MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous& NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Finishing School Program (Online Internship)-2021

Name of Department	**Department of Computer Science and Engineering**
Module Name	**Applied and Intelligent Computational Skills**
Module Coordinators	1. **Dr. R.S. Jadon** 2. **Dr. Anshu Chaturvedi**
Module Objective	Computational skills are required in almost all types of engineering applications. The objective of this module is to make students aware of various programming paradigms. Various modules of the programme are designed on workshop philosophy to provide hands-on practice sessions for participants.
Module Content	Two important applied and intelligent computing skills are included in the course: Artificial intelligence and machine learning and IoT(Internet of Things). Artificial Intelligence and machine learning will cover Python programming using Numpy and Panda's library. IoT i.e Internet of Things will be illustrated through Aurdino IDE and Ardino Controller.
Module Methodology	Intelligent computing is based on artificial intelligence while Iot is based on connectivity and sensors. Throughout the execution of the program various applied aspects of intelligent and Iot programming will be taught in illustrative manner. Firstly the theoretical aspects of programming will be discussed and then the hands-on programming will be done. The participants need to install Aurdino, Pycharm and Python.
Module Outcome/ Impact	• Understand the basic philosophy of intelligent computing using knowledge based systems.. • Understand the syntax and semantics of python programming language. • Understanding the process customizing and configuring various programming tools and techniques. • Able to develop classical programs using the acquired concepts.
Duration	**3 Weeks (15 days)**

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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 (3.00 to 5.00PM)**	**Faculty**
Week 1	**14/05/2021 3.00-5.00PM**	**Fri**	**Introduction to Artificial Intelligence, Production Systems and control Strategies**	**Dr. R.S. Jadon Dr. Anshu Chaturvedi**
	15/05/2021 3.00-5.00PM	**Sat**	**Hands Knowledge representation, Predicate calculus and Inferencing, Basics of Python Programming with Hands-on session**	**Dr. R.S. Jadon**
	16/05/2021 3.00-5.00PM	**Sun**	**Hands Soft computing techniques, fuzzy logic, neural networks and genetic algorithms, Python Programming hands on and usage of python libraries numpy and panda**	**Dr. R.S. Jadon**
	17/05/2021 3.00-5.00PM	**Mon**	**Hybrid Soft Computing with illustration for computer vision and image processing. hands on python using various libraries.**	**Dr. R.S. Jadon**
	18/05/2021 3.00-5.00PM	**Tue**	**Introduction to Machine learning, Supervised learning illustration in python, Unsupervised learning and reinforcement learning , Implementation in python**	**Dr. R.S. Jadon**
Week 2	**19/05/2021 3.00-5.00PM**	**Wed**	**clustering and Unsupervised learning illustration in python, hands on in python.**	**Dr. R.S. Jadon**
	20//05/20213.00-5.00PM	**Thu**	**Hands Reinforcement learning and illustration in python.**	**Dr. R.S. Jadon**
	21//05/2021 3.00-5.00PM	**Fri**	**HandsHands on in machine learning using python using various standard datasets.**	**Dr. R.S. Jadon**
	22/05/2021 3:00-5:00 PM	**Sat**		**Dr. R.S. Jadon**
	23/05/2021 3:00-5:00 PM	**Sun**	**Introduction to IOT-Characteristics, Evolution, Applications, Baseline technologies**	**Dr. Anshu Chaturvedi**
	24/05/2021 3:00-5:00 PM	**Mon**	**IOT Connecting technologies, IOT Components, Sensors, Types of sensors, Actuators etc.**	**Dr. Anshu Chaturvedi**
Week 3	**25/05/2021 3:00-5:00 PM**	**Tue**	**IOT Categories, IOT Networking, , Interdependencies, IOT SOA,**	**Dr. Anshu Chaturvedi**
	26/05/2021 3:00-5:00 PM	**Wed**	**Connectivity, Protocols and technologies:AMQP,MQTT,COAP,XMPP,**	**Dr. Anshu Chaturvedi**

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	27/05/2021 3:00-5:00 PM	Thu	wireless HART, NFC Zigbee, 6LowPAN, Routing	Dr. Anshu Chaturvedi
	28/5/2021 3:00-5:00 PM	Fri	Introduction to python programming, Introduction to Raspberry Pi	Dr. Anshu Chaturvedi
	29/5/2021 3:00-5:00 PM	Sat	Various Implementation of IoT with Raspberry Pi,	Dr. Anshu Chaturvedi
	30/5/2021 3:00-5:00 PM	Sun	Case Studies.	Dr. Anshu Chaturvedi
Module Coordinators Email Id and Mobile Number		1. **Dr. R.S. Jadon: rsjadon@mitsgwalior.in, 9425122675** 2. **Dr. Anshu Chaturvedi: anshu_chaturvedi@mitsgwalior.in, 9425337699**		

Eligibility and Important Instructions :-

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.

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. Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the test.

