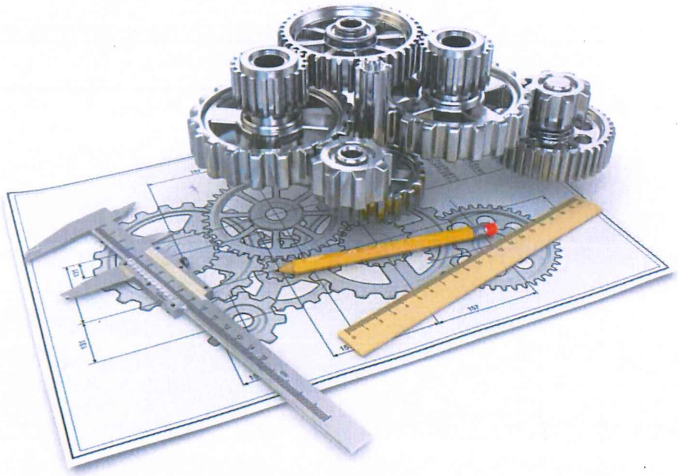
SREE VIDYANIKETHAN
Engineering College
(Autonomous)

Certification based Value Added Course



GEOMETRIC DIMENSIONING & TOLERANCING

30.03.2021 to 15.04.2021

Taget Group
II and III B.Tech(ME) students

Venue
CAM Lab, Room

Timings
9:00 - 11:00 AM

Resource Person(s)

Dr.K.C.Varaprasad
Professor & Head, Dept. of ME, SVEC

Ms.P.Thejasree
Asst. Professor
Dept. of ME, SVEC

Organized by
DEPARTMENT OF MECHANICAL ENGINEERING
SREE VIDYANIKETHAN ENGINEERING COLLEGE
(AUTONOMOUS)
Sree Sainath Nagar, A. Rangampet, Tirupati - 517 102.

SREE VIDYANIKETHAN
Engineering College
(Autonomous)

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

Sree Sainath Nagar, A. Rangampet, Tirupati - 517 102.

Certification based Value Added Course on

GEOMETRIC DIMENSIONING & TOLERANCING

30.03.2021 to 15.04.2021

Organized by

DEPARTMENT OF MECHANICAL ENGINEERING

Resource Person(s)

Dr.K.C.Varaprasad

Professor & Head, Dept. of ME, SVEC

Ms.P.Thejasree

Asst. Professor

Dept. of ME, SVEC

Taget Group

II and III B.Tech(ME) students

Venue

CAM Lab, Room NO.2503

Timings

9:00 - 11:00 AM

Dr. K.C. VARAPRASAD
Professor & Head
Dept. of Mechanical Engineering
Sree Vidyanikethan Engineering College
TIRUPATI - 517 102

Department: ME | Date: 30th March to 15th April, 2021

A Value-Added Course on

"GEOMETRIC DIMENSIONING & TOLERANCING"

30.03.2021 to 15.04.2021

Course Trainer(s) : Dr.K.C.Varaprasad, Professor & Head, Dept of ME
Ms.P.Thejasree, Asst. Professor & Head, Dept of ME

Target Group : II & III B.Tech(ME) Students

Learning and Outcomes of the Course:-

- Able to understand the basic concepts of GD&T.
- Able to understand how to apply GD&T to a part drawing and Spot key features on a drawing.
- Able to explore the significance of GD&T over the traditional method.
- Able to understand the datum target and its applications.
- Able to acquire hands-on practice on what learned through thought-provoking exercises with multiple problem sets in the practice session.
- Understand that datums determine alignment.
- Understand that tolerance zone values are diameters, widths, or thicknesses.
- Able to recognize the most common GD&T characteristics.

Dr. K.C. VARAPRASAD
Professor & Head
Dept. of Mechanical Engineering
Sree Vidyanikethan Engineering College
TIRUPATI - 517 102

GEOMETRIC DIMENSIONING & TOLERANCING

COURSE CONTENTS

Prepared by

Dr.K.C.Varaprasad
&
Ms. P.Thejasree

Dr. K.C. VARAPRASAD
Professor & Head
Dept. of Mechanical Engineering
Sree Vidyanikethan Engineering College
TIRUPATI - 517 102

A Value-Added Course on

"GEOMETRIC DIMENSIONING & TOLERANCING"

