



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

[DEEMED TO BE UNIVERSITY]

Accredited "A++" Grade by NAAC | 12B Status by UGC | Approved by AICTE

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SCHOOL OF MECHANICAL ENGINEERING DEPARTMENT OF MECHANICAL ENGINEERING

1.3.2 Value Added Course for Imparting transferable and life skills offered during 2023-2024

Sl. No	Name of the value-added courses (with 30 or more contact hours) offered	Event Dates	Number of students enrolled in the year	Number of Students completing the course in the year	Page No
1	Matlab and Simulink for Mechanical Engineers	26.06.2023 to 14.07.2023	95	94	2
2	Design and modelling using NX CAD/CAM	11.09.2023 to 29.09.2023	94	94	8
3	Hands on training on Dismantling and Assembly of an Automotive Car body, Engine Components, Transmission and Chassis Units	22.01.2024 to 09.02.2024	90	90	13

1. Matlab and Simulink for Mechanical Engineers

The MATLAB and Simulink course tailored for undergraduate Mechanical Engineering students. This comprehensive program is designed to equip you with essential tools and commands to effectively use MATLAB and Simulink software. Throughout the course, you will be exposed to various practical examples and hands-on exercises that will enable you to proficiently model, simulate, and analyze mechanical systems. By delving into computational analysis and simulation applications, this course aims to enhance your skills, elevate your expertise, and expand your knowledge in this field.



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SCHOOL OF MECHANICAL ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

Organizes Training Program

on

Matlab and Simulink for Mechanical Engineers

OPEN TO ALL STUDENTS OF DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE WILL BE ISSUED

DATE: 26th June – 14th July 2023

EVENT COORDINATORS:

Dr. L. Jino,
Assistant Professor,
Department of Mechanical
Engineering,
Mob: 8667670939

Dr. S. Arockia Suthan,
Assistant Professor,
Department of Mechanical
Engineering,
Mob: 7708842885

CHIEF PATRONS

Dr. Mariazeena Johnson, Chancellor
Dr. Marie Johnson, President
Mr. J. Arul Selvan, Vice President
Ms. Maria Bernadette Tamilarasi, Vice President
Ms. Maria Catherine Jayapriya, Vice President

PATRONS

Dr. T. Sasipraba, Vice Chancellor
Dr. S. Prakash, Dean, Mechanical

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COURSE OUTCOMES:

By the conclusion of this course, you will have achieved the following learning objectives:

- Master the fundamentals of MATLAB, enabling you to write efficient code for a wide range of engineering applications.
- Skillfully use Simulink for modeling, simulating, and analyzing dynamic systems, enhancing your ability to visualize complex mechanical processes.
- Acquire proficiency in developing and simulating control systems, providing you with the tools to design and test controllers for mechanical systems.
- Develop the ability to perform numerical analysis and data visualization, facilitating a deeper understanding of engineering problems and solutions.
- Gain insight into optimization techniques, empowering you to improve the performance and efficiency of your designs under various conditions.
- Enhance your problem-solving skills by tackling real-world simulation challenges, fostering creativity and innovation in your engineering solutions.
- Understand the principles of system dynamics and control, enabling you to model and simulate mechanical systems with precision and accuracy.
- Cultivate a strong foundation in computational analysis, enabling you to contribute to the development of cutting-edge innovations in the mechanical engineering industry.

Module	Topics	Name of the Faculty	No of Sessions	Venue
Module 1: Overview of MATLAB Interface and Features	• Introduction to MATLAB environment • Basic operations and arithmetic • MATLAB workspace and command window • Navigating the help documentation • Customizing the MATLAB interface	Dr. L. Jino	2 Hrs	CPDD Lab
Module 2: MATLAB Programming Basics	• Variables and data types • Operators and expressions • Conditional statements (if-else) • Loops (for, while) • Error handling and	Dr. L. Jino	2 Hrs	CPDD Lab

