Centre for Invention Innovation Incubation & Training (CIIIT)

(A Joint Initiative of Tata Technologies Ltd. & GCOE Chandrapur)

SCHEDULE FOR CIIIT: 12 WEEKS OFFLINE INTERNSHIP (PHYSICAL)

Online Applications are invited for 12-weeks – Offline Training / Internship in following domains organised by

Centre for Invention Innovation Incubation & Training (CIIIT), GCOE Chandrapur

(23rd January 2023 - 14th April 2023)

Sr. No	Course title	SME (Name)	Evening Batch Timings (Monday to Friday)	Maximum Batch Size
1	• Computer Aided Product Design and Development (IDI).	Mr. Jiwan Kale	3 PM TO 5 PM	29
2	• Finite Element Analysis (PVA).	Mr. Muhasib Bhat	3 PM TO 5 PM	20
3	• Design Process Management (PLM)	Mr. Gururaj Kalashetti	3 PM TO 5 PM	20
4	• Autonomous, connected, electric vehicles (ACE).	Mr. Arpit Agrawal	3 PM TO 5 PM	40
5	• Mechatronics And internet of things (MIOT).	Mr. Ashutosh Pimparkar	3 PM TO 5 PM	40
6	• Manufacturing Process Control and Automation (MES)	Mr. Pradeep Chamle	3 PM TO 5 PM	20
7	• Industrial Robotics (DM).	Mr. Raviteja V.	3 PM TO 5 PM	20
8	• Advance Manufacturing Engineering (AME).	Mr. Arun Kohli / Mr. Ashok Kalashetti	3 PM TO 5 PM	20

Common Information, Terms & Conditions:

- **Duration** of Training/Internship: **(**12 Weeks) (02 Hrs per day, Mon. to Fri)
- **Eligibility condition:** II-, III- & IV-year B.E. / B.Tech. Or Second/Final year Diploma in Engineering & Technology.UG/PG students from Engineering & Technology/ Research scholars. **Students shall complete their two doses of COVID vaccination (Vaccination certificate is mandatory).**
- **Fees: Rs. 3000/-** per course (online payment on institute website: www.gcoec.ac.in, then click, payment Gateway -- online payment (SBI collect) - CIIIT Course fee - (Note: Write 0, in place of Course code, Processing Fee, Other Fee)
- **Trainers: Experts / Sr. Consultants from Tata Technologies Ltd.**
- **Registration:** Click the below link, submit the details and upload payment receipt.
  https://forms.gle/nqZERbyWujDTxi2F9
  Last Date of Registration: 20/01/2023
- **For Course Contents and other Details visit: www.gcoec.ac.in**
- Certificate shall be awarded to participants after successful completion of training.
- Batch size: Maximum students per batch: refer table on Page 1, (A particular course will commence only if minimum no of students are registered for that course).
- CIIIT authority reserves the right to change batch commencement date, timings and batch size.
- Admissions will be confirmed on first cum first basis
- All COVID -19 protocols should be followed by the candidates
- Accommodation is not available

OFFLINETRAINING/INTERNSHIP COURSES (12 weeks)

(Offline Training/Internship for Engineering and other discipline students)

Course (1):Computer Aided Product Design and Development(IDI)

Sr. No.	Week	Course Content
1	Week 1	Innovation Design and Incubation
2		What is Design Thinking?
3		Brainstorming and IDEA Generation
4		Divergence and Convergence of Design Thinking Process
5		Field Work Research
6		Concept Generation
7	Week 2	Concept Selection and Concept Testing
8	Weeks 3-5	Introduction to Design Tools - CAD (CREO)
9	Weeks 6-8	Concept Creation and 3D Modelling
10	Week 9	Detailed Part Design & Engineering
11		Design for Assembly and Design for Manufacturing
12		DFMEA
13	Week 10	Kinematic Analysis
14		Sheet Metal Design
15	Week 11	Reverse Engineering
16		Overview of Design Validation
17	Week 12	Product Drawing Creation, GD&T
18		Bill of Material
19		Case Studies, Mini Project and Exams

Course (2): Finite Element Analysis (PVA)

Sr. No.	Week	Course Content
1	Week 1	Introduction to Product
2		Intro to Product Design Development and Product Research
3		Innovation ,Types of Innovation and Need of Innovation
4		Design Thinking
5	Week 2	Workshop on Product Design
6		Basics of Strength of Material
7		SFD and BMD, Distribution of Shear and Bending Stresses across cross sections
8		Stress-Strain Diagram, Material Properties and allowables
9		Principal Stresses and Von Mises stresses
10		Factor of safety and Margin of Safety
11	Weeks 3-7	Introduction to Methods to solve Engineering Problems

12		Introduction to Finite Element Analysis (FEA)
13		Advantages of FEA
14		Types of Finite Element Analysis
15		Steps involved in FEA
16		Ho FEM/ FEA works ?
17		Introduction to FEA Software - MSC NASTRAN and MSC PATRAN
18		Introduction to PATRAN in Detail
19		Geometry ,Creation, Mesh Creation
20		FE Model building and Deck Preparation
21		Loads and Boundary conditions
22		1D Elements and their Types
23		2D elements and Types
24		3D Elements and Types
25	Weeks 8	Introduction to MSC NASTRAN in Details
26	Week 9-10	Types of Analysis and their applications
27		Linear Static analysis
28		Normal Modes analysis / Modal Analysis (Free-Free Run)
29		Buckling Analysis
30		Non Linear Static Analysis _Material Geometry and Contact Non Linearity
31	Week 11	Case Study Preparation
32	Week 12	Mini Project and Exam

Course (3): Design Process Management (PLM)