30.03.2021 to 15.04.2021

Detailed Day Wise Syllabus

Chapter No.	Topic	No. of Hours
Chapter 1	**Introduction to GD&T**	4
	Reasons to use GD&T	
	GD&T symbols	
	Conventional v/s Advanced Tolerancing Methods	
	Use of Basic Dimensions	
Chapter 2	**Concepts of GD&T**	4
	Features of Size	
	Actual Envelopes (Related and Unrelated)	
	Material Conditions of Features of Size	
	Individual Features of Size	
	Inner and Outer Boundary	
Chapter 3	**Datums Introductory concepts**	4
	Degrees of Freedom	
	Datum Feature Simulators	
	Datum Precedence	
	Multiple Datum Features	
	Datum Feature Selection	
	Datum Targets	
Chapter 4	**Form Tolerances**	2
	Flatness	
	Straightness	
	Circularity	
	Cylindricity	
	Tolerance zones, Application and Inspection methodology for Form tolerand	
Chapter 5	**Orientation Tolerances**	2
	Perpendicularity	
	Parallelism	
	Angularity	
	Tolerance zones, Application and Inspection methodology for Form tolerand	
Chapter 6	**Profile Tolerances**	2
	Line and Surface Profile	
	Profile as General Requirement	
	Unequally Disposed Profile tolerances	
	Unilateral Profile tolerance	
	Tolerance zones	
Chapter 7	**Location Tolerances**	2
	Position, Symmetry and Concentricity	
	Composite Position tolerancing	
	Projected Tolerance zone	
	Tolerance zones, Application and Inspection methodology	

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Chapter 8	**IntrGeneral Dimensioning**	2
	Definitions required for certification exam.	
	Fundamental rules	
	Measurement units	
	Types of dimensioning	
	Application of dimensions	
	Dimensioning features	
	Location of features	
Chapter 9	**General tolerancing and related principles**	2
	Application of tolerances	
	Tolerance expression	
	Interpretation of limits	
	Single Limits	
	Tolerance accumulation	
	Limits of size	
	Relationship between features	
	Applicability of RFS, MMC, and LMC	
	Geometric application to screw threads, gears, and splines	
Chapter 10	**Symbology**	2
	Fourteen geometric characteristic symbols	
	All symbols of GD&T language	
Chapter 11	**Datum referencing**	2
	Definitions	
	Datum feature identification	
	Datum feature controls	
	Tolerances of location	
	Position tolerancing	
	Feature Pattern location	
	Bi-directional positional tolerancing of features	
	Non-circular features	
	Coaxiality controls	
	Concentricity	
	Positional Tolerancing for symmetrical features	
	Symmetry tolerancing	
	Spherical features	
Chapter 12	**Tolerances of form, profile, orientation, and runout**	2
	Form tolerances Straightness, Flatness, Circularity, Cylindricity	
	Orientation Angularity, Parallelism, Perpendicularity	
	Profile Line, Surface	
	Runout Circular, Total	
	Total duration of the Course in Hours	**30**

No. of Students attended : 30

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Value Added Course Particulars - 2020- 2021

Name of the Department	Name of the Value Added Course	Course Code	Start and End Dates	Name of the Resource Person and Affiliation	Year of Offering	No. of Students enrolled for the course	No. of students completed the course
Mechanical Enigineering	Geometric Dimensioning & Tolerancing	-	30.03.2021 to 15.04.2021	Dr.K.C.Varaprasad & Ms.P.Thejasree	2020	**30**	**30**

List of Students Participated

S.No.	Roll No.	Name of the Student	Class and Semester
1	19121A0323	C.GANESH	II B.Tech II Semester
2	19121A0327	D.LOKESH	II B.Tech II Semester
3	19121A0332	D.SRINIVAS	II B.Tech II Semester
4	19121A0337	E.UMASANKAR	II B.Tech II Semester
5	19121A0342	G.MARUTHI	II B.Tech II Semester
6	19121A0354	K.ESWAR	II B.Tech II Semester
7	19121A0367	K.V.SANDEEO	II B.Tech II Semester
8	19121A0369	K.KARTHIK	II B.Tech II Semester
9	19121A0385	M.NIZAMUDDIN	II B.Tech II Semester
10	19121A03D8	S.TARAKANANDA	II B.Tech II Semester
11	19121A03E3	V.DINESH RAJA	II B.Tech II Semester
12	19121A03E8	Y.SATHISH KUMAR	II B.Tech II Semester
13	20125A0304	C.SAI KUMAR REDDY	II B.Tech II Semester
14	20125A0308	H.MOHAN KULLAI SWAMY	II B.Tech II Semester
15	20125A0318	P.VENKATA SURENDRA	II B.Tech II Semester
16	20125A0320	SK.M.SUBHANI	II B.Tech II Semester
17	20125A0331	P.MADHU BHARATH	II B.Tech II Semester
18	18121A0320	B.UDAY KIRAN	III B.Tech II Semester
19	18121A0351	G.FAREED	III B.Tech II Semester
20	18121A0352	G.SARAYU	III B.Tech II Semester
21	18121A0373	K.KEERTHANA	III B.Tech II Semester
22	18121A0387	M.ROSHAN SAI	III B.Tech II Semester
23	18121A03A7	P.NARESH BABU	III B.Tech II Semester
24	18121A03B0	P.BALAJI	III B.Tech II Semester
25	18121A03B1	P.S.K.D.MANIKYALARAO	III B.Tech II Semester
26	18121A03C7	SHAIK MOHAMMED JAVID	III B.Tech II Semester
27	18121A03E3	V.SHIVA PRASAD RAO	III B.Tech II Semester
28	19125A0322	MOHAMMED SAIFULLA	III B.Tech II Semester
29	19125A0326	M.KARTHHIK NAIK	III B.Tech II Semester
30	19125A0335	P.CHANDRA SEKHAR REDDY	III B.Tech II Semester