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Finishing School Program-2021

Name of Department	**Department of CSE**
Module Name	**Cyber Security and Integrity**
Module Coordinators	1) Prof. Lav Upadhyay 2) Prof. Sneha Garg 3) Prof. Julie Kumari
Module Objective	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.
Module Content	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 and Cisco Packet Tracer which is used to analyze the network.
Module Methodology	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 and Cisco Packet Tracer which is used to analyze the network.
Module Outcome/ Impact	• Understand the basic concepts of cyber security, networking and internet. • 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. • Able to compare various types of cyber security threats/vulnerabilities. And develop the understanding of cybercrime investigation.
Duration	14th May- 30th May 2021

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Finishing School Program-2021

Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (2 Hrs/ Day)	Faculty
14/05/2021	Fri	Basic Concepts of Computer Networks, Network Models, OSI Model	Prof. Lav Upadhyay, Prof. Sneha Garg & Prof. Julie Kumari
17/05/2021	Mon	TCP/IP, Layered Architecture. Fundamentals of Cryptography.	
18/05/2021	Tue	Steganography, Cryptanalysis. Digital Signature and its usage.	
19/05/2021	Wed	An Introduction to Cyber Security & Information Security. Explain the Security attacks targeted on Networks in OSI architecture. 1. Weekly Assignment and Quiz	
20/05/2021	Thu	Understanding of Security Services in OSI architecture and Security mechanisms.	Prof. Lav Upadhyay, Prof. Sneha Garg & Prof. Julie Kumari
21/05/2021	Fri	Cyber Security Concepts, essential terminologies System and Server Security, Various techniques of IP Spoofing.	
24/05/2021	Mon	Demonstration of basic usage of Protocol Analyzer, Network Scanner, Cisco packet Tracer.	
25/05/2021	Tue	Vulnerability Scanners - Wireshark, TCPDump etc. 2. Weekly Assignment and Quiz	
26/05/2021	Wed	Introduction to Digital Forensics, Definition and types of cybercrimes.	Prof. Lav Upadhyay, Prof. Sneha Garg & Prof. Julie Kumari
27/05/2021	Thu	Electronic evidence and handling, electronic media, collection, searching and storage of electronic media.	
28/05/2021	Fri	Introduction to internet crimes, hacking and cracking.	
29/05/2021	Sat	Introduction to Forensic Tools Encase, Sleuth Kit and FTK tools.	

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Finishing School Program-2021

		3. Weekly Assignment and Quiz	

1) Prof. Lav Upadhyay - lavupadhyay@mitsgwalior.in (8054041270)
2) Prof. Sneha Garg - snehagarg229@mitsgwalior.in (9602425988)
3) Prof. Julie Kumari– juliesingh69@mitsgwalior.in (8299379760)

Eligibility and Important Instructions:-

1. The Online Finishing School Program is designed only for VIth Sem students.

2. The students may apply online.

3. The Online Finishing School Program is free for the participants of VIth Sem 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 VIth Sem 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.

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Finishing School Program (Online Internship)-2021

Name of Department	**Department of Computer Science and Engineering**
Module Name	**Image Processing Using MATLAB**
Module Coordinators	**Prof. Khushboo Agarwal** **Prof. Jaimala Jha** **Prof. Jamvant Singh Kumare**
Module Objective	The main aim of the programme is to provide additional learner centric graded skill oriented technical training, with the primary objective of improving the employability skills of engineering students in the field of Image processing. Various modules of the programme are designed on workshop philosophy to provide hands-on practice sessions for participants in MATLAB.
Module Content	The module will highlight basic as well as advance concepts in the field of Image Processing. The programme will cover the methods of image representation and transformation using MATLAB, and will help students to process histograms, understand image segmentation, reduce noise in images and image compression techniques.
Module Methodology	The Internship is divided into three parts: • In the 1st section, online lectures will be conducted. • In the 2nd section hands-on training will be conducted on the MATLAB Platform. • In the 3rd section students will have to submit report.
Module Outcome/ Impact	On completion of this internship, students are able to: • Understand basic concepts of Image processing techniques. • Demonstrate techniques for image representation. • Analyse histograms in MATLAB. • Apply image transformation techniques using MATLAB. • Explain Noise models in image processing. • Design image compression techniques in MATLAB.
Duration	**3 Weeks (15 days)**

Finishing School Program (Online Internship)-2021

Day Wise Schedule				
	Date	**Day**	**Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (3.00 to 5.00PM)**	**Faculty**
Week 1	**14/05/2021**	**Fri**	**Introduction to image processing**	**Prof. Jaimala Jha**
	15/05/2021	**Sat**	**Brief Introduction to MATLAB**	**Prof. Jaimala Jha**
	17/05/2021	**Mon**	**Pixel relationship**	**Prof. Jaimala Jha**
	18/05/2021	**Tue**	**Image Interpolation**	**Prof. Jaimala Jha**
	19/05/2021	**Wed**	**Image Enhancement**	**Prof. Khushboo Agarwal**
Week 2	**20/05/2021**	**Thu**	**Gray Level Transformation**	**Prof. Khushboo Agarwal**
	21/05/2021	**Fri**	**Histogram Processing**	**Prof. Khushboo Agarwal**
	22/05/2021	**Sat**	**Smoothing and Sharpening**	**Prof. Khushboo Agarwal**
	24/05/2021	**Mon**	**Image segmentation**	**Prof. Khushboo Agarwal**
	26/05/2021	**Tue**	**Image Restoration (Noise models)**	**Prof. Jamvant Singh Kumar**
Week 3	**27/05/2021**	**Wed**	**Reduced Noise using filters**	**Prof. Jamvant Singh Kumar**
	28/05/2021	**Thu**	**Binary Image Operations**	**Prof. Jamvant Singh Kumar**
	29/05/2021	**Fri**	**Morphological Image Processing**	**Prof. Jamvant Singh Kumar**
	30/05/2021	**Sat**	**Image Compression**	**Prof. Jamvant Singh Kumar**
Module Coordinators Email Id and Mobile Number			1. **Prof. Khushboo Agarwal (**ka.agarwals@mitsgwalior.in**)** 2. **Prof. Jaimala Jha (**jaimala.jha@mitsgwalior.in**)** 3. **Prof. Jamvant Singh Kumare (**jamvantsingh@mitsgwalior.in**), 8770742641**	

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 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 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. Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the test.