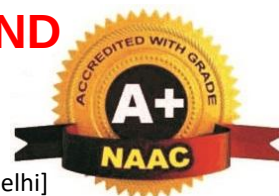


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(Open Elective – I) DS641OE: FUNDAMENTALS OF DATA SCIENCE

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS641OE.1	Understand statistical modeling and data science concepts.	2
DS641OE.2	Implement R programming basics, vectors, matrices, and data frames.	3
DS641OE.3	Apply control structures, loops, and functions in R programs.	3
DS641OE.4	Visualize data using charts, graphs, and exploratory techniques.	3
DS641OE.5	Perform predictive analysis using linear and multiple regression.	4

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS641OE.1	3	2	-	-	2	-	-	-	-	-	-	2	2	-
DS641OE.2	3	2	3	-	3	-	-	-	-	-	-	3	2	-
DS641OE.3	2	3	3	2	3	-	-	-	-	-	-	3	3	-
DS641OE.4	2	2	3	2	3	-	-	-	-	-	-	2	3	2
DS641OE.5	2	3	-	3	2	-	-	-	-	-	-	2	3	3
Average	2.4	2.4	3.0	2.3	2.6	-	-	-	-	-	-	2.4	2.6	2.5

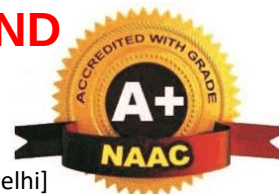


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(Open Elective – I) DS504PC: R PROGRAMMING

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS504PC.1	Understand to use and program in the programming language R	2
DS504PC.2	Understand to use R to solve statistical problems	3
DS504PC.3	Implement and describe Monte Carlo the technology	3
DS504PC.4	Implement minimize and maximize functions using R	3
DS504PC.5	Utilize R elements for data visualization and prediction	4

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS641OE.1	3	2	-	-	3	-	-	-	-	-	-	3	2	-
DS641OE.2	3	3	2	-	3	-	-	-	-	-	-	3	3	-
DS641OE.3	2	3	3	2	3	-	-	-	-	-	-	3	3	2
DS641OE.4	2	3	3	2	3	-	-	-	-	-	-	3	3	2
DS641OE.5	3	3	2	3	3	-	-	-	-	-	-	3	3	3
Average	2.6	2.8	2.5	2.3	3.0	-	-	-	-	-	-	3.0	2.8	2.3

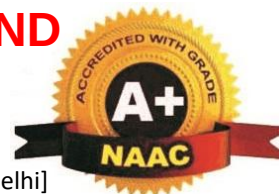


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LABORATORY

ML604PC: MACHINE LEARNING LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
ML604PC.1	Understand predictive data analysis concepts and trends.	2
ML604PC.2	Apply Python libraries for statistical computation and data handling.	3
ML604PC.3	Implement machine learning algorithms like regression, KNN, and decision trees.	3
ML604PC.4	Perform clustering and classification using Python.	3
ML604PC.5	Build predictive models and evaluate their performance on real datasets.	5

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS641OE.1	3	2	-	-	-	-	-	-	-	-	-	2	1	-
DS641OE.2	2	-	-	-	3	-	-	-	-	-	-	3	2	-
DS641OE.3	3	2	3	2	3	-	-	-	-	-	-	3	3	1
DS641OE.4	2	3	2	2	3	-	-	-	-	-	-	3	3	1
DS641OE.5	3	3	3	3	3	-	-	-	-	-	-	3	3	2
Average	2.6	2.0	2.7	2.3	3.0	-	-	-	-	-	-	2.8	2.4	1.3

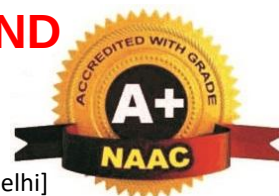


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DS605PC: BIG DATA ANALYTICS LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS605PC.1	Use Excel for data analysis and visualization.	3
DS605PC.2	Program and execute Hadoop Map Reduce jobs.	3
DS605PC.3	Process and analyze big data using HBase and Pig.	4
DS605PC.4	Perform data analytics using MongoDB.	3
DS605PC.5	Apply machine learning techniques in R for big data analysis.	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS605PC.1	2	2	-	1	3	-	-	-	-	-	-	3	2	-
DS605PC.2	2	2	2	2	3	-	-	-	1	-	-	3	3	-
DS605PC.3	2	3	2	3	3	-	-	-	-	-	-	3	3	2
DS605PC.4	2	3	2	2	3	-	-	-	-	-	-	3	3	2
DS605PC.5	2	3	3	3	3	-	-	-	-	-	-	3	3	3
Average	2.0	2.6	2.3	2.2	3.0	-	-	-	1.0	-	-	3.0	2.8	2.3