HOD,ME

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Professor & Head
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SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

Sree Sainath Nagar, Tirupati - 517102

Department: ME | Date: 30th March to 15th April, 2021

A Value Added Course on

"GEOMETRIC DIMENSIONING & TOLERANCING"

30.03.2021 to 15.04.2021

About the course:

Geometric Dimensioning and Tolerancing or GD&T is an overarching symbolic language used in defining the geometry of mechanical parts. It comprises dimensions, symbols, definitions, rules, and conventions that illustrate the functional requirements of each feature of the design model. The Course starts with explaining the importance of an engineering drawing and explores the need for GD&T that has arisen and then a deep dive into the concepts of GD&T. Precisely, GD & T is the exact language that helps mechanical engineers, fabricators, and designers to communicate regarding the design model. The course will help students to understand the fundamentals of the GD&T language. It will guide them to comprehend Geometric Tolerancing and will assist them in becoming certified GD&T associates. In this context, department of Mechanical Engineering conducted Value Added Course on "GEOMETRIC DIMENSIONING & TOLERANCING" from 30.03.2021 to 15.04.2021

DAY 1:

DAY 2:

Topic Discussed:

Reasons to use GD&T
GD&T symbols
Conventional v/s Advanced Tolerancing Methods
Use of Basic Dimensions

Learning Outcomes:

Describe various uses of GD&T and basic dimensions. Key concepts related to GD&T symbols, tolerancing methods.

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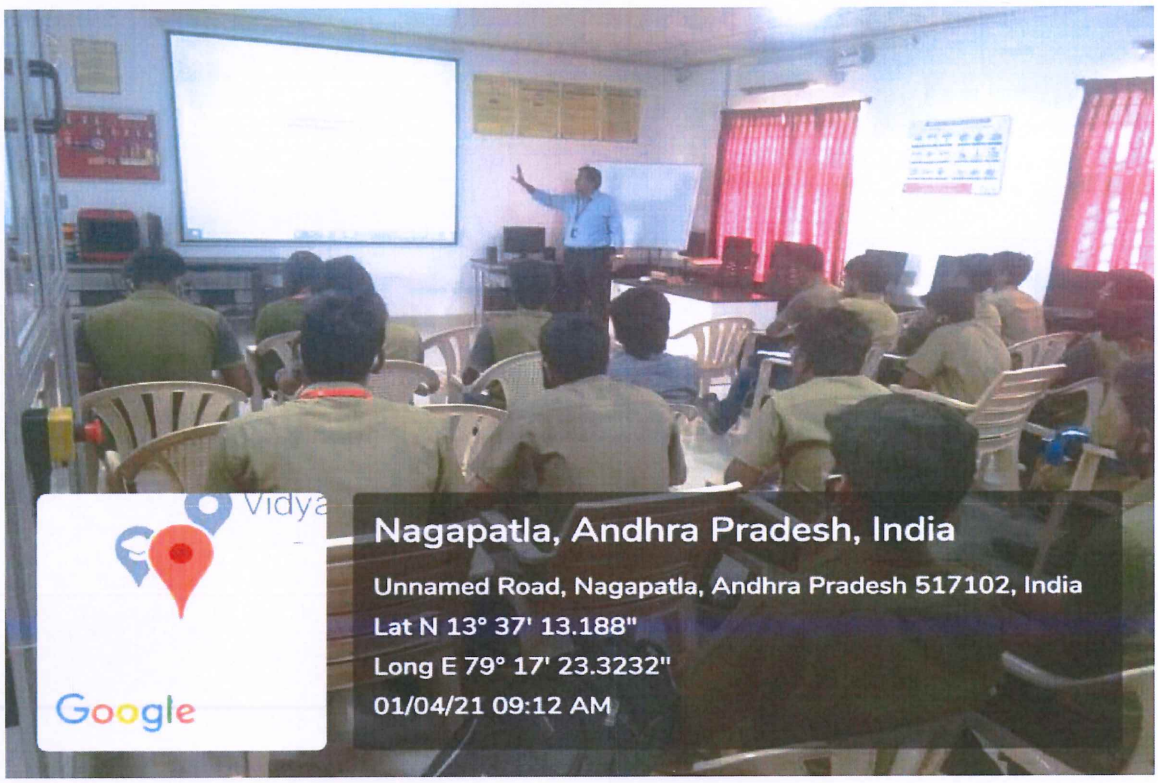
DAY 3:



Topic Discussed:

Features of Size
Actual Envelopes (Related and Unrelated)
Material Conditions of Features of Size
Individual Features of Size
Inner and Outer Boundary

Learning Outcomes:

Describe various size related features, Actual Envelopes and respective material conditions to make the students familiar with the size feature concept.

