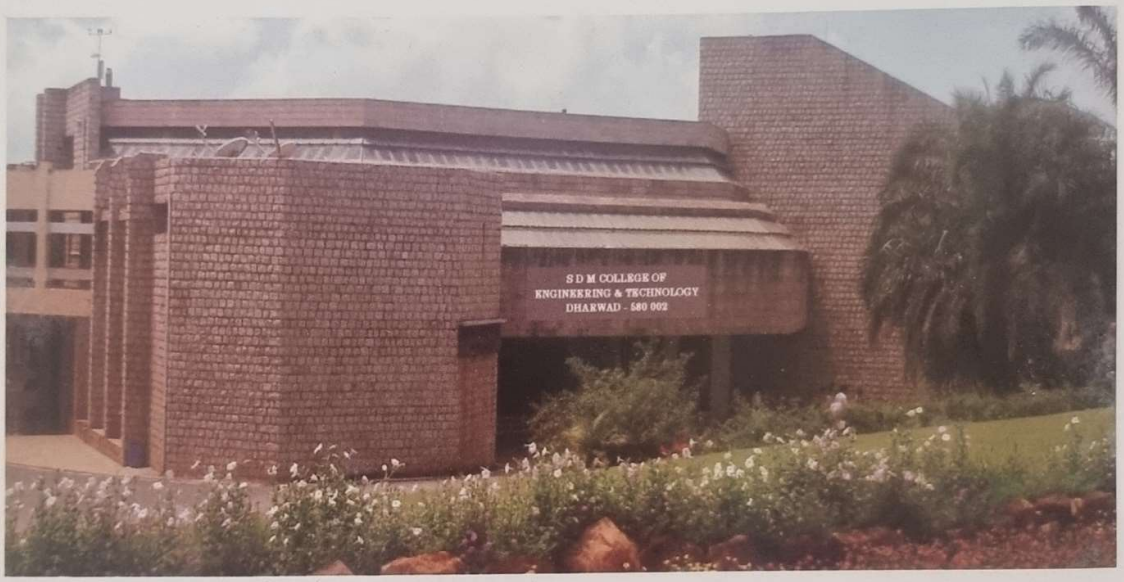
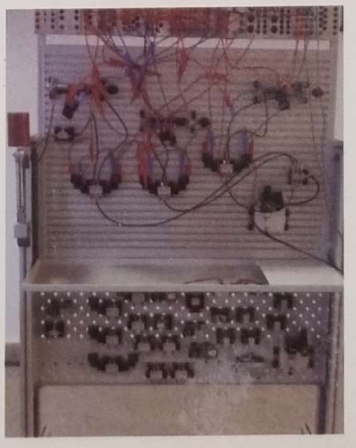
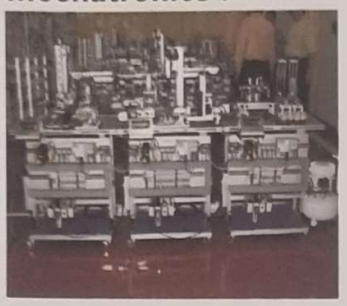
Rexroth
Bosch Group

Centre of Excellence in Automation Technologies





Mechatronics :



Course Content

- Overview of hydraulics, pneumatics, electronics
- Concept of assembly and conveying systems
- Configuring of mechanical equipment and electronic controls for assembly and conveying systems
- PLC technology and programming

Electric Drives & Controls :

Basics

- Introduction to Rexroth Automation Produts - Electric Drives and Controls
- Types of PLCs , HMIs, Drive and CNC systems
- Applications - Introduction
- Installation of Indraworks and VI-Composer

PLC L20

- Introduction to Indraworks and basic setup Indraworks / Indralogic settings
- Elements of POU - PRG/FB/FUN
- Programming languages - LADDER / Function block diagram/ Instruction list / Structure text
- Variables declaration - Local and Global variables
- Subprograms calling and program download & upload
- Memory structure and export and import of project data
- Task configuration and project archiving