	debugging			
Module 3: Functions and Scripts	• Creating and using scripts • Writing functions • Function input and output • Local and global variables • Anonymous functions	Dr. L. Jino	2 Hrs	CPDD Lab
Module 4: Data Import and Export	• Importing data from various file types (Excel, CSV, text) • Exporting data to files • Working with spreadsheets • Reading and writing data programmatically • Handling large data sets	Dr. L. Jino	2 Hrs	CPDD Lab
Module 5: Data Analysis and Visualization	• Basic plotting functions (plot, scatter, bar) • Customizing plots (labels, legends, titles) • Advanced plotting techniques (subplots, 3D plots) • Data statistics and analysis • Creating interactive visualizations	Dr. L. Jino	2 Hrs	CPDD Lab
Module 6: Numerical Methods and Algorithms	• Solving linear and nonlinear equations • Numerical differentiation and integration • Root finding algorithms • Interpolation and curve fitting • Numerical optimization techniques	Dr. L. Jino	2 Hrs	CPDD Lab
Module 7: Matrix Operations and Linear Algebra	• Basic matrix operations (addition, multiplication) • Eigenvalues and eigenvectors • Singular value decomposition • Solving systems of linear equations • Applications in mechanical engineering	Dr. L. Jino	2 Hrs	CPDD Lab
Module 8: Signal Processing and Analysis	• Signal generation and manipulation • Fourier transforms • Filtering techniques • Time-frequency analysis	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab

	• Applications in vibration analysis			
Module 9: Control Systems Design	• Introduction to control systems • Transfer functions and block diagrams • PID controller design • Stability analysis • Time and frequency domain analysis	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab
Module 10: Introduction to Simulink	• Simulink environment overview • Building simple models • Simulink libraries and blocks • Running and simulating models • Parameter tuning and configuration	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab
Module 11: Dynamic System Modeling	• Modeling mechanical systems • Translational and rotational dynamics • Modeling electrical systems • Hydraulic and pneumatic systems • Multi-domain system modeling	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab
Module 12: Simulation Techniques and Best Practices	• Setting up simulation parameters • Solver selection and configuration • Managing simulation data • Troubleshooting simulation issues • Best practices for efficient simulation	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab
Module 13: Stateflow for Logic-Based Modeling	• Introduction to Stateflow • State machines and flow charts • Designing logic-based systems • Integrating Stateflow with Simulink • Applications in control logic design	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab
Module 14: Code	• MATLAB to C/C++ code generation	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab

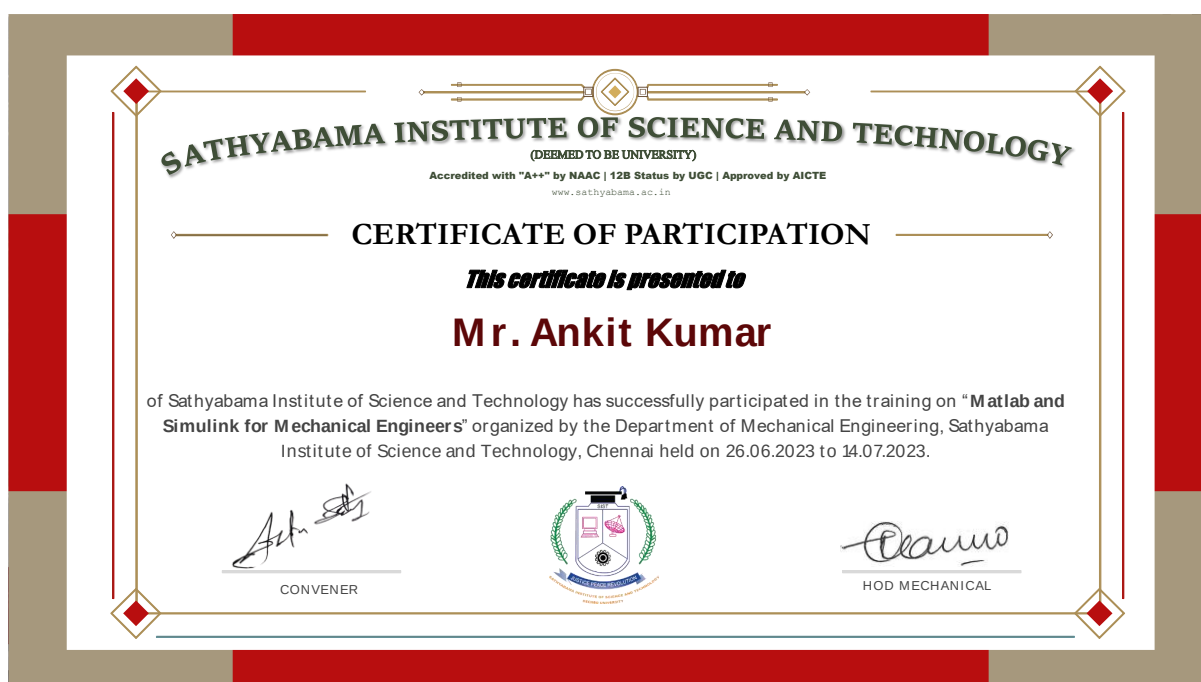
Generation and Deployment	• Simulink code generation • Deploying models to hardware • Real-time simulation and testing • Applications in embedded systems			
Module 15: Case Studies and Project Work	• Real-world case studies in mechanical engineering • Group project planning and execution • Model development and simulation • Presentation of project results • Course review and wrap-up	Dr. S. Arockia Suthan	2 Hrs	CPDD Lab