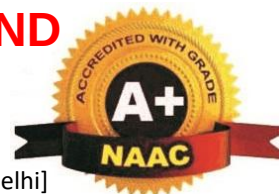


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DS606PC: UI Design - Flutter Lab

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS606PC.1	Implements Flutter Widgets and Layouts	3
DS606PC.2	Responsive UI Design and with Navigation in Flutter	3
DS606PC.3	Create custom widgets for specific UI elements and also Apply styling using themes and custom styles.	6
DS606PC.4	Design a form with various input fields, along with validation and error handling	6
DS606PC.5	Fetches data and write code for unit Test for UI components and also animation	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS606PC.1	2	2	2	—	3	—	—	—	—	—	—	3	2	—
DS606PC.2	2	2	3	1	3	—	—	—	1	1	—	3	3	—
DS606PC.3	2	2	3	2	3	—	—	—	1	1	—	3	3	2
DS606PC.4	2	3	3	2	3	—	—	—	—	1	—	3	3	2
DS606PC.5	2	3	2	3	3	—	—	—	1	1	—	3	3	3
Average	2.0	2.4	2.6	2.0	3.0	—	—	—	1.0	1.0	—	3.0	2.8	2.3

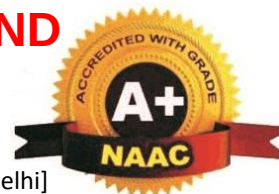


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Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301. Phone: 96529 10002/3



MC607BS: ENVIRONMENTAL SCIENCE

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
MC607BS.1	Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development	6

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
MC607BS.1	2	2	-	-	-	2	3	-	-	-	-	1	-	-
MC607BS.2	2	2	1	-	-	2	3	-	-	-	-	1	-	-
MC607BS.3	2	2	2	-	-	2	3	-	-	-	-	1	1	-
MC607BS.4	2	2	2	1	1	2	3	-	-	-	-	1	1	1
MC607BS.5	2	2	3	1	1	2	3	1	-	-	-	1	1	1
Average	2.0	2.0	2.0	1.0	1.0	2.0	3.0	1.0	-	-	-	1.0	1.0	1.0

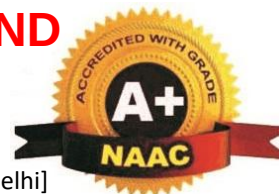


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DS611PE: SOFTWARE TESTING METHODOLOGIES LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS611PE.1	Design and develop the best test strategies in accordance with the development model.	6
DS611PE.2	Design and develop GUI.	6
DS611PE.3	Design Bitmap and database checkpoints.	6
DS611PE.4	Develop database checkpoints for different checks.	6
DS611PE.5	Perform batch testing with and without parameter passing.	3

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS611PE.1	2	3	3	2	3	-	-	-	1	1	-	3	2	2
DS611PE.2	2	2	3	1	3	-	-	-	1	1	-	3	3	2
DS611PE.3	2	2	3	2	3	-	-	-	1	1	-	3	3	2
DS611PE.4	2	2	3	2	3	-	-	-	1	1	-	3	3	2
DS611PE.5	2	2	2	2	3	-	-	-	1	1	-	3	2	2
Average	2.0	2.2	2.8	1.8	3.0	-	-	-	1.0	1.0	-	3.0	2.6	2.0

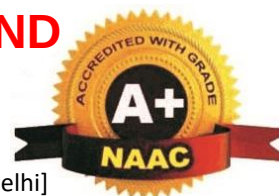


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DS612PE: DATA VISUALIZATION TECHNIQUES LAB (Professional Elective – III)

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS612PE.1	Identify the different data types, visualization types to bring out the insight.	2
DS612PE.2	Relate the visualization towards the problem based on the dataset to analyze and bring out valuable insight on a large dataset.	4
DS612PE.3	Demonstrate the analysis of a large dataset using various visualization techniques and tools.	4
DS612PE.4	Identify the different attributes and showcasing them in plots. Identify and create various visualizations for geospatial and table data.	6
DS612PE.5	Ability to create and interpret plots using R/Python.	6