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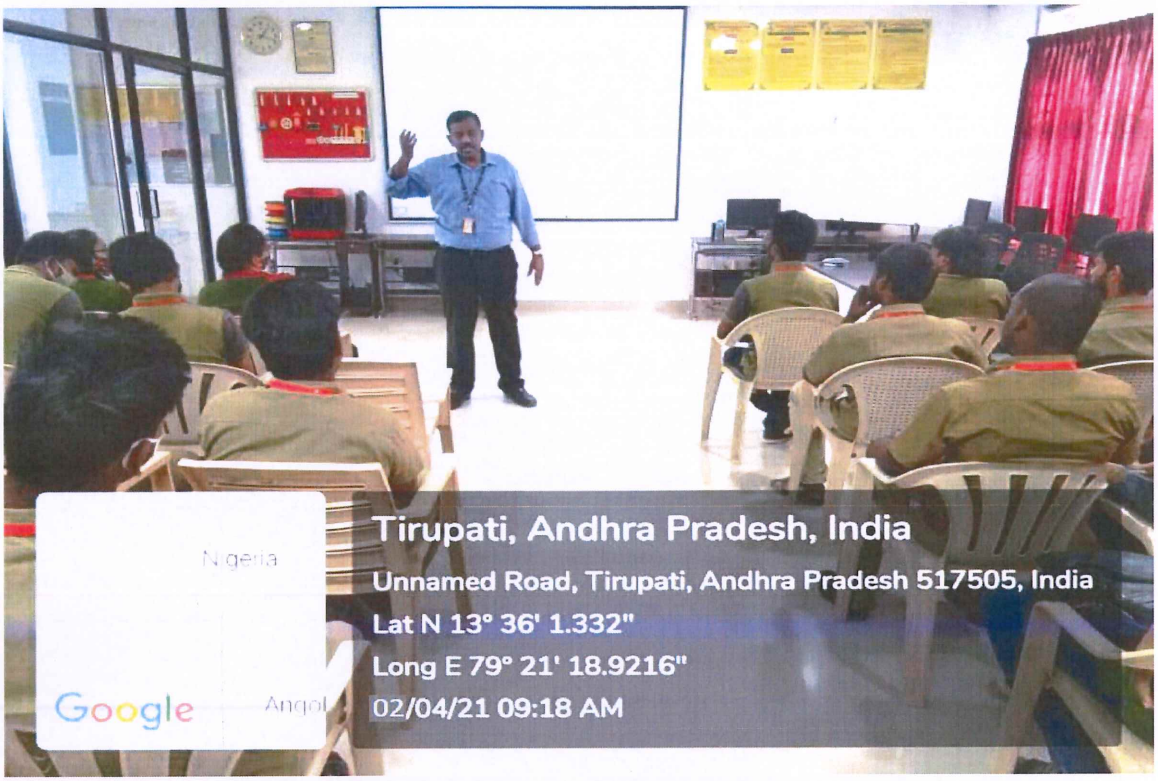
DAY 4:



Topic Discussed:

Degrees of Freedom
Datum Feature Simulators
Datum Precedence
Multiple Datum Features
Datum Feature Selection
Datum Targets

Learning Outcomes:

To impart fundamental knowledge on the concepts of Degrees of Freedom and Datum features.

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DAY 5:

Topic Discussed:

Flatness
Straightness
Circularity
Cylindricity
Tolerance zones, Application and Inspection methodology for Form tolerances

Learning Outcomes:

To demonstrate the students about various features such as Flatness, Straightness, Circularity, Cylindricity and to introduce about the tolerance zones, applications and inspection techniques for Form tolerances.

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Dept. of Mechanical Engineering

DAY 6:

Topic Discussed:

Perpendicularity
Parallelism
Angularity
Tolerance zones, Application and Inspection methodology for Form tolerances

Learning Outcomes:

To provide basic knowledge on Perpendicularity, Parallelism, Angularity and in depth knowledge on Tolerance zones to the participants.