Participants list:

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39	41150027	DIVINE LAYOSEN I
40	41150037	JOSHIN MOUNIC L
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42	41150016	BELIN BRIGHT G B
43	41150026	DENITTO BOSELIN B
44	41150034	JOHN DHEPACK J S
45	41150032	JERIN PONCIDAS
46	41150030	HENIN RICKY E
47	41150012	ARJUN S
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49	41150028	HARIHARAN
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52	40150004	DARISI KEDHAR SAANDEEP
53	40150005	DHAVALA ADHITYA
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55	40150007	GODAVARTHI GNANESWAR PANDU RANGA RAO
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64	40150027	MUGILAN. M
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74	40150051	KUTTUMA RAVIKUMAR
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76	40150711	MUTHU KUMAR V
77	40150712	Vincent Thomas J
78	40150717	PHANIKUMAR KONETI
79	42150035	RAGHUL V
80	42150021	JAISON KUMAR K
81	42150018	HEMANTH R
82	42150034	PON AKILAN S

83	42150047	SARAVANAN V
84	42150057	THARUN KESHAV R
85	42150043	SAMUEL MILTON RAJ R
86	42150062	VIJAYARAJAN J K
87	42150014	GILBERT DANIEL D
88	42150023	JOHN DAVID MATHEW S
89	42150032	PAROSHAN A
90	42150031	MOHMAD IRSHATH MEERAN S
91	42150041	SABEEN S
92	42150055	STEYNS H
93	42150033	PAVITHRAN R
94	42150026	MADHAN S A
95	40150011	HARIHARAN. V





2. Short Course on Design and modelling using NX CAD/CAM

The NX CAD/CAM course tailored for undergraduate Mechanical Engineering students. This comprehensive program is designed to equip you with essential tools and commands to effectively use NX CAD/CAM software. Throughout the course, you will be exposed to various practical examples and hands-on exercises that will enable you to proficiently model, design, and manufacture mechanical components and assemblies. By delving into computer-aided design and manufacturing applications, this course aims to enhance your skills, elevate your expertise, and expand your knowledge in this field.

Short Course on

Design and modelling using NX CAD/CAM



11th to 29th SEP 2023 || **Venue :: CPDD Lab**
09:00 AM to 11:00 AM

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Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai – 600119, Tamil Nadu, India

CHIEF PATRONS

Dr. Mariazeena Johnson, Chancellor
Dr. Marie Johnson, President
Mr. J. Arul Selvan, Vice President
Ms. Maria Bernadette Tamilarasi, Vice President
Ms. Maria Catherine Jayapriya, Vice President

COURSE COORDINATORS

Dr. J. Jeyajeevahan, Assistant Professor,
Department of Mechanical Engineering,
Mobile: 91769 01505

Dr. R. Siva, Associate Professor,
Department of Mechanical Engineering,
Mobile: 99446 66660

COURSE OUTCOMES:

By the end of this course, you will have achieved the following learning objectives:

