

**Finishing School Program (Online Internship)-2021**

<b>Name of Department</b>	<b>Department of IT</b>
<b>Module Name</b>	<b>Data Science for Beginners</b>
<b>Module Coordinators</b>	1) Prof. Vishwas Srivastava 2) Prof. Abhishek Dixit
<b>Module Objective</b>	Data Science is one of the fastest-growing industries today, It requires you to stay updated with the latest trends in technology, tools, industry trends, and job opportunities, to stay afloat as a data practitioner. Having relevant qualification and expertise in this field can certainly give Data Science professionals a competitive advantage over others.
<b>Module Content</b>	Introduction to data Science, The Ascendance of Data, A Crash Course in Python: The Basic and Advanced, Visualizing Data & Linear Algebra: matplotlib, Bar Charts, Line Charts, Scatter-plots, Vectors, and Matrices. Statistics: Describing a Single Set of Data, Central Tendencies. Probability: Conditional Probability, Bayes's Theorem, Random Variables, Continuous Distributions, The Normal Distribution. Getting Data: stdin, stdout and file operation. Working with Data: Exploring One, Two and n dimensions data, Cleaning and Munging, Manipulating Data, Rescaling, Dimensionality Reduction
<b>Module Methodology</b>	This Internship is divided in two parts: <ul style="list-style-type: none"> <li>• Theoretical concept to understand Data Science &amp; related concept like Statistics &amp; Probability.</li> <li>• Various hands-on session for Python on VS Code and SPYDER</li> </ul>
<b>Module Outcome/ Impact</b>	<ul style="list-style-type: none"> <li>• Understand the basic concepts and need of Data Science.</li> <li>• Understanding fundamentals and advanced python programming concepts such as sorting, Regular Expressions, matplotlib.</li> <li>• How to apply or perform various operations on data accessing, sorting, analyzing and making plots.</li> </ul>
<b>Duration</b>	3 Weeks

**MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR**  
 (A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

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**Day Wise Schedule**

	Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (4:00 PM onward, 2-3 Hrs/ Day)	Faculty
Week 1	14/05/2021 & 15/05/2021	Fri & Sat	Introduction to data Science, The Ascendance of Data, Python crash course Basic & Advanced	Prof. Vishwas Srivastava Prof. Abhishek Dixit
Week 2	17/05/2021 to 21/05/2021	Mon to Fri	Visualizing Data & Linear Algebra: matplotlib, Bar Charts, Line Charts, Scatter-plots, Vectors, and Matrices. Statistics: Describing a Single Set of Data, Central Tendencies. Probability: Conditional Probability, Bayes's Theorem, Random Variables.	Prof. Vishwas Srivastava Prof. Abhishek Dixit
Week 3	24/05/2021 to 28/05/2021	Mon to Fri	Continuous Distributions, The Normal Distribution. Getting Data: stdin, stdout and file operation. Working with Data: Exploring One, Two and n dimensions data, Cleaning and Munging, Manipulating Data, Rescaling, Dimensionality Reduction	Prof. Vishwas Srivastava Prof. Abhishek Dixit
<b>Module Coordinators Email Id and Mobile Number</b>		1) Prof. Vishwas Srivastava - <a href="mailto:vishwas1058@mitsgwalior.in">vishwas1058@mitsgwalior.in</a> (9926926054) 2) Prof. Abhishek Dixit - <a href="mailto:abhishekdixit.cse@gmail.com">abhishekdixit.cse@gmail.com</a> (7000480998)		

## **Finishing School Program (Online Internship)-2021**

### **Eligibility and Important Instructions:-**

- 1.** The Online Finishing School Program (Online training/Internship) is designed only for Pre-final & Final Year students of CSE & IT Department.
- 2.** The students may apply online.
- 3.** The Online Finishing School Program/ Summer Internship Program is free for the participants of Pre-final & Final year students of MITS, Gwalior.
- 4.** The participants outside the Institute may also join the Program on payment basis.
- 5.** This online module will be conducted under the Finishing School Program which will be considered equivalent to Online Internship of Pre-final year students who could not get any Internship during this situation.
- 6.** Duration of this program will be of four weeks which is equivalent to summer Internship period as per AICTE and our Institute policy. Daily no. of hours of online training may be flexible.
- 7.** Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the test.