Motion Logic in the Drive – MLD

- Introduction to Indradrives
- Drive parameterisation
- Introduction to drive inbuilt PLC
- PLC Open function blocks
- Axis Structure
- Reading and writing drive parameters using FBs
- Direct access variables
- IO configuration on CCD (Master <--> Slave)
- Synchronization Reading drive trouble shooting manual
- VCP communication

CNC - MTX Micro

- Introduction to CNC system
- Creating the project
- Configuration
- Drive parameterization
- Introduction to chanel and axis gateway signals - NC to PLC and PLC to NC signal & PLC Logic Structure
- Manual mode explanation and error messages
- Introduction of M-Codes , G-Codes
- Part Programming ,Subroutines ,Standard Cycles

Hydraulics :

Basic Hydraulics – Course Content

- What is 'Hydraulics'?
- Physical fundamentals and principles

- Hydraulic components (pumps, motors, cylinders, valves: directional, pressure, flow; accessories)
- Fluid power symbols as per DIN ISO 1219
- Basic hydraulic circuits
- Instructions, guidance, and review for practical hydraulic aspects
- Techniques of assembly, disassembly and conversion; possibilities for handling and setting of typical components
- Practice by self-trial of circuit making on demonstration power pack
- Instructions on storage, commissioning, trouble shooting, maintenance and safety
- Overview of proportional hydraulic technology

Proportional Hydraulics - Course Content

- Brief review of conventional valves
- Theoretical aspects of proportional hydraulics
- Component design of :
  - proportional directional, pressure and flow control valves
  - directional servo and pressure servo valves and electro hydraulic
- Controls for pumps
- Symbols as per DIN ISO 1219
- Electronic controls, PLC applications
- Typical continuous control hydraulic circuits
- Instruction on commissioning, filtration, maintenance and Servicing (with videos on proportional valves and servo valves) and trouble shooting

Pneumatics :

Course Content –

- Elements in a Pneumatic System
- Air Preparation & Distribution
- Cylinders & Valves Their working and interactions
- Electro-Pneumatic Control Technology
- Pneumatic & Electro-Pneumatic Latches and their applications
- Pneumatic & Electro-Pneumatic Circuits with practical aspects
- Maintenance & trouble shooting
- Safety aspects.

Vertical Machining Center - For Productivity, Performance and Precision

Salient Features

- Bosch standard product from all main elements
- All Cast Iron structures are rugged for high speed, rigidity and good vibration dampening.
- Precision high speed spindle
- All the axis run on LM Guideways (antifriction), all the ball screws are anchored at both the ends.
- Z axis is with Electronic Counterbalancing and Fail safe break.
- Compact , Simple and Powerful Indramotion MTX Micro CNC System
- All service units are mounted on rear side ease of maintenance.

Performance Features

Suited for all types of Production requirement

- Mass Production
- Batch Production
- Job Shops
- General Engineering
- Mold & Die Industry

- High Speed Milling Applications
- Conventional Milling Applications
- Hard & Dry Milling applications

Precision Features

- All Cast Iron rugged Structures for high speed, high rigidity & good vibration dampening.
- Precision High Speed Spindle bearings for High Speed & Accuracy
- Dynamically Balanced Spindle
- Extra wide span for Y-axis to reduce deflections during machining
- All axes are Laser Calibrated & tested

Productivity Features

- High Acceleration with Individual Axis Jerk Limitation
- Programmable Acceleration for heavy jobs
- Spindle Speeds to suit all applications
- Automatic Tool Changer is Bi-directional & can accommodate 20 tools
- Easy to program
- Cycles – parameterize instead of program
- Numerous technology cycles for standard machining processes
- TPM friendly machine

.

Sensors :

Sensor technology basics - The extensive exercise manual sensor technology basics with 56 exercises is divided into the areas introductory practices, basic practices and additional practices. The introductory practice group is used to show the learner the typical behavior of sensors. It is to be determined which sensor can detect which materials and which not. In the basic practice group, the characteristic values of the individual sensors, which are most important for use in practice such as switching distance, scanning range, response curve and switching frequency are determined. The additional practice group gives the learner insight into the areas in which the sensors are used.