- Master the construction of 2D sketches and 3D models using NX CAD, effectively translating your ideas into detailed digital representations.
- Skillfully prepare technical drawings and documentation, ensuring precise and accurate engineering designs for various projects.
- Acquire proficiency in creating complex assemblies, enabling you to conceptualize, visualize, and simulate the interaction of multiple mechanical components.
- Develop the ability to use NX CAM for toolpath generation and CNC programming, facilitating the efficient manufacturing of your designs.
- Gain insight into Finite Element Analysis (FEA) and computational fluid dynamics (CFD) simulations, empowering you to evaluate the structural integrity and performance of your designs under various conditions.
- Enhance your problem-solving skills by tackling real-world design and manufacturing challenges, fostering creativity and innovation in your engineering solutions.
- Understand the principles of parametric and feature-based modeling, enabling you to make design modifications with ease and efficiency.
- Cultivate a strong foundation in product design and manufacturing, enabling you to contribute to the development of cutting-edge innovations in the mechanical engineering industry.

Module	Topics	Name of the Faculty	No of Sessions	Venue
Module 1: Overview of NX CAD Interface and Features	• Introduction to NX CAD environment • Navigating the user interface • Understanding toolbars and command menus • Customizing the workspace • Basic operations and commands	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 2: Sketching and 2D Geometry	• Creating and editing sketches • Sketch constraints and dimensions • Using sketch tools (line, arc,	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab

Creation	- circle, rectangle) • Converting sketches to 3D models • Best practices for creating clean sketches			
Module 3: Basic 3D Modeling Techniques	• Creating basic 3D shapes (extrude, revolve) • Boolean operations (union, subtract, intersect) • Feature operations (fillet, chamfer, shell) • Modifying existing models • Introduction to parametric modeling	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 4: Advanced 3D Modeling Techniques	• Creating complex shapes (sweeps, lofts) • Surface modeling techniques • Using patterns and arrays • Working with reference geometries • Advanced feature creation	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 5: Assembly Modeling	• Creating and managing assemblies • Mating components • Assembly constraints • Checking for interferences and collisions • Exploded views and assembly animations	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 6: Drafting and Detailing	• Creating technical drawings • Adding dimensions and annotations • Creating section views and detail views • Title blocks and drawing standards • Printing and exporting drawings • Running Optimization Simulations • Analyzing and Interpreting Optimization Results	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 7: Sheet Metal Design	• Introduction to sheet metal design • Creating sheet metal features (flanges, bends, hems) • Unfolding and flattening parts • Sheet metal design rules and best practices	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab

	• Creating flat patterns for manufacturing			
Module 8: Weldments and Frame Design	• Introduction to weldment design • Creating and managing weldment structures • Adding weld beads and annotations • Structural frame design • Analyzing weldment assemblies	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 9: Plastic and Mold Design	• Designing plastic parts • Creating mold features (drafts, parting lines, ribs) • Mold flow analysis • Mold assembly design • Best practices for plastic part design	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 10: Design Validation and Optimization	• Introduction to Finite Element Analysis (FEA) • Setting up and running simulations • Analyzing stress, strain, and displacement • Optimizing designs for performance • Understanding and interpreting simulation results	Dr. J. Jeyajeevahan	2 Hrs	CPDD Lab
Module 11: Overview of NX CAM Interface and Features	• Introduction to NX CAM environment • Navigating the CAM interface • Understanding CAM toolbars and command menus • Setting up CAM projects • Importing CAD models for CAM	Dr. R. Siva	2 Hrs	CPDD Lab
Module 12: Toolpath Generation and Optimization	• Introduction to toolpath generation • Creating and managing tool libraries • 2.5D and 3D milling operations • Toolpath verification and optimization • Best practices for efficient toolpath generation	Dr. R. Siva	2 Hrs	CPDD Lab
Module 13: CNC	• Introduction to CNC programming	Dr. R. Siva	2 Hrs	CPDD Lab

