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Vidyavardhini's College Of Engineering & Technology, Vasai Road

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(Approved by AICTE, DTE Maharashtra and Affiliated to University of Mumbai)

NBA & NAAC Accredited

Industry Sponsored Lab-Machinery Diagnostics

Home»Industry Sponsored Machinery Diagnostics

Industry Sponsored Lab by Performance Speciality Products India Pvt. Ltd.The establishment of theMachinery Diagnostic LabatVCETmarks a significant advancement in engineering education and research capabilities. This state-of-the-art facility provides students with hands-on experience in diagnosing and monitoring the health of various machinery, fostering practical skills essential for modern engineering careers. By integrating advanced diagnostic tools and techniques, the lab enhances the curriculum, strengthen the research, and prepares our graduates to excel in the rapidly evolving field of mechanical and industrial engineering. This initiative underscores VCET?s commitment to offering a comprehensive and forward-thinking education, equipping students to meet the challenges of the future with confidence.Machinery Diagnostic (MD) is an Industry 4.0 maintenance approach that predicts machine health and safety by means of sensor. It is carried out by the combination of machine sensor data that measures vibration and real-time parameters with state-of-the-art machine monitoring software. It is the latest technology and gaining importance at

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very fast rate. Every engineer, especially a mechanical engineer is expected to have basic knowledge on health monitoring of Industrial machines.

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? To anticipated well before failure the common defect in components and assembly in mechanical system? To understand different forms of vibration signals generated by Industrial machines in real time to predict sudden failure.? To identify faults, reducing machine downtime, cost saving and

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optimizing the plant capacity? To encourage and motivate students to undergo research., minor/major project.

Key benefits to the studentsWith the help of performing practical on the simulator, students will be able to know and understand how to ?.? Increase process and system reliability.? Increase Plant efficiency.? Decrease total cost of operation.? Reduce maintenance cost and increases total cost savings? Prevent unplanned maintenance.? Improve the uptime/fault-free operation.Key Benefits to IndustryWith the required skills and exposure, the students can directly contribute to the industry in following ways by? Improves Operator and machine Productivity and Performance. ?? Increases Job Productivity and Performance. ?? Enables more Informed Capex Decisions. ?? Provides True Root Cause Analysis ?.? Implementing automated data Collection in efficient way avoiding time consumption. ?

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Data Acquisition InstrumentChannel ? 3 channels for eddy current sensors1 channel for IEPE accelerometer1 channel for velocity sensor1 channel for photoelectric speed sensorResolution ? 16BitsMax Sample frequency ? 100 kInterface ? USBPower supply ? 100 or 220V AC1 USB cable, 1 power cable, 6 cable for sensor, 6 BNC cablesMotor and Speed Adjusting InstrumentsRotational speed ? 12000 rpmCurrent ? 2AVoltage ? 220 VPower ? 300VA5 bits LED to display rotation speedPower supply ? 100 or 220V AC1 power cable, 1 cable for motor connectionPiezoelectric speed sensorModel ? GDT-2Power supply ? 5 to 15V DCSupport Material ? AluminumEddy current sensor, Adapter and supportModel ? 85811-01Measuring range- 2 mmSensitivity ? 4mV/μmResolution ? 3μmFrequency range ? 0 to 2000 HzLinearity ? 2% FSAdapter power supply ? 24V DCSensor temperature range: ? 30 to 120° CAdapter temperature range: ? 30 to 120° CData Acquisition InstrumentMotor and Speed Adjusting InstrumentsPiezoelectric speed sensorEddy current sensor, Adapter and support

Channel ? 3 channels for eddy current sensors

Resolution ? 16Bits

Max Sample frequency ? 100 k

Interface ? USB

Power supply ? 100 or 220V AC

1 USB cable, 1 power cable, 6 cable for sensor, 6 BNC cables

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Rotational speed ? 12000 rpm

Current ? 2A

Voltage ? 220 V

Power ? 300VA

5 bits LED to display rotation speed

Power supply ? 100 or 220V AC

1 power cable, 1 cable for motor connection

Model ? GDT-2

Power supply ? 5 to 15V DC

Support Material ? Aluminum

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Model ? 85811-01

Measuring range- 2 mm

Sensitivity ? 4mV/µm

Resolution ? 3µm

Frequency range ? 0 to 2000 Hz

Linearity ? 2% FS

Adapter power supply ? 24V DC

Sensor temperature range: ? 30 to 120° C

Adapter temperature range: ? 30 to 120° C

Data Acquisition Instrument

Motor and Speed Adjusting Instruments

Piezoelectric speed sensor

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Eddy current sensor, Adapter and support