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS612PE.1	2	2	1	1	2	-	-	-	-	-	-	2	3	2
DS612PE.2	2	3	2	3	2	-	-	-	-	-	-	2	3	3
DS612PE.3	2	3	2	3	3	-	-	-	-	-	-	2	3	3
DS612PE.4	2	2	3	2	3	-	-	-	-	-	-	3	3	3
DS612PE.5	2	2	3	2	3	-	-	-	-	-	-	3	3	3
Average	2.0	2.4	2.2	2.2	2.6	-	-	-	-	-	-	2.4	3.0	2.8

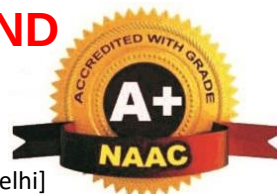


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DS613PE: SCRIPTING LANGUAGES LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS613PE.1	Identify the different data types, visualization types to bring out the insight.	2
DS613PE.2	Relate the visualization towards the problem based on the dataset to analyze and bring out valuable insight on a large dataset.	4
DS613PE.3	Demonstrate the analysis of a large dataset using various visualization techniques and tools.	4
DS613PE.4	Identify the different attributes and showcasing them in plots. Identify and create various visualizations for geospatial and table data.	6
DS613PE.5	Ability to create and interpret plots using R/Python.	6

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS613PE.1	2	2	1	1	2	-	-	-	-	-	-	2	3	2
DS613PE.2	2	3	2	3	2	-	-	-	-	-	-	2	3	3
DS613PE.3	2	3	2	3	3	-	-	-	-	-	-	2	3	3
DS613PE.4	2	2	3	2	3	-	-	-	-	-	-	3	3	3
DS613PE.5	2	2	3	2	3	-	-	-	-	-	-	3	3	3
Average	2.0	2.4	2.2	2.2	2.6	-	-	-	-	-	-	2.4	3.0	2.8

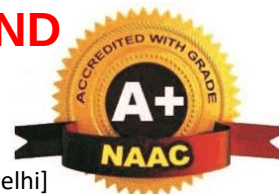


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DS614PE: MOBILE APPLICATION DEVELOPMENT LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS614PE.1	Understand the working of Android OS Practically.	2
DS614PE.2	Develop user interfaces.	6
DS614PE.3	Develop, deploy and maintain the Android Applications.	6
DS614PE.4	Implement data storage, networking, and API integration in Android apps.	3
DS614PE.5	Test, debug, and optimize Android applications for performance and usability.	5

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS614PE.1	2	2	1	1	2	-	-	-	-	-	-	2	3	2
DS614PE.2	2	2	3	1	3	-	-	-	1	1	-	3	3	2
DS614PE.3	2	2	3	2	3	-	-	-	1	1	-	3	3	3
DS614PE.4	2	3	3	2	3	-	-	-	1	1	-	3	3	3
DS614PE.5	2	3	3	3	3	-	-	-	1	1	-	3	3	3
Average	2.0	2.4	2.6	1.8	2.8	-	-	-	1.0	1.0	-	2.8	3.0	2.6

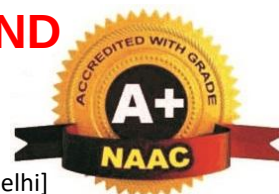


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DS615PE: CRYPTOGRAPHY AND NETWORK SECURITY LAB

COURSE OUTCOME:

CO.No.	COURSE OUTCOMES	BT Level
DS614PE.1	Understand basic cryptographic algorithms, message and web authentication and security issues.	2
DS614PE.2	Identify information system requirements for both of them such as client and server.	2
DS614PE.3	Understand the current legal issues towards information security.	2
DS614PE.4	Apply cryptographic algorithms and security protocols to secure data and communications.	3
DS614PE.5	Analyze security threats and implement appropriate countermeasures in information systems.	4

MAPPING:

CO.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
DS614PE.1	3	2	-	-	2	1	-	1	-	-	-	3	2	2
DS614PE.2	2	3	1	1	2	1	-	-	-	-	-	3	2	2
DS614PE.3	1	1	-	-	-	2	-	3	-	-	-	1	1	1
DS614PE.4	3	3	2	1	3	1	-	1	-	-	-	3	3	2
DS614PE.5	3	3	2	3	3	1	-	1	-	-	-	3	3	3
Average	2.4	2.4	1.7	1.7	2.5	1.2	-	1.5	-	-	-	2.6	2.2	2.0