It is for example shown how material selection of filling level measurements can be realized. In addition, special interference factors for individual sensors are to be examined. To perform all tests, you need the basic kit and the extension kit. The solution manual contains the sample solution and other detailed information on the relevant practices.)

Contents :

- Introduction
- Inductive sensors theory
- Application of inductive sensors
- Capacitive sensor theory
- Application of capacitive sensors
- Ultrasonic Sensor theory
- Application of ultrasonic sensors
- Photoelectric sensor theory
- Application of photoelectric sensors
- Study of various types of sensors function, behavior, operating ranges and responses switching frequency, reduction factors , curve of different types of sensors

Learning Targets :

- Transferring the basic sensorics knowledge on the application to various systems.
  Understanding basic modes of operation and connections of the sensorics including application
- and test at the training systems.
- Basic for advanced training courses on the topic.
- Design simple circuits.
  Hands on experience on trainers kits.

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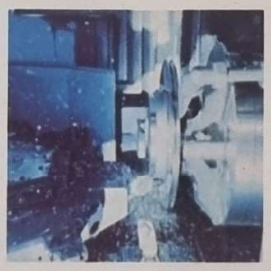
Key notes on the centre :

- The "Centre of Excellence in Automation Technologies" is a joint initiative of Bosch Rexroth with S.D.M. College of Engineering & Technology, Dharwad.
- The centre will act as an independent centre, for all the technical institutes.
- The objectives of the center are to impart technology, trainings and to serve as a project center for innovation and research.
- The centre will function on the concept of Institute in an Institute concept.
- Centre will cater to the needs of Polytechnics, Vocational Institutes and Engineering Institutes.
- The centre has its own faculty, trained by Bosch Rexroth both in India and in Germany.
- The curriculum is developed by Bosch Rexroth, which will bring the students to the level of technology found in the modern industries.
- The centre will focus on hands on training to the students and faculty members in the region in the field of automation.
- The centre has fully integrated training programs in the field of automation technologies.
- Automation technologies are found in most of the industries - Automotive, Machine tools, Manufacturing, Process industries, Renewable energies, Aerospace, Metallurgy, Power.
- Centre will offer the projects to the students of the Engineering.
- Successful candidates will be offered a "Joint Completion Certificate" by Bosch Rexroth and S.D.M. College of Engineering & Technology, Dharwad.

Registration and Contacts :

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Prof .S.V.Viraktamath
Coordinator
SDMCET-BR COE
MOBILE-09844265817
E-MAIL: svvitc2011@gmail.com

Institute Address :

S.D.M. College of Engineering & Technology
Dhavalgiri, Dharwad - 580 002.

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SDMCET-BOSCH REXROTH
CENTRE OF EXCELLENCE IN "AUTOMATION TECHNOLOGIES"
S.D.M.COLLEGE OF ENGINEERING &TECHNOLOGY, DHARWAD,
KARNATAKA STATE, INDIA.
TRAINING PROGRAM ON "AUTOMATION TECHNOLOGIES"

CIRCULAR

Date: 10/12/2021

Batch list & training dates for the SDMCET-BRCOE Training Program

All the **7th Semester Electrical & Electronicsl Engineering** students are hereby informed to attend the training sessions at **SDMCET-BOSCH REXROTH CENTRE OF EXCELLENCE** on the following dates compulsorily. Attendance and training certificates will be given to those students who attend all the sessions of the training program. **The training program will start from 9.00 AM sharp**. on the said dates.