**Finishing School Program (Online Internship)-2021**

<b>Name of Department</b>	<b>Department of IT</b>
<b>Module Name</b>	<b>Cyber Security</b>
<b>Module Coordinators</b>	1) Prof. Santosh Sahu
<b>Module Objective</b>	Cyber Security responsible for our security awareness and education program. A Cyber security awareness person needs to know how to conduct vulnerability scanning or display a proficiency in digital device forensics and effectively explaining complex information security concepts and promoting the secure behaviors internally to employees, contractors and interns and externally to partners and vendors.
<b>Module Content</b>	An Introduction to Cyber Security & Information Security, System and Server Security. Phishing detection and prevention. Various techniques of IP Spoofing. Various freeware software like Cryptool, Wireshark, NMAP, and Cisco Packet Tracer which is used to analyze the network. Cyber forensic tools like EnCase Forensic, Sleuth Kit which is used to analyze system files and generate forensic report.
<b>Module Methodology</b>	The workshop will start with theoretical concept of Computer Network, Cyber security topics such as System Security, Phishing detection, programming and IP Spoofing techniques. Further, we learn various freeware software like Cryptool, Wireshark, NMAP, and Cisco Packet Tracer which is used to analyze the network. At last we learn about cyber forensic tools like EnCase Forensic, Sleuth Kit and FTK which is used to analyze system files and generate forensic report.
<b>Module Outcome/ Impact</b>	<ul style="list-style-type: none"><li>• Understand the basic concepts of cyber security, networking and internet.</li><li>• Understanding various methods used to protect the data in the internet environment in real world situations and discover the concepts of IP security and architecture.</li><li>• Able to compare various types of cyber security threats/vulnerabilities. And develop the understanding of cybercrime investigation.</li></ul>
<b>Duration</b>	3 Weeks

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<b>Day Wise Schedule</b>				
	<b>Date</b>	<b>Day</b>	<b>Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (3:00 PM onward, 2-3 Hrs/ Day)</b>	<b>Faculty</b>
<b>Week 1</b>	<b>14/05/2021 to 15/05/2021</b>	Mon to Fri	Basic Concepts of Computer Networks, Network Models, OSI, TCP/IP, Layered Architecture. Fundamentals of Cryptography, Steganography, Cryptanalysis. Digital Signature and its usage. An Introduction to Cyber Security & Information Security. 1. Weekly Assignment and Quiz	Prof. Santosh Sahu
<b>Week 2</b>	<b>17/05/2021 to 21/05/2021</b>	Mon to Fri	Understanding of Security Services in OSI architecture and Security mechanisms. Cyber Security Concepts, essential terminologies System and Server Security, Various techniques of IP Spoofing. Demonstration of basic usage of Protocol Analyzer, Network Scanner, Cisco packet Tracer, Vulnerability Scanners - Wireshark, TCPDump, NMap, OpenVAS etc. 2. Weekly Assignment, and Quiz	Prof. Santosh Sahu
<b>Week 3</b>	<b>24/05/2021 to 28/05/2021</b>	Mon to Fri	Introduction to Digital Forensics, Definition and types of cybercrimes, electronic evidence and handling, electronic media, collection, searching and storage of electronic media, introduction to internet crimes, hacking and cracking, Introduction to Forensic Tools Encase, Sleuth Kit and FTK tools, 3. Weekly Assignment, and Quiz	Prof. Santosh Sahu
<b>Module Coordinators Email Id and Mobile Number</b>		1) Prof. Santosh Sahu- santoshsahu@mitsgwalior.in, (8989208251)		

**Eligibility and Important Instructions:-**

## **Finishing School Program (Online Internship)-2021**

- 1.** The Online Finishing School Program (Online training/Internship) is designed only for Pre-final & Final Year students of Electrical Engineering Department.
- 2.** The students may apply online.
- 3.** The Online Finishing School Program/ Summer Internship Program is free for the participants of Pre-final & Final year students of MITS, Gwalior.
- 4.** The participants outside the Institute may also join the Program on payment basis.
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