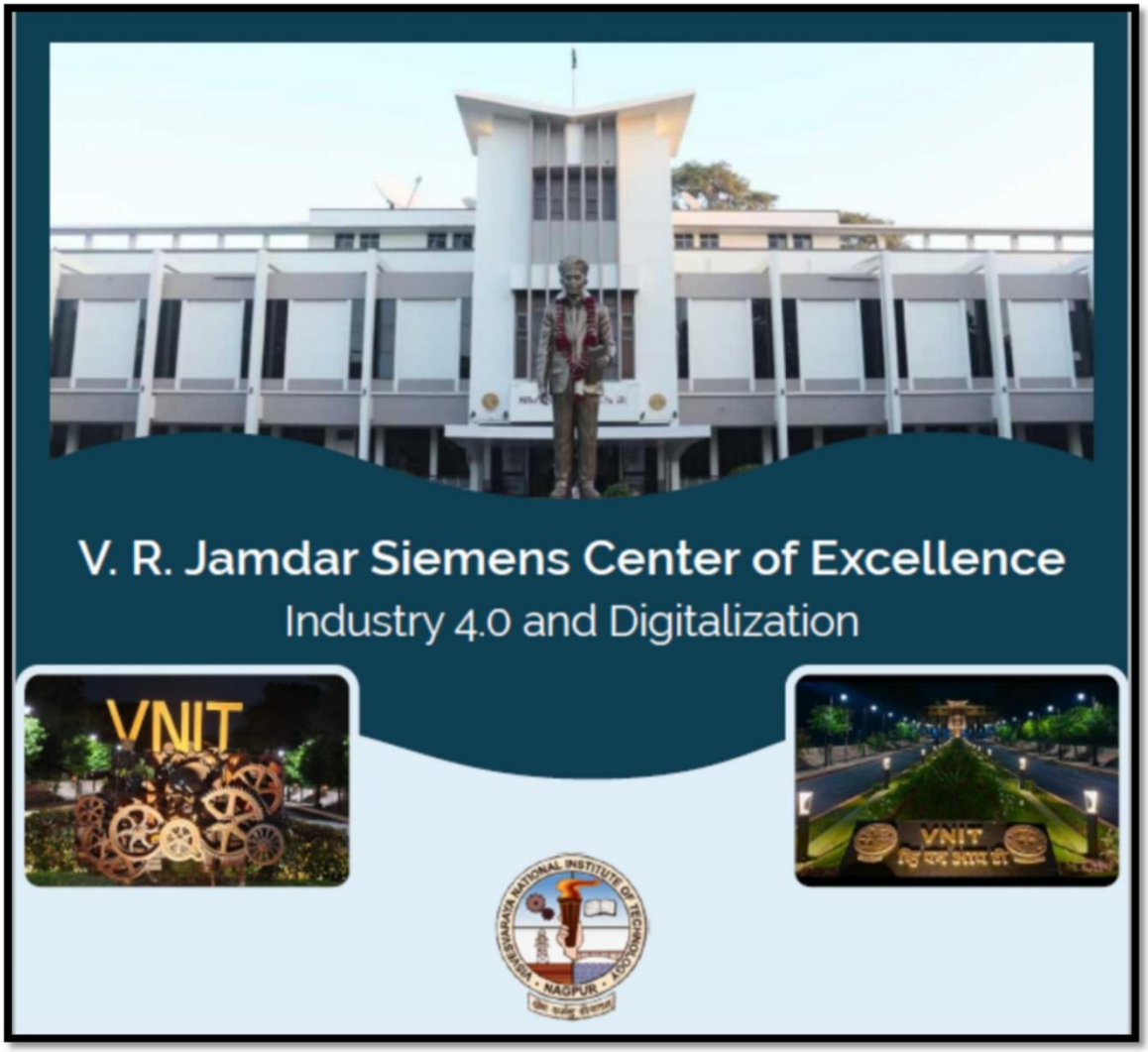
Course Brochure



Visvesvaraya National Institute of Technology Nagpur

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SIEMENS

3D Engineering

The V. R. Jamdar Siemens Center of Excellence (VRJSCOE), established in 2020 at Visvesvaraya National Institute of Technology, Nagpur, operates with a primary focus on creating a robust technical education eco-system through its experience in industrial products and services. The CoE established in collaboration with Siemens and 3D Engineering Automation LLP is equipped with software and hardware necessary for Industry 4.0 and Digitalization. The infrastructure is spanned over 11 state-of-the-art laboratories.