Branch – 7thsemester E&E Engineering

Batch 7– From 15/12/2021 to 17/12/2021		
1	2SD16EE020	MOHAMMED RIZWAN A SHAIKH
2	2SD16EE048	SUSHMITA SHARANABASAYYA HIREMATH
3	2SD16EE049	SWAROOP SAMANTH
4	2SD16EE055	ZEESHAN
5	2SD16EE060	SUSHMITA VIJAYKUMAR LAKKUNDI
6	2SD17EE001	ABHILASH K M
7	2SD17EE012	KADADI NACHIKET
8	2SD17EE014	KARTIKEYA VASTRAD
9	2SD17EE015	M RAMYA SHREE
10	2SD17EE019	MANJUNATHA SHRIDHARA DESAI
11	2SD17EE033	RAHUL SUBHAS TIMMAPUR
12	2SD17EE042	SHIVAPRAKASH PATIL BALAD
13	2SD17EE044	SOMANATH BHIMASHANKAR TADAVALAGA
14	2SD18EE001	ABHILASHA B CHINAGI
15	2SD18EE002	ABHISHEK L BAILAGANAD
16	2SD18EE003	ADITYA U UPADHYAY
17	2SD18EE004	AKASH C MATHAPATI
18	2SD18EE005	AKASH KONNUR
19	2SD18EE006	AKASH SHANKAR RATHOD
20	2SD18EE007	AKHILA R BALIGAR
21	2SD18EE008	AKSHATA S JOSHI
22	2SD18EE010	APOORVA AJJAPPA YAMANUR
23	2SD18EE012	BEENA K JADHAV
24	2SD18EE013	BHAGYASHREE BIRADAR
Batch 8 – From 22/12/2021 to 24/12/2021		
1	2SD18EE014	BHAVANI M KALAKERI
2	2SD18EE015	CHAITRA G YARAGUPPI
3	2SD18EE016	CHITHKALA
4	2SD18EE017	DANISH KANAVI

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5	2SD18EE018	DEEPA K JAKKALI
6	2SD18EE021	FIRDOUSJAHAN TAHSILDAR
7	2SD18EE022	FURQAN ATTAR
8	2SD18EE023	GEETA HALLALLI
9	2SD18EE024	GIRISH SHIVANAND CHABBI
10	2SD18EE025	GURURAJ S SAVALGI
11	2SD18EE027	KRISHNA SANTOSH REDDY
12	2SD18EE028	KUMARSWAMI BHOOSANURMATH
13	2SD18EE030	MOHIT SOLANKI
14	2SD18EE033	NAYANA M CHATAKONDI
15	2SD18EE034	NAYANA S HALLER
16	2SD18EE035	NIHAL MOHAMMADI S
17	2SD18EE038	PAVAN NAIK P
18	2SD18EE039	PRAGATI P SALI
19	2SD18EE040	PRANAV PAI
20	2SD18EE041	PRATIKSHA PRADEEP NAVALGUND
21	2SD18EE043	PRIYANKA PATIL
22	2SD18EE046	RAJU V DESAI
23	2SD18EE047	RAVI BALIGAR
24	2SD18EE048	RITESH P HANGARGI
Batch 9 – From 05/01/2022 to 07/01/2022		
1	2SD18EE049	RUBEENA THAISILDAR
2	2SD18EE050	SADANAND C SINDAGIMATH
3	2SD18EE051	SAKSHI HEGDE
4	2SD18EE052	SAMARTH DESAI
5	2SD18EE053	SANDEEP S MUTALIKDESAI
6	2SD18EE054	SANDESH C KULKARNI
7	2SD18EE056	SIMRAN MUJAWAR
8	2SD18EE057	SOUBHAGYALAXMI SURYAVANSHI
9	2SD18EE058	SOUMYA M KAVALUR
10	2SD18EE060	SUSHMA
11	2SD18EE061	VADIGERI SEEMA
12	2SD18EE062	VAISHNAVI R HOSALLI
13	2SD18EE063	VENKATESH VASANAD
14	2SD18EE064	SHARANU N DIBBADAMANI
15	2SD18EE065	PRAMOD V DIBBADAMANI
16	2SD18EE066	VITHAL MADAR
17	2SD18EE067	APOORVA
18	2SD18EE410	RENUKA MUGALI
19	2SD18EE411	SANDEEP KUMAR S M
20	2SD19EE400	ABHISHEK B KURLI
21	2SD19EE401	DEEPA
22	2SD19EE402	GHANASHYAM MANI MUDALIAR
23	2SD19EE403	KARTIK P KOTAGI
24	2SD19EE405	RAHUL RATHOD