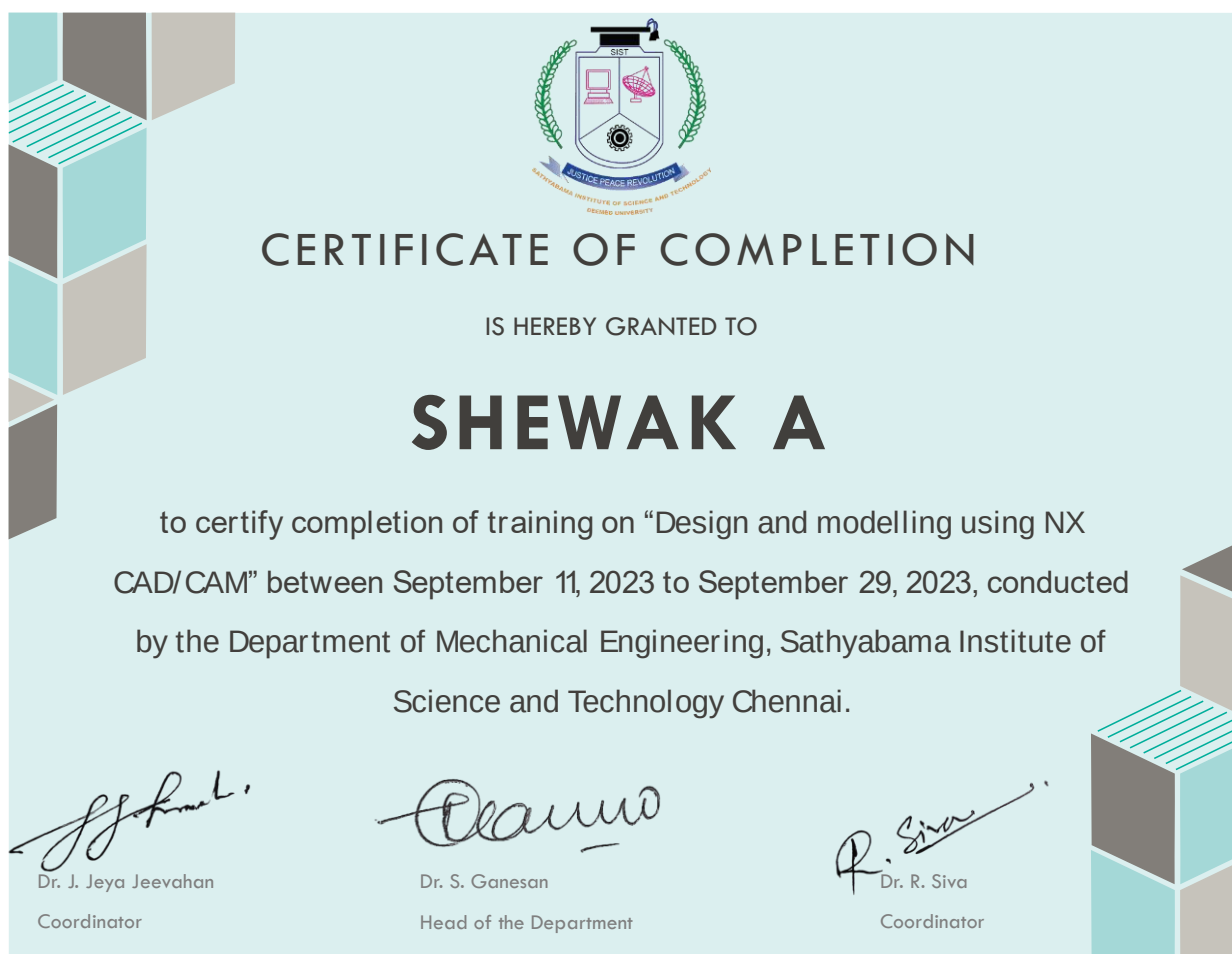
Programming and Simulation	• Creating G-code and M-code • Simulating CNC operations • Troubleshooting and optimizing CNC programs • Exporting and transferring CNC programs to machines			
Module 14: Advanced CAM Techniques	• Multi-axis machining • High-speed machining • Adaptive and trochoidal milling • Advanced drilling and tapping operations • Customizing post-processors	Dr. R. Siva	2 Hrs	CPDD Lab
Module 15: Case Studies and Project Work	• Real-world case studies in mechanical design and manufacturing • Group project planning and execution • Model development and manufacturing simulation • Presentation of project results • Course review and wrap-up	Dr. R. Siva	2 Hrs	CPDD Lab