Hardware and Software Facilities at VRJSCOE

Sr. No.	Name of Laboratory	Machines and equipment at VRJSCOE	Professional Software Suits at VRJSCOE
1	Production design & validation lab	Integrated with Smart Manufacturing System	Siemens NX, FeMap, Teamcenter, Fibersim, Mastertrim, Syncrofit, Solidedge
2	Test & Optimization lab/SIEMENS PLM	SCADAS SCM Mobile, SCM-V8-E, SCM Slot frame, Triaxial PCB Prepol Mic, Impulse hammer, Miniature shaker kit, ICP Force sensor, Motor assembly, Airplane scaled model, Lasertech kit	Simcenter Test Lab, Simcenter 3D, Simcente Amesim, Academic Bundle Imagine.Lab (Heavy equipment) Virtual.Lab (Aerospace)
3	Advanced Manufacturing Lab	Integrated with Smart Manufacturing System	Technomatix (JACK,Robcad, Plant Simulation,Process Stimulation),Preactor, Opcenter APS.
4	Reverse Engineering Lab	Carl Zeiss 3D Scanner and Calibration plate (CP_P_300_1320)	Colin3D Software ,GOM Inspect 2019 Software, Zeiss Reverse Engineering Software
5	Internet of Things (IOT) Lab	Siemens IPC Nano Box	Siemens IIoT Insights hub Software build on Mendix Application platform.
6	Automation Lab	S7 1200 PLC with HMI (6 Kits Package), S7 1500 PLC with HMI (1 kit Package)	Totally Integrated Automation Portal SIMATIC Manager V15.1
7	Mechatronics Lab	SIMATIC S7-1200 PLC, Modular Automation Production System (MAPS 6S2)	Totally Integrated Automation Portal V16
8	Process Instrumentation Lab	SIMATIC PCS 7 Training Kits, SIMATICS Process Instrument Racks with Pressure Sensors, Temperature Sensor, Level Sensors (RADAR, Ultrasonic & Capacitive), Flow Sensors (Electro-magnetic, Coriolis Mass flow, Ultrasonic) & Electro-pneumatic Valve Positioner	Process Control System 7 V8.2
9	Smart Factory Lab	Maxturn Plus with Siemens 828D ,MaxMill Plus+ 3 Axis with Siemens 828D, Tooling package, AR-900 robots for Loading and Unloading, Automated Guided Vehicle (AGV), Automated Storage and Retrieval System (ASRS) with RFID and RFID Tracker, KUKA iiwa LBR Cobot for Assembly	Sinumerik Simulation Software, Digital Twin, KUKA Sunrise Workbench, TouchFinder, CIM
10	CNC Lab	CNC Vertical Machining Center – 5 Axis with Siemens 840D Controller	Sinumerik Simulation Software
11	Robotics Lab	Robotic Spot Welding Cell Robotic Pulse MIG Welding Cell Tool Set for Standard and Safety	RobCAD, ABB Robot Studio

Course Offered at V.R. Jamdar Siemens Center of Excellence

Various courses of different duration are offered at VRJSCOE. Aspirants can opt for online / offline/ mix mode of learning. Remote access to software as well as hardware can be given for online courses. Training courses can be taken up by students, teachers, industry professionals. Custom courses can be designed and offered to the industry / academia aspirants. The training is offered in the following disciplines PLM (CAD, CAM, CAE & Digital Manufacturing), Automation & PLC, IoT, Smart Factory, CNC Programming, and robotics. CoE also offers internships for UG and PG students in these domains.

Sr. No.	Course Title	Duration (hrs.)	Domain	Prerequisite (Education)
1	Skill Development Certificate Courses	40 Hours	Product Design and Validation, Automation, Reverse Engineering, Mechatronics, Process Instrumentation, Industrial Robotics, CNC machining, Test and Optimization, Internet of things, Advanced Manufacturing and CNC controllers	ITI / Diploma / B.E. / M.Tech completed or ongoing
2	Certificate Course in Product Design and Analysis	100 Hours	The course covers an introduction to CAD and the NX user interface, sketching, part and assembly modeling, and generating drawing views. It includes sheet metal design, basic Finite Element Analysis (FEA), pre-processing with Simcenter 3D, material definition, and boundary conditions. The course also explores coupled thermal and structural analysis, adaptive meshing, geometry optimization, and post-processing.	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
3	Certificate Course in Future-Ready Robotics and Advanced Manufacturing	100 Hours	The course introduces basic and advanced robotic simulation using Process Simulate, including kinematics and placement commands. It covers human operations, ergonomics, plant simulation basics, and strategies. Participants will also learn about robot configuration, structure, and programming essentials, with both offline programming in Robot Studio and hands-on online programming.	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
4	Certificate Course Industrial Automation with IIoT	100 Hours	Process Instruments & Control Systems,Siemens PLC Configuration,HMI Integration,Modular Automation Production System, Automation and DCS, Simatic WinCC, Basics of Electronics & IoT, IIoT Introduction, Project Submission & Assessment.	Diploma/B.Tech./M.Tech (Completed or ongoing)
5	Certificate Course in Product Life Cycle Management	100 Hours	The course covers CAD and NX user interface basics, sketching, advanced modeling tools, and assembly modeling. It includes generating, editing, and dimension drawing views. It also explores basic and advanced robotic simulation, kinematics, part flow simulation, human simulation, and plant simulation strategies.	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
6	Certificate Course in Robotics and CNC Programming for Industrial Applications	100 Hours	The course covers robot and robotics basics, ABB robot configuration, structure, and programming essentials, including offline and hands-on online programming. It also explores CNC technology history, basic and intermediate CNC programming for 3-axis milling and turning machines, hands-on programming with Siemens Sinutrain, and an introduction to NX-CAM and manufacturing processes.	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
7	Certificate Course in Structural, Thermal and Fluid Flow Analysis	100 Hours	The course introduces basics of Finite Element Analysis (FEA), pre- and post-processing with Simcenter 3D, and motion analysis using the four-bar mechanism. It also covers fluid flow analysis with Simcenter STAR-CCM+, including geometry creation, meshing, boundary conditions, and simulation. Practical exercises include creating geometry models, signature acquisition from a motor-driven engine, and impact testing using a hammer.	Diploma/ B.Tech./ M.Tech (Completed or ongoing)