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PLC Automation and Drives

:At VCET, we understand the importance of elevating student?s skills in adapting to newer challenges and value the returns of investing in technical skill enhancement. Since last year, Siemens Centre of excellence at VCET is established to provide training for our students in the field of Automation & Drives. The training module encompasses a wide range of courses designed for PLCs, Drives, Controls, HMI, Networks, Process Control, and more. Which subsequently translates into effective, flexible, and value based training and real results in productivity, cost reductions and process optimization. Through specific courses designed for students, each course schedule consists of well balanced theory and provides hands-on training to optimize the knowledge about the products. Our fleet of experienced trainers ensures that each participant makes a contribution towards productivity and performance improvement in this organization.This centre assist students to come up with their own new project ideas and implement them. Center is equipped with various kits of Siemens. kits are available under three sections which are as follows:SIMATIC S7 1200 PLC kit with HMI (A set of 6 kits package)SINAMICS G120 Trainer (set of 5 kitsSINAMICS DCM 6RA80 Trainer with DC Motors (A set of 2 kits)Students can have hands on practice on these kits and learn about it.

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PLC Automation and Drives

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Objectives :The main objective of Siemens Centre of excellence isTo bridge the gap between industry and academics.To provide a competitive edge by helping students to learn, analyze and apply theoretical concepts and develop Industry level technology.To provide experiential learning where students can solve real world problems using state of the art technical material.Sr. No.EventNo. of ParticipantsPeriodNo. of DaysDescriptionResource Person1.TTT Program for COE

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on Basic Drives0701/07/2019 to 05/07/2019.05Teachers training programMr. Rohit Thakur Trainer, SITRAIN, Siemens India Ltd2TTT Program for COE on S7 12000708/07/2019 to 12/07/2019.05Teachers training programMrs. Mangle Trainer, SITRAIN, Siemens India Ltd.3.Workshop on Basic Programming for PLC S7 12005217/08/201901One day workshop is arranged for third year students of Instrumentation EngineeringMr. Prafulla Patil And Mr. Vishal Pande Trainers Siemens Centre of Excellence4.Workshop on PLC HMI Communication5031/08/201901One day workshop is arranged for third year students of Instrumentation Engineering.Mr. Prafulla Patil And Mr. Vishal Pande Trainers Siemens Centre of Excellenc5.Workshop on Basic Programming for PLC S7 12007021/09/201901One day workshop is arranged for third year students of Mechanical Engineering.Mr. Vishal Pande And Mr. Kamlesh Bachkar Trainers Siemens Centre of Excellence6.Workshop on PLC HMI Communication7528/09/201901One day workshop is arranged for third year students of Mechanical Engineering.Mr. Prafulla Patil And Mr. Kamlesh Bachkar Trainers Siemens Centre of Excellence7.Basic PLC S7 1200 + HMI2520/01/ 2020 to 30/01/202010PLC and HMI Programming for students of Final year EngineeringMr. Prafulla Patil Mr. Vishal Pande Trainers Siemens Centre of Excellence8.Workshop on Basics of AC/DC Motors and Drives5805/10/201901One day workshop is arranged for third year students of Instrumentation Engineering.Mr. Prafulla Patil And Mr. Vishal Pande Trainers Siemens Centre of Excellence9.One day workshop is arranged for third year students of Mechanical Engineering.7312/10/201901One day workshop is arranged for third year students of Mechanical Engineering.Mr. Vishal Pande And Mr. Kamlesh Bachkar Trainers Siemens Centre of ExcellenceTeam Coordinators :1. Dr. Vikas Gupta2. Mr. Prafulla PatilMembers :1. Ms. Kanchan Sarmalkar2. Mr. Vishal Pande3. Ms. Ekta Naik4. Mr. Kamlesh Bachkar

Objectives :

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07

01/07/2019 to 05/07/2019.

05

05

01

50

70

01

Team Coordinators :

Members :

Benefits :Exposure to real industrial products.Hand on training on Siemens products & certification with Siemens instruments University program logo.shortened start-up times and faster troubleshooting for actual project development.Employability for students will increase.

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Benefits :

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FacultyDepartmentDr. Vikas GuptaElectronics and Telecommunication EngineeringMr. Prafulla PatilInstrumentation EngineeringMs. Kanchan SarmalkarInstrumentation EngineeringMr. Vishal PandeInstrumentation EngineeringMs. Ekta NaikElectronics and Telecommunication EngineeringMr. Kamlesh BachkarMechanical Engineering

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