Participants list:

Sl. No	Reg No	Name
1	42150050	SHEWAK A
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3	42150039	RINO B
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6	42150030	MOHAMED RIYAZ P
7	42150015	GOKULA KRISHNAN K
8	42150059	VEDHAGIRI M
9	42150010	DHARUNRAJ K
10	42150063	YUVAN RAJ S
11	42150044	SAMUEL .R
12	42150052	SRI RAM S
13	42150006	ARUL NIJO ROSHAN J
14	42150005	ARPITH C
15	42150003	ARJUN SARA J
16	42150016	GOPISARAN P
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20	42150020	JAFEER FATHAGU J
21	42150029	MOHAMED RAASHID M.N
22	42150051	SOLOMON N
23	42150001	ALIYUS YOSUVA J

24	42150011	DHYANESH P
25	42150022	JEFFRIN SAM S J
26	42150028	MOHAMED FAROOK S P
27	42150056	TEJASWIN S
28	42150017	GUNASEELAN M
29	42150048	SEENU K
30	42150046	SANJAY M
31	42150067	KIRAN KUMAR M K
32	42150071	MUHAMMAD AIMAN S
33	42150066	JABANESH D
34	42150064	AJISH SAHAI T
35	42150073	RANJITH KUMAR K
36	42150004	AROCKIA VIJOSE R
37	42150042	SAHAYA ROBERT JOYEAL R
38	42150060	VEERAMANI KANDAN V
39	42150036	RAGHUNATH M
40	42150024	KAMESH D
41	42150049	SELVAKUMAR IMMANUEL J
42	41150057	PEDADA ABHIRAM
43	41150074	SUVENDHU CHANDRA GOPE
44	41150058	PRAJEETRAJ P S
45	41150070	SUBASH S
46	41150059	PRAVEEN RAJ M
47	41150060	PRITHICK DHAS P
48	41150080	YOGESHWAR T
49	41150073	SUSHANTH N
50	41150072	SURIYA PRAKASH M
51	41150051	MICHEAL EFRAYIM ROOSEN R
52	41150055	NIRANJAN S
53	41150076	VADLAMUDI VENKATESH
54	41150079	YOGESHWAR S
55	41150062	KURMAPU RAKESH
56	41150056	PATHAN SALEEM KHAN
57	41150071	SURI VENKATA SAI NEETESH REDDY
58	41150053	NAMA MANIKANTA
59	41150067	SIDDABATHUNI RAVI KIRAN
60	41150075	UDAYGIRI SAI AVINASH
61	41150068	SREEKARAM PRANEETH KUMAR
62	41150064	ROUDHICK S
63	41150063	RAMANA NANDA M
64	41150078	YELLANKI VAMSI PAVAN KUMAR
65	41150077	VASANTH T
66	41150061	RAHUL SANJAVIN V
67	41150054	NIKHIL SANGEETHB
68	41150052	MOHANDOSS T
69	41150082	CHEEPURUPALLI ANANTHA SATYA CHANDRA SHEKHAR
70	41150081	ASANALA SAIKUMAR
71	41150065	SARANKUMAR V M
72	41150706	DOSTI JASWANTH KUMAR REDDY
73	41150710	NEO NICHOLUS C
74	41150718	VISHAL V
75	41150707	KAMATI BHANU PRAKASH REDDY

76	41150712	PRAVEEN SAMUEL D
77	41150708	KEERTHIVASAN M
78	41150714	ROHITH KUMAR D
79	41150717	VIGNESH R
80	41150716	VIBIN S
81	41150715	THARUN PRAKASH J
82	41150704	BALA KUMARAN B
83	41150705	DINESH S
84	41150701	AVAARU SUSHEEL KUMAR
85	41150713	RADHAKRISHNAN R
86	41150709	KOVVURI SIVA GANESH SAMPATH REDDY
87	41150702	ARVIND B
88	41150711	PRAGAADEESH S
89	41150719	YOGI VENKAT M
90	41150720	HARISH V
91	41150703	BAGWAN SAAD HYDER
92	40150003	CHIKKUDU VENKATA VIJAY KUMAR
93	40150010	HANAN GEOFFREY ABRAHAM
94	42150025	KRISHNA S