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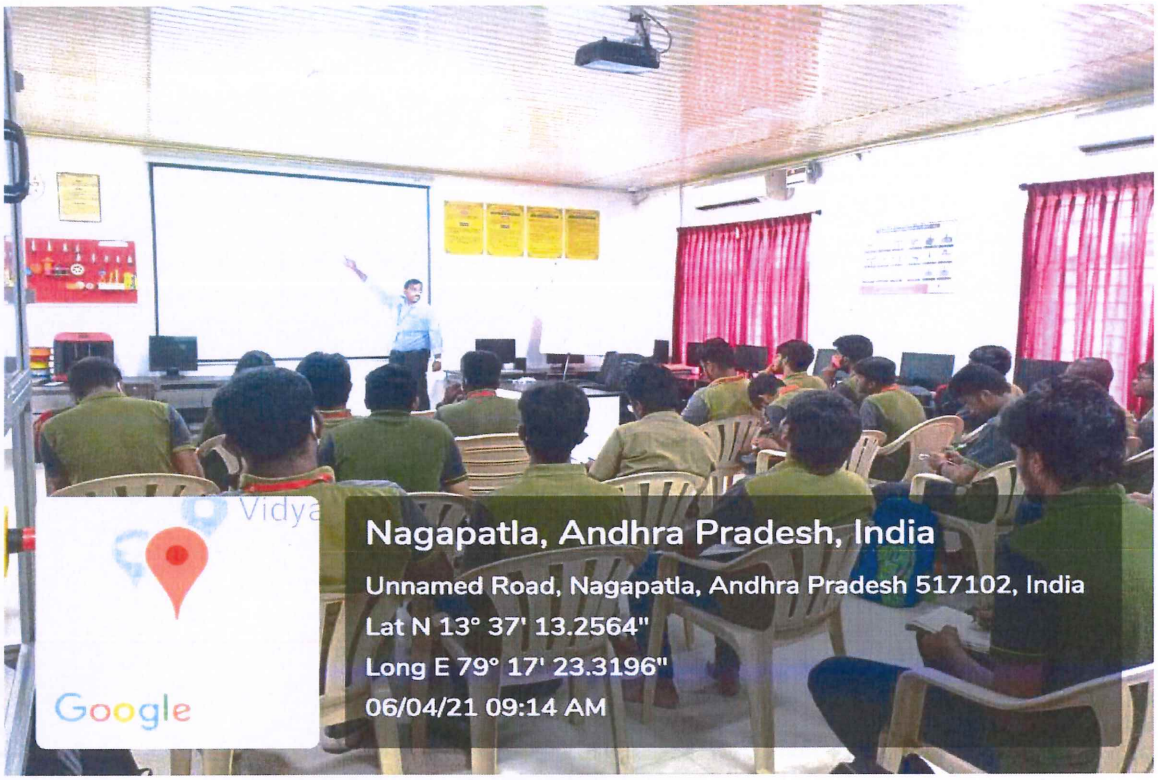
DAY 7:



Topic Discussed:

Line and Surface Profile
Profile as General Requirement
Unequally Disposed Profile tolerances
Unilateral Profile tolerance
Tolerance zones

Learning Outcomes:

To provide basic knowledge regarding the general requirements of profiles and the related tolerances.

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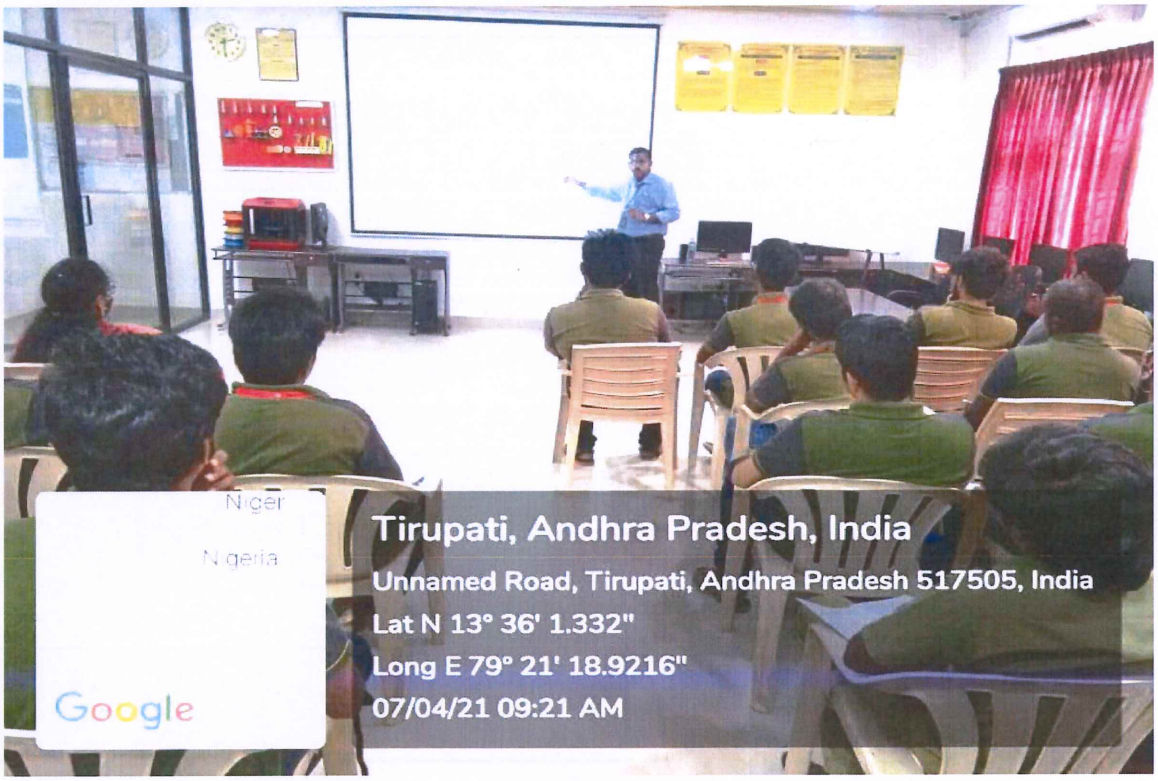
DAY 8:



Topic Discussed:

Position, Symmetry and Concentricity
Composite Position tolerancing
Projected Tolerance zone
Tolerance zones, Application and Inspection methodology

Learning Outcomes:

To facilitate the students about the concepts of Position, Symmetry and Concentricity, Composite Position tolerancing and Projected Tolerance zone

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DAY 9:

Topic Discussed:

Definitions required for certification exam.
Fundamental rules
Measurement units
Types of dimensioning
Application of dimensions
Dimensioning features
Location of features

Learning Outcomes:

To provide the targeted group, an awareness on the certification exam and the related concepts.

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DAY 10:

Topic Discussed:

Application of tolerances
Tolerance expression
Interpretation of limits
Single Limits
Tolerance accumulation
Limits of size
Relationship between features
Applicability of RFS, MMC, and LMC
Geometric application to screw threads, gears, and splines

Learning Outcomes:

To discuss about applications of tolerances, Interpretation of Limits and its applicability and some specific geometric applications.

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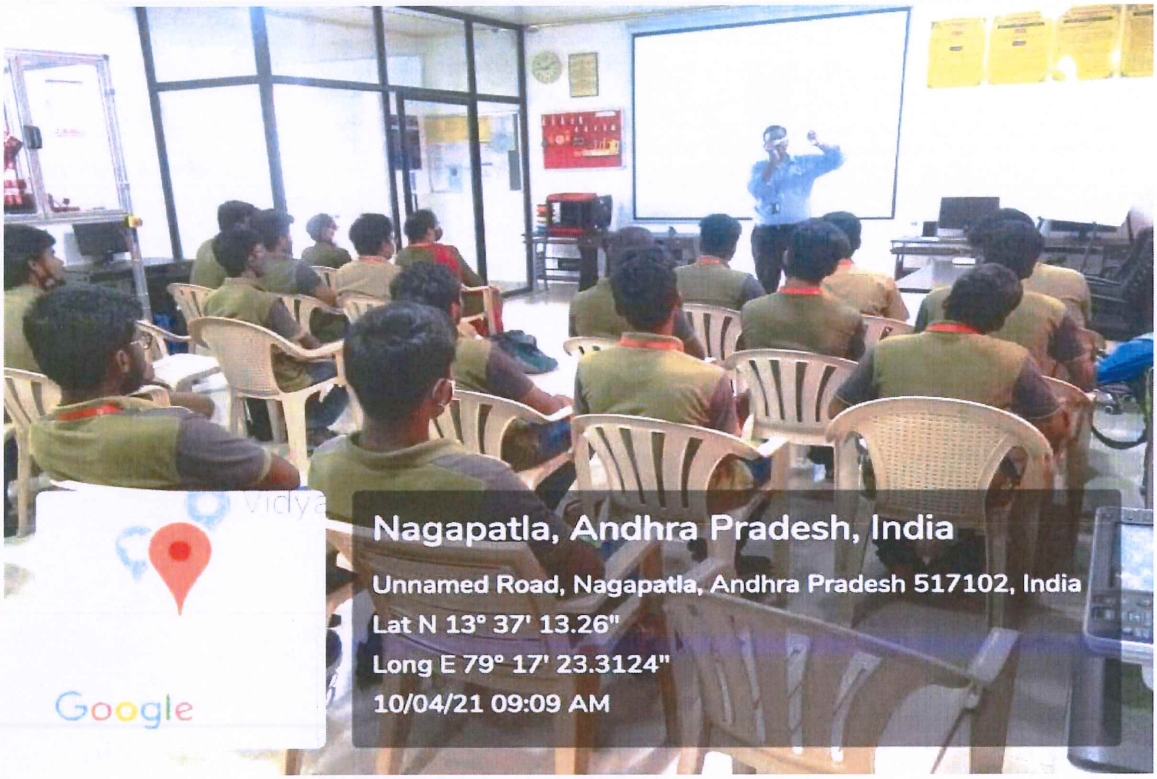
DAY 11:



Topic Discussed:

Fourteen geometric characteristic symbols
All symbols of GD&T language

Learning Outcomes:

To make the participants aware of all symbols of GD&T language

DAY 12:

Topic Discussed:

Definitions
Datum feature identification
Datum feature controls

Learning Outcomes:

To demonstrate and discuss on datum feature identification and control procedures