Sr. No.	Week	Course Content
1	Week 1	Concepts of Product Lifecycle Management
2		PLM in Product development process and PLM benefits
3		PLM Architecture
4	Week 2	Need of Architecture
5		Logical and Physical Architecture
6		3-TIER Architecture
7	Week 3	Introduction to Design Tools (CREO)
	Week 4	
	Week 5	
8	Week 6	Concept Creation and 3D Modelling
	Week 7	
9	Week 8	Detail Design, Drawing, Drafting, GD&T and Engineering

10		Design for Assembly and Design for Manufacturing
11		DFMEA
12	Week 9	Windchill Features and Functions
13		PDM Integration with CAD
14		BOM Management
15	Week 10	Windchill tool and Features
16		PLM prospects, future, Goals and PLM footprints
17	Week 11	Case Studies and Final Assignment
18	Week 12	Minor Project
19		Test

Course (4): Autonomous, Connected, Electric Vehicles (ACE)

Sr. No.	Week	Course Content
1	Weeks 1-4	Introduction to Automated, Connected and Electric Vehicles
2		Electric vehicle Architecture, Important components of EV
3	Weeks 5-8	Sizing of components, Battery Management System
4		Connected and Autonomous Vehicle Technology
5	Weeks 9-10	Sensor Technology for Advanced Driver Assistance Systems
6		Overview of Wireless Technology
7		Wireless Networking and Applications to Vehicle Autonomy
8		Connected Car Technology
9	Week 11	Vehicle Prognostics Technology
10		Autonomous Vehicles, Autonomous Vehicle Hardware and Software
11	Week 12	Standards and Regulations in Autonomous Vehicle Technologies
12		Virtual Test Drive
13		Case Studies and Final Assignment
14		Minor Project and Test

Course (5): MechatronicsandInternet of Things(MIOT)

Sr. No.	Week	Course Content
1	Week 1-2	Introduction to Mechatronics
2		Mechatronics components and systems
3	Week 3-4	Block Diagram Representation
4		Data Acquisition & Microcontroller System
5	Week 5-6	Modelling and Analysis of Mechatronics System
6		Introduction to IoT (Internet of Things)

7	Week 7-8	Electronics for the Internet of Things
8		Software for the Internet of Things
9	Week 9-10	Sensors and Peripherals
10		IOT Applications
11	Week 11	Advancements
12		Case Study
13	Week 12	Final Assignment
14		Minor Project
15		Test

Course (6): Manufacturing Process Control and Automation (MES)

Sr. No.	Week	Course Content
1	Week 1-2	Introduction to MES, Objective MES, Benefits
2		Discrete, Continuous and Batch Manufacturing
3		Manufacturing Organisation Structure
4		Key MES functionality, Integration of Business Layer, Integration of Shop floor system
5	Week 3-4	MES Components and Systems Introduction
6		Automation & Process Control, Purpose of Industrial Automation, Computer based Industrial Control & Automation
7		Basics of Control System PLC and HMI for MES
8		Programmable logic controllers, its types & applications - PLC Programming
9		SCADA - What is SCADA, Various Software, SCADA Design, HMI
10		Sensors and Actuators - Such as Limit Switch, Proximity Sensor
7	Week 5-6	Integration of PLC,Conveyor Belt, Sensors.
8		Pick To Light System - Overview and Working
9		MES Software
10		Core Functionalities of MES Software
11		MES Reports - Why these reports are important
12		MES Case Studies - For different Industries
13		MES Example Bicycle - Assembly
TAL ROBOT		
14	Week 7	Basics of Industrial Robotics
15		Various applications in industry
16	Week 8	Safety for Robot
17		Product Description
18	Week 9	Transport and Installation
19		Operation of ROBOT : TAL BRABO Programming
20	Week 10	Robot practical basic command use in program

21		Robot practical logical command use in program
22	Week 11	Robot practical pick and place program
23		Robot practical voice and image processing program
24	Week 12	Maintenance of Robots in Industry
25		Case Study for pick and place application
26		Final Assignment, Minor Project and Test

Course (7): Industrial Robotics (DM)

Sr. No.	Week	Course Content
1	Week 1	Introduction to Robotics -Part 1
2	Week 2	Introduction to Robotics -Part 2
3	Week 3	Robot Operation -Demonstrations
4	Week 4	Robot Programming-Part 1
5	Week 5	Robot Programming-Part 2
6	Week 6	Robot Programming-Demonstration
7	Week 7	Introduction to Digital Manufacturing and Robotic Simulation Part -1
8	Week 8	Introduction to Digital Manufacturing and Robotic Simulation Part -2
9	Week 9	Introduction to Digital Manufacturing and Robotic Simulation Part -3
10	Week 10	Introduction to Digital Manufacturing and Robotic Simulation Part -4
11	Week 11	Introduction to Digital Manufacturing and Robotic Simulation Part -5
12	Week 12	Final Assignment, Minor Project and Test

Course (8): Advance Manufacturing Engineering (AME)

Sr. No.	Week	Course Content
1	Week 1	Introduction to Industry 4.0.
2		Introduction to Industrial Robotics.
3	Week 2	Introduction to Programming of Robots. Applications of Robots.
4		CNC Basics, VMC and HMC Architecture, CNC Lathe Architecture.
5	Week 3	CNC Programming (Manual Part Programming).
6	Week 4	Computer Aided Machining
7	Week 5	Advance CNC Machining - Milling
8	Week 6	Advance CNC Machining - Lathe
9	Week 7	Advance CNC Machining - 4 & 5 Axis Milling
10		Basics of Digital Manufacturing
11	Week 8	Additive Manufacturing
12	Week 9	Reverse Engineering

13	Week 10	Laser Cutting
14	Week 11	Case Studies
15	Week 12	Final Assignment, Minor Project and Test

For more Details, Contact:
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