Prof. S.G.Bindagi & Dr. S.V.Viraktamath
Coordinators

Dr. I.Sridhar 10/12/21
HOD-Mechanical Engineering

10/12/21

10-12-21

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SDMCET-BOSCH REXROTH
CENTRE OF EXCELLENCE IN "AUTOMATION TECHNOLOGIES"
S.D.M.COLLEGE OF ENGINEERING &TECHNOLOGY, DHARWAD,
KARNATAKA STATE, INDIA.
TRAINING PROGRAM ON "AUTOMATION TECHNOLOGIES"

CIRCULAR

Date: 26/05/2022

Batch list & training dates for the SDMCET-BRCOE Training Program

All the **8th Semester Electronics & Communications Engineering** students are hereby informed to attend the training sessions at **SDMCET-BOSCH REXROTH CENTRE OF EXCELLENCE** on the following dates compulsorily. Attendance and training certificates will be given to those students who attend all the sessions of the training program. **The training program will start from 9.00 AM sharp from 1st June, 2022 to 3rd June, 2022.**

Branch – I sem. M.Tech (Engg.Ana.& Dgn./ Digi.Electronics / Power Systems)

Batch 16– From 23/03/2022 to 25/03/2022

SL. NO.	BRANCH	NAME OF THE STUDENTS	SIGNATURE
1	E &E	RAKSHA S. NAIKAR	
2	E &E	RAMYA R. DISALE	
3	E &E	VIDYA PAWAR	
4	E &E	BHAVYA BANNADABHAVI	
5	E &E	KARTIK WALI	
6	MECH.	PRAJWAL F PUTTIYAVAR	
7	E & C	K GAYATRI BAI	
8	E & C	SHREELATA SAPPANDI	

DATES	1ST JUNE 2022		2ND JUNE 2022		3RD JUNE 2022	
	AN	FN	AN	FN	AN	FN
Faculty's name	VRS	GMG	SCG	SGB	SKS	VM
Faculty's Signature						

Prof. S.G.Bindagi & Dr. S.V.Viraktamath
Coordinators

Dr.I.Sridhar 30/05/22
HOD-Mechanical Engineering

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S.D.M. COLLEGE OF ENGINEERING &TECHNOLOGY, DHARWAD,
SDMCET-BOSCH REXROTH
CENTRE OF EXCELLENCE IN "AUTOMATION TECHNOLOGIES"

TRAINING PROGRAM ON "AUTOMATION TECHNOLOGIES"
Batch – 05 held from 01/12/2021 to 03/12/2021
ATTENDENCE SHEET

Rexroth
Bosch Group

Sl. No.	USN	Name of the trainees	01/12/2021		02/12/2021		03/12/2021	
			FN	AN	FN	AN	FN	AN
1	2SD18ME035	GANESH LOHIT HULAMANI						
2	2SD18ME036	GOPAL NAMADEV SAKALI						
3	2SD18ME037	GOUTAM KULKARNI						
4	2SD18ME041	JAGANNATH T TORASKAR						
5	2SD18ME045	KIRAN MUDAGALL						
6	2SD18ME046	KRUTARTH Y MALAGI						
7	2SD18ME047	KULKARNI PRANAV ANAND			– AB –			
8	2SD18ME056	NAVEEN HUGAR						
9	2SD18ME059	NEERAJ BASAPPA WADDAR						
10	2SD18ME061	NIKHIL DADANAWALE						
11	2SD18ME062	NISCHIT DAMODAR NAIK						
12	2SD18ME063	NITIN S AHER						
13	2SD18ME064	OMKAR M PATIL						