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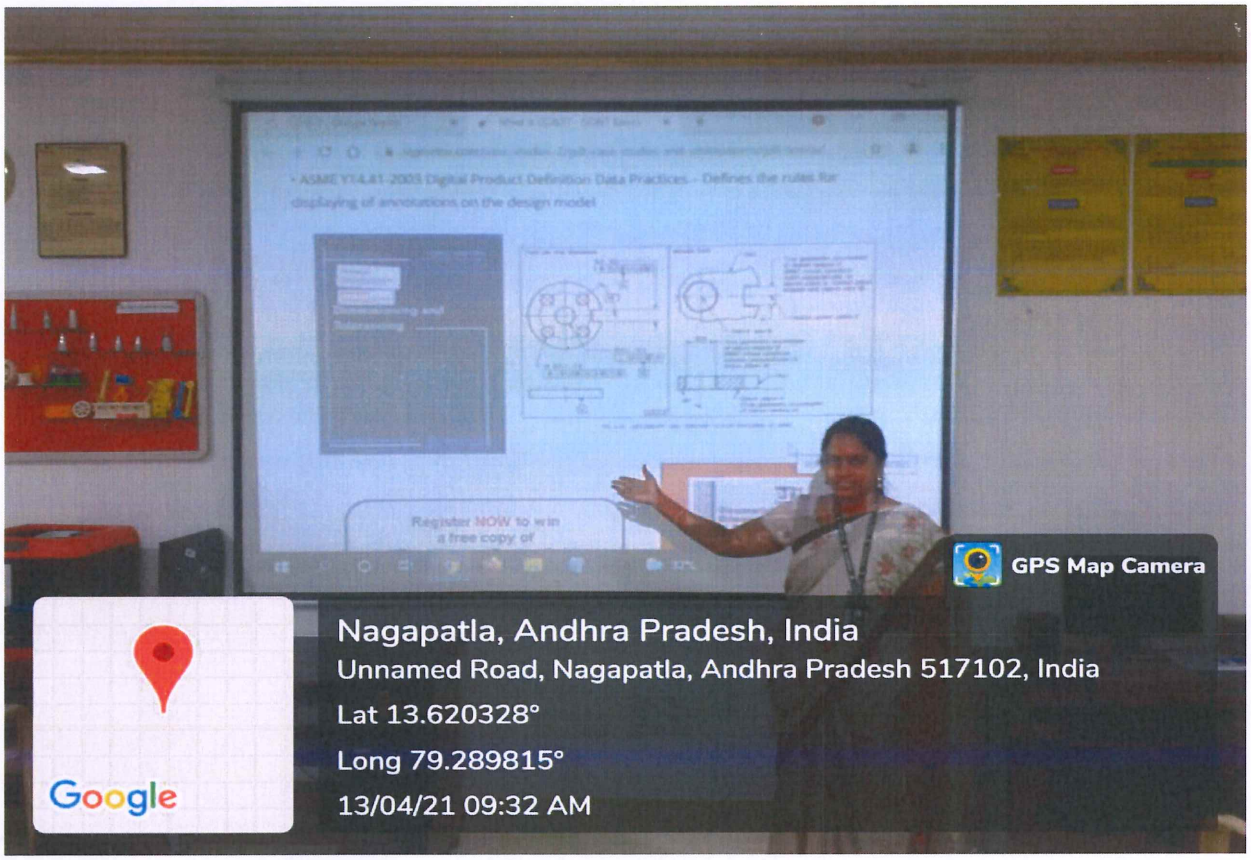
DAY 13:



Topic Discussed:

Position tolerancing
Feature Pattern location
Bi-directional positional tolerancing of features
Non-circular features
Coaxiality controls
Concentricity
Positional Tolerancing for symmetrical features
Symmetry tolerancing
Spherical features

Learning Outcomes:

To provide basic knowledge on Position tolerancing, Non-circular features, Concentricity and Spherical features.

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DAY 14:

Topic Discussed:

Form tolerances Straightness, Flatness, Circularity, Cylindricity
Orientation Angularity, Parallelism, Perpendicularity
Profile Line, Surface

Learning Outcomes:

To impart the skills required in identifying features in form tolerance such as Straightness, Flatness, Circularity, Cylindricity, Orientation Angularity, Parallelism, Perpendicularity, Profile Line and Surface

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DAY 15:

Topic Discussed:

Overall content discussion, Feedback and Vote of Thanks

Learning Outcomes:

To discuss about the level of understanding through the program and for further improvements required in the program.