3. Hands on training on Dismantling and Assembly of an Automotive Car body, Engine Components, Transmission and Chassis Units

The Hands-on Training on Dismantling and Assembly of Automotive Car Body, Engine Components, Transmission, and Chassis Units course tailored for undergraduate Mechanical Engineering students. This comprehensive program is designed to equip you with essential skills and knowledge to effectively dismantle and assemble various automotive components. Throughout the course, you will be exposed to practical examples and hands-on exercises that will enable you to proficiently handle and understand the intricacies of car bodies, engines, transmission systems, and chassis units. By delving into real-world automotive applications, this course aims to enhance your skills, elevate your expertise, and expand your knowledge in this field.



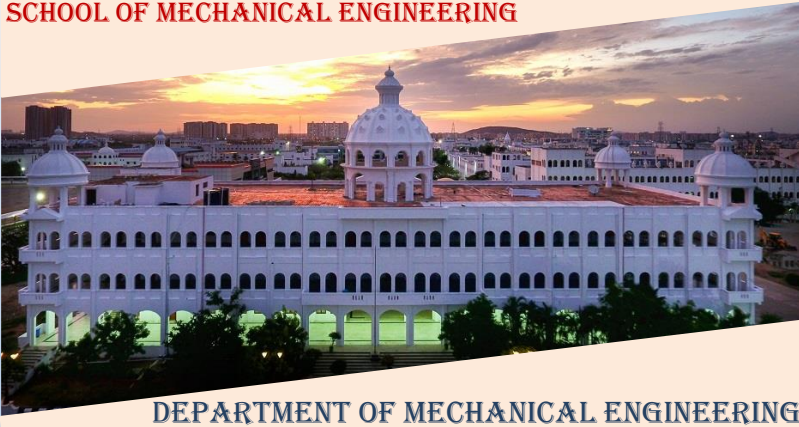
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FREE REGISTRATION
CERTIFICATE WILL BE ISSUED
OPEN TO ALL STUDENTS OF DEPARTMENT OF MECHANICAL ENGINEERING

For more details Contact:
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Dr. Ashwin Jacob, Assistant Professor,
Department of Automobile Engineering,
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SCHOOL OF MECHANICAL ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING
Organizes
Hands on training on Dismantling and Assembly of an Automotive Car body, Engine Components, Transmission and Chassis Units
Date : 22nd January – 09th February 2024

COURSE OUTCOMES:

By the culmination of this course, you will achieve the following learning outcomes:

- Master the techniques for safely and efficiently dismantling and assembling automotive car bodies, ensuring a thorough understanding of structural components and assembly processes.

- Skillfully handle engine components, gaining proficiency in the disassembly, inspection, and reassembly of various engine parts.
- Acquire proficiency in working with transmission systems, enabling you to dismantle, inspect, and reassemble manual and automatic transmissions.
- Develop the ability to dismantle and assemble chassis units, facilitating a comprehensive understanding of the suspension, steering, and braking systems.
- Gain insight into the practical aspects of automotive repair and maintenance, empowering you to diagnose and address common issues encountered in automotive systems.
- Enhance your problem-solving skills by tackling real-world automotive challenges, fostering creativity and innovation in your engineering solutions.
- Understand the principles of automotive assembly and disassembly, enabling you to work efficiently and effectively in automotive repair and manufacturing settings.
- Cultivate a strong foundation in automotive engineering, enabling you to contribute to the development and maintenance of cutting-edge automotive technologies.