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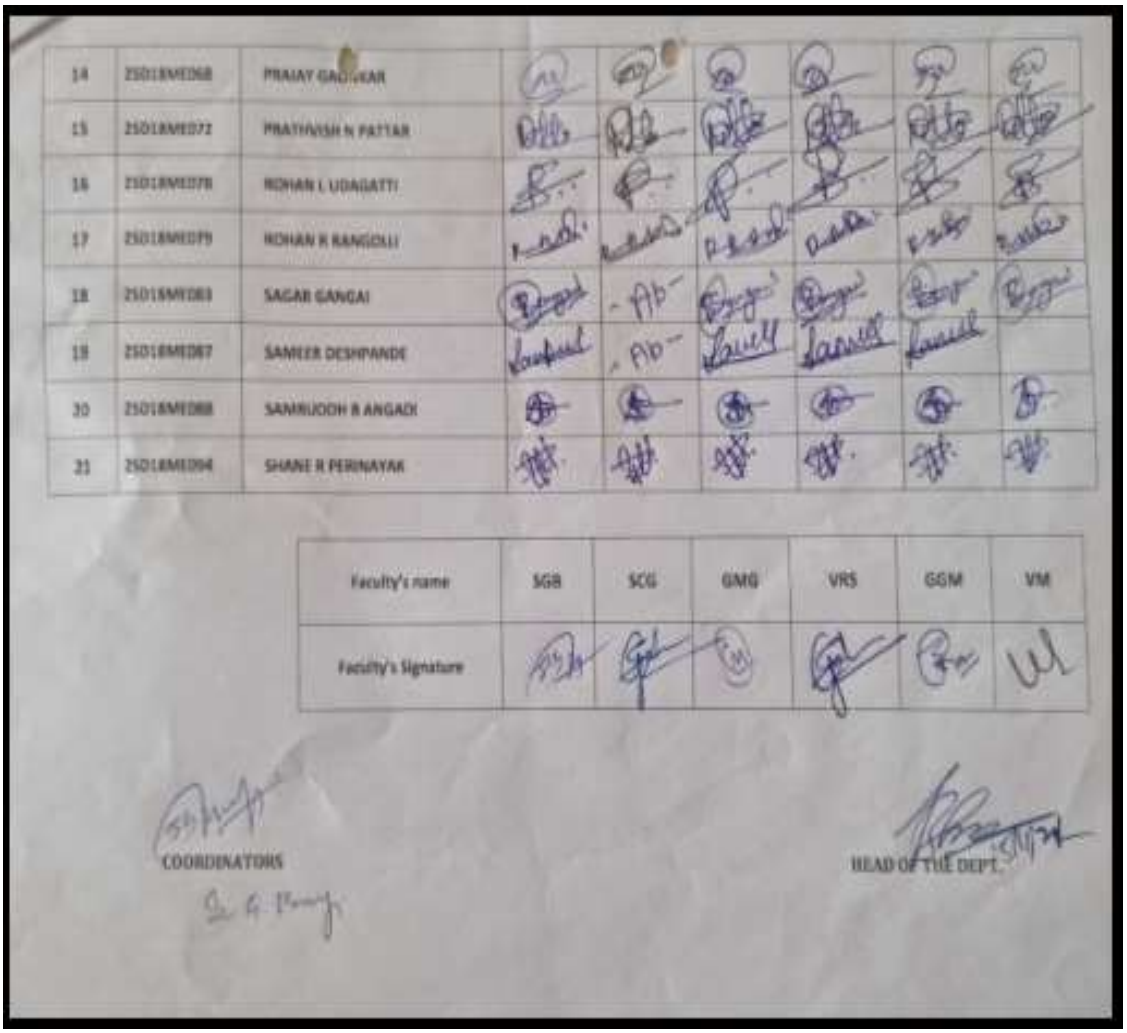

14	2SD18ME068	PRAJAY GAONKAR						
15	2SD18ME072	PRATHAVISH N PATTAR						
16	2SD18ME078	ROHAN L UDAGATTI						
17	2SD18ME079	ROHAN R RANGOLLI						
18	2SD18ME083	SAGAR GANGAI		Ab				
19	2SD18ME087	SAMEER DESHPANDE		Ab				
20	2SD18ME088	SAMRUDDH B ANGADI						
21	2SD18ME094	SHANE R PERNAYAK						

Faculty's name	SGB	SCG	GMG	VRS	GGM	VM
Faculty's Signature						

COORDINATORS

HEAD OF THE DEPT.

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