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About the resource person

Dr.K.C.Varaprasad

Dr. K.C.Varaprasad graduated in B.Tech Mechanical Engineering from Sri Krishna Devaraya University, Ananthapur, Andhra Pradesh, India in the year 1999 and Post-Graduation in M.Tech in Production Engineering from Sri Venkateswara University, Tirupati, Andhra Pradesh, India in the year 2002. He received his Ph.D. from Jawaharlal Nehru Technological University Anantapur, Anantapuramu, Andhra Pradesh, India in the year 2011. Currently, he is working as Professor & Head, Department of Mechanical Engineering, Sree Vidyanikethan Engineering College, Tirupati, Andhra Pradesh, India. He is the founder Head of the Department of Mechanical Engineering. He established nearly15 state-of-art laboratories with advanced technology equipment. He has got 18 years and 8 months of teaching and industrial experience. His research area of interest includes Micromachining, 3D Printing and Industry 4.0. He is having rich teaching experience in the subjects: Manufacturing Technology and Tool Design, Computer Aided Engineering Drawing, Manufacturing Technology, Machine Drawing, Machine Tools, Engineering Metrology, Tool Design, Industrial Engineering & Management, Elements of Production Drawing, Automation in Manufacturing, CAD/CAM, Mechatronics, Industrial Robotics, Instrumentation & Control Systems, Unconventional Machining Process, Hydraulics & , Pneumatics, Non Conventional Sources of Energy, Computer Integrated Manufacturing, Engineering Mechanics, Flexible Manufacturing Systems, Computer Integrated Manufacturing, Automation in Manufacturing, Mechatronics, Computer Aided Process Planning, CNC Technology & Programming. He is a professional member in various organizations: Life Member of Indian Society for Technical Education (MISTE)., Life Member of Institution of Engineers (INDIA) (MIE), Life Member of American Society of Mechanical Engineers (ASME), Life Member of Indian Institution of Production Engineers(IIPE), Life Member of Additive Manufacturing Society of India (AMSI), Life Member of Indian Science Congress Association (ISCA) and Life Member of Indian Welding Society (IWS) He is an Editorial Board Membership of Reviewer for international journal of mechanical computational and manufacturing research and reviewer team member of American Journal of Mechanical and Materials Engineering. In his career, he performed various roles like Head of the Department (ME), NBA Coordinator, NAAC Coordinator, Research Cluster Coordinator and Skill Development Center in-charge. He has presently guiding 03 Ph.D scholars. He has published more than 39 papers in International Journals and Conferences. He organized nearly 100+ academic oriented events for the students and faculty. He has attended more than 100 Workshops, Symposiums and Seminars. He has conducted/coordinated and acted as resource person in various International or National Conferences, Workshops, Symposiums and Seminars. He has published 04 Book Chapters. Some of his publications are listed in digital libraries such as IEEE Xplorer, Elsevier Xplorer, Taylor & Francis, Scopus, SCI Indexed Journals.

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International Journal of Computer Applications in Engineering, Technology and Sciences (IJ-CA-ETS-ISSN: 0974-3596), International Journal of Engineering Research and Industrial Applications (I SSN: 0974-1518), International Journal of Mathematical Sciences and Engineering Applications (ISSN: 0973-9424), International Journal of Technology World, Malaysia, (ISSN 2180-0987), Trans Tech Publications, Switzerland, SAE International Journal of Materials and Manufacturing. He is a committed, dedicated and efficient administrator.

Dr. K.C. VARAPRASAD
Professor & Head
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BIO-DATA

1.	Name of Teaching Staff*	P.THEJA SREE			
2.	Designation	ASSISTANT PROFESSOR			
3.	Department	MECHANICAL ENGINEERING			
4.	Date of Joining the Institution	12-06-2013			
5.	Qualifications with Class/Grade		UG	PG	Ph.D
		Degree	B.Tech.	M.Tech	pursuing
		Class/Grade	Distinction	Distinction	--
6.	Total Experience in Years	Teaching	Industry	Research	
		9 years	2.5 years	--	
7.	Papers Published	National	International		
		01	08		
8.	Papers Presented in Conferences	National	International		
		06	12		
9.	Ph.D Guide? Give field & University	Field : Nil	University : Nil		
10.	Ph.Ds/Projects Guided	PhDs : Nil	Projects at Masters Level : Nil		
11.	Books Published/IPRs/Patents	Nil			
12.	Professional Memberships	02			
13.	Consultancy Activities	Nil			
14.	Awards	01 (Best Paper award in Conference)			
15.	Grants fetched	Nil			
16.	Interaction with Professional Institutions	Nil			

Dr. K.C. VARAPRASAD
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P. Theja

Signature of the faculty

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(Autonomous)

Sree Sainath Nagar, A. Rangampet, Tirupati-517102.

Certificate Of Value Added Course Completion

This is to certify that

P.NARESH BABU

Bearing roll No. 18121A03A7 *of*

Mechanical Engineering Department

has participated and sucessfully completed the the Add-on course on

GEOMETRIC DIMENSIONING & TOLERANCING

during 30th March to 15th April, 2020, Organized by

Department of Mechanical Engineering

SREE VIDYANIKETHAN ENGINEERING COLLEGE

Head of Department

Dr. K.C. VARAPRASAD
Professor & Head
Dept. of Mechanical Engineering
Sree Vidyanikethan Engineering College
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Principal, SVEC