Sr. No.	Course Title	Duration (hrs.)	Domain	Prerequisite (Education)
8	Certificate course in Reverse Engineering and Design Optimization	100 Hours	Product Design . Software - Siemens NX (Sketching, Modeling , Drafting, Assembly Design) . 2. Test and Optimization . Software - SIMCENTER 3D (Structural &Thermal Analysis). 3. Reverse Engineering. Software - COLIN 3D , ZRE ,GOM INSPECTION . (3d Scanning,3D Modeling, Scan to CAD, 3D Inspection).	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
9	Internship	4-6 Weeks	Industrial Automation with IIoT / Smart Manufacturing	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
10	Internship	3 Months	Industrial Automation 4.0 / Smart Manufacturing	Diploma/ B.Tech./ M.Tech (Completed or ongoing)
11	Internship	6 Months	Advanced Automation with Digital Integration / Smart Manufacturing	Diploma/ B.Tech./ M.Tech (Completed or ongoing)

Assessment: During courses, aspirants have to go through continuous assessment.
Attendance for all the sessions is mandatory

On successful completion of the course, certificate will be awarded to the candidate. Certificate will be signed by VNIT Nagpur, Siemens SISW and 3D Engineering Automation LLP.

Registration Fee:

Sr. No.	Type of Course	Duration	Registration Fee for VNIT Student and Faculty Member (Rs.)	Registration Fee for Outside VNIT Students (Rs.)	Registration Fee including 18% GST (Rs.)
1	Skill Development Certificate Course	40 Hours	NA	8,000	9,440
2	Certificate Course	100 Hours	2500 (NO GST)	20,000	23,600
3	Internship	4-6 weeks	3500 (NO GST)	6,000	7,080
		3 Months	NA	12,000	14,160
		6 Months	NA	24,000	28,320
4	Anyone outside VNIT Teacher/Industry person will be charged Rs. 500/- per hour per head.	40–120Hours	Rs. 500/- plus 18% GST per Hour per head for Industry participants, research scientist including the students involved for undertaking online / hybrid course and faculty members outside VNIT Nagpur.		
5	Consultancy Work	The faculty in-charge from VNIT Nagpur executing the consultancy work will implement standard consultancy procedures followed at VNIT Nagpur.			
6	Lab utilization charges for outside students and industrial projects.	Rs. 200/- per hour per head plus 18% GST.			

4 Credits Certificate Courses Offered by Visvesvaraya National Institute of Technology, NAGPUR

and Conducted by V. R. Jamdar Siemens Center of Excellence, VNIT Nagpur.

1. **Certificate Course on Product Design, Validation and Simulation**
2. **Certificate Course on Digital Manufacturing Using Siemens Tecnomatix**
3. **Certificate Course in IIoT and Automation**
4. **Certificate Course on Industrial Robotics and CNC Programming**

Eligibility: Diploma/B.Tech (Any branch) – 2nd Year Completed
M.Tech(Electrical, Electronics, Mechanical, and related branches)–First Semester Completed

VNIT Nagpur bonafide students are not eligible for the 4 Credits Certificate Course.

Maximum Duration: 3 months
Contact Hours: 100(Lecture:0,Tutorial:16,Practical:84)
Mode: Hybrid(Tutorial Online,Practical offline)

Course Fee: Rs. 25,000 + 18% GST (Includes Rs. 20,000/- certificate course fee and Rs. 5000/- one time registration fees)

Sr. No.	Courses	L	T	P	Cr
1	All the above mentioned four courses	0	1	6	**4**
	Total	0	1	6	**4**

Total: Lecture: 0 hours
Tutorial: 16 hours
Practical: 84hours

Attendance Requirement: 100%mandatory
25% relaxation maybe given by the course coordinator.

CourseEvaluation: Mid-term: 30%
End Term: 30%

Teacher's Assessment: 40% (includes mini project)

Upon completing any one of the four certificate courses listed above, you will receive a 4-Credits Certificate from Visvesvaraya National Institute of Technology, Nagpur.

Please fill up following form for further information and registration process.

SCAN ME

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