Module	Topics	Name of the Faculty	No of Sessions	Venue
Module 1: Overview of Automotive Systems and Safety Procedures	• Introduction to automotive systems • Workshop safety guidelines and procedures • Personal protective equipment (PPE) • Tool identification and proper use • Overview of the course structure and objectives	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab
Module 2: Understanding Automotive Car Body Structure	• Car body components and materials • Types of car bodies (sedan, hatchback, SUV, etc.) • Basic structural analysis	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab

	• Introduction to car body dismantling techniques • Safety considerations for working with car bodies			
Module 3: Dismantling and Assembly of Car Body Components	• Removing and reinstalling exterior panels (doors, fenders, hoods) • Understanding and working with interior components (dashboards, seats) • Handling and storage of removed components • Assembly techniques and alignment • Identifying and addressing common issues during reassembly	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab
Module 4: Automotive Fasteners and Fixing Techniques	• Types of fasteners used in automotive applications • Techniques for removing and installing fasteners • Understanding torque specifications • Using specialized tools for fasteners • Best practices for fastening and securing components	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab
Module 5: Introduction to Automotive Electrical Systems	• Basic automotive electrical concepts • Understanding wiring diagrams and schematics • Common electrical components (batteries, alternators, starters) • Safely working with automotive electrical systems • Basic troubleshooting techniques for	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab

	electrical issues			
Module 6: Overview of Internal Combustion Engines	• Engine types and configurations • Basic engine operation and components • Understanding engine cycles (four-stroke, two-stroke) • Engine performance parameters • Introduction to engine dismantling	Dr. M. Purusothaman	2 Hrs	Automobile Chassis and Engine Component Lab
Module 7: Dismantling and Assembly of Engine Components	• Disassembling engine blocks • Removing and inspecting pistons, crankshafts, and camshafts • Handling cylinder heads and valve components • Cleaning and preparing components for reassembly • Reassembling engine components with proper torque and alignment	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 8: Fuel and Exhaust Systems	• Overview of fuel injection systems • Understanding carburetors and fuel pumps • Dismantling and assembling fuel system components • Exhaust system components and their functions • Handling and installing exhaust manifolds and catalytic converters	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 9: Cooling and Lubrication Systems	• Basics of engine cooling systems • Dismantling and assembling radiators and cooling hoses • Understanding	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab

	lubrication systems and oil flow • Removing and installing oil pumps and filters • Troubleshooting common cooling and lubrication issues			
Module 10: Engine Diagnostics and Testing	• Introduction to engine diagnostics • Using diagnostic tools and equipment • Performing compression tests and leak-down tests • Analyzing engine performance data • Identifying and addressing common engine problems	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 11: Introduction to Automotive Transmissions	• Types of transmissions (manual, automatic, CVT) • Basic transmission operation and components • Overview of clutch systems • Introduction to transmission dismantling • Safety considerations for working with transmissions	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 12: Dismantling and Assembly of Manual Transmissions	• Disassembling manual transmission units • Inspecting gears, shafts, and synchronizers • Handling and installing bearings and seals • Reassembling manual transmission components • Testing and adjusting manual transmissions	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 13: Dismantling and Assembly	• Disassembling automatic transmission units	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine

of Automatic Transmissions	• Understanding hydraulic systems and valve bodies • Inspecting and replacing clutches and bands • Reassembling automatic transmission components • Testing and troubleshooting automatic transmissions			Component Lab
Module 14: Differential and Drivetrain Components	• Basics of differential operation • Dismantling and assembling differential units • Understanding driveshafts and CV joints • Inspecting and replacing drivetrain components • Diagnosing common drivetrain issues	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab
Module 15: Chassis and Suspension Systems	• Overview of chassis components and layout • Dismantling and assembling suspension systems (shock absorbers, struts) • Understanding steering systems and alignment • Inspecting and replacing braking system components (discs, drums, pads) • Comprehensive chassis diagnostics and troubleshooting	Dr. Ashwin Jacob	2 Hrs	Automobile Chassis and Engine Component Lab

Participants list:

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SATHYABAMA
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(DEEMED TO BE UNIVERSITY)
CATEGORY - 1 UNIVERSITY BY UGC

PARTICIPATION CERTIFICATE

Presented to

Harrison Kevin Raj A

for attending the Hands on training on Dismantling and Assembly of an Automotive Car body, Engine Components, Transmission and Chassis Units, organized by the Department of Mechanical Engineering, Sathyabama Institute of Science and Technology, Chennai held on 22.01.2024 to 09.02.2024.

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