Dr.Mahalingam College of Engineering and Technology, Pollachi-642003

Department of Automobile Engineering

NEWSLETTER

SCUDERIA AVES

VOLUME - 11 ISSUE- 2 2021 - 2022

Institution Vision & Mission Mission

Vision

We develop a globally competitive workforce and entrepreneurs.

Mission

Dr. Mahalingam College of Engineering and Technology, Pollachi endeavors to impart high quality, competency based technical education in Engineering and Technology to the younger generation with the required skills and abilities to face the challenging needs of the industry around the globe. This institution is also striving hard to attain a unique status in the international level by means of infrastructure, state-of-the-art computer facilities and techniques

Department Vision & Mission Mission

Vision

To offer cutting-edge technology in the broad area of automobile engineering and develop globally competitive engineers.

Mission

- To develop automobile engineering graduates for a successful career in global automotive industry through effective teaching-learning and training.
- To develop the capability of graduates for creating innovative products / systems to enhance the quality of life.
- To inculcate in them the ability to solve societal problems through engineering and professional skills.

PEOs, POs & PSOs

Program Educational Objectives (PEOs)

Our graduates will :

PEO1: Technical Expertise: Actively apply technical and professional skills in engineering practices to face industrial challenges around the globe

PEO2: Higher studies and Research: Own their professional and personal development by continuous learning to create new knowledge

PEO3: Ethical Knowledge: Conduct themselves in a responsible, professional and ethical manner supporting sustainable economic development, which enhances the quality of life.

Programme Outcomes (Pos)

Graduating students / Graduate

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2.Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3.Design/development of solutions: Design solutions for complex engineering problems anddesign system components or processes that meet the specified needs with appropriateconsideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4.Conduct investigations of complex problems: Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of theinformation to provide valid conclusions.

PO5.Modern tool usage: Create, select, and apply appropriate techniques, resources, and modernengineering and IT tools including prediction and modeling to complex engineering activities with anunderstanding of the limitations.

PO6.The engineer and society: Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutionsin societal and environmental contexts, and demonstrate the knowledge of, and need forsustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member orleaderindiverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs)

PSO1. Analyze the systems behaviour and optimize for the results using modelling, simulation and experiments.

PSO2. Design automotive components with due considerations of environment and sustainability.

Journal Publication by the Faculty Members

S.No	Name of the Faculty	Title of the Paper	Name of the Journal	Volume No., Issue No., Page No., and ISSN number	Month & Year of Publication
1	D. Shanmugam P. Sivasubramanian M. Kalimuthu R. Nagarajan Carlo Santulli Faruq Mohammad	Tensile Properties and Fracture Morphology of Acacia Caesia Bark Fibers Treated with Different Alkali Concentrations	Journal of Natural Fibers	ISSN 1544-046X	02 February 2022
2	Calvin Sophistus King	Flow Learning Experience in Online Learning by Integrated Course Design	First Monday	ISSN 1396-0466	07 February 2022
3	T Ramkumar A Haiter Lenin M Selva Kumar M Mohanraj S Christopher Ezhil M Muruganandam	Influence of rotation speeds on microstructure and mechanical properties of welded joints of friction stir welded AA2014-T6/AA6061-T6 alloys	Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering	ISSN: 0954-4089	March 2022
4	D. Shanmugam P. Sivasubramanian M. Kalimuthu AlavudeenAzeez P. Murugesan R.NagarajanCarloSantulli	Wear Properties and Post-Moisture Absorption Mechanical Behavior of Kenaf/Banana Fiber Reinforced Epoxy Composites	Fibers	Volume 10 Issue4 ISSN 2079-6439	02 April 2022

5	S Kathiresan G Sathi B Narendhiran M Selvakumar T Surulivelrajan	Computational simulation of titanium alloy grade-4 subjected to severe plastic deformation with the aid of finite elements	AIP Conference Proceedings	Volume 2393 Issue 1	May 2022
6	B Narendhiran M Selvakumar T Surulivelrajan S Kathiresan G Sathi	Performance enhancement in SI engine by air-fuel mixture recirculating system	AIP Conference Proceedings	Volume 2393 Issue 1	May 2022
7	T Surulivelrajan, S Kathiresan, G Sathi, B Narendhiran, M Selvakumar	Experimental and numerical analysis of cooling tower efficiency using forced draft	AIP Conference Proceedings	Volume 2393 Issue 1	May 2022
8	M Selvakumar T Surulivelrajan S Kathiresan G Sathi B Narendhiran	Experimental investigation on friction stir processing of AA6082	AIP Conference Proceedings	Volume 2393 Issue 1	May 2022
9	G Sathi B Narendhiran M Selvakumar T Surulivelrajan S Kathiresan	Optimized muffler design for less pollution engines	AIP Conference Proceedings	Volume 2393 Issue 1	May 2022

Patent Publication by the Faculty Members

S.No	Name of the Faculty	Title of the Patent	Application No.	Month & Year of Publication
1	Daniel Lawrence Dr.M.Balasubramanian Mr.E. Sivakumar Dr.V.Sivananth Dr.D.Shanmugam Dr.S.K.Ashok	Real time monitoring of vibration and automation of milling machine using IoT enabled embedded system	202241003802 A	04-02-2022
2	Dr. D. Shanmugam	A natural fibre based composite and a process to obtain the same	202241013316 A	08-04-2022

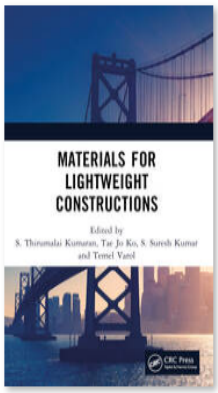
Faculty as participants in Faculty development / training activities / STTPs

S.No	Name of the Faculty	Title of the Program	Venue/Center Organizing the Program	Duration of the Program
1	Dr. Calvin Sophistus King	Research Trends in Design and Control of Electric Vehicles	ATAL Academy at College of Engineering Perumon.	5 Days
2	Dr.S.K.Ashok	Python for Data Science	NPTEL-AICTE	4 Weeks
3	Mr. S. Arulkumar	Entrepreneurship Skill Development (a journey to be a successful entrepreneur)	Hindusthan College of Engineering and Technology, Coimbatore	5 Days

4	Mr. N. Praveenkumar	Renewable Energy for Sustatainable Development	Bharatratna Indira Gandhi College of Engineering, Solapur	5 Days
5	Mr. N. Praveenkumar	Entrepreneurship Skill Development (a journey to be a successful entrepreneur)	Hindusthan College of Engineering and Technology, Coimbatore	5 Days
6	Mr. A. Yazharasu	Innovative Teaching and OBE	Dhirajlal Gandhi College of Technology, Salem	5 Days
7	Mr. T. Palaniappan	Renewable Energy for Sustatainable Development	Bharatratna Indira Gandhi College of Engineering, Solapur	5 Days
8	Mr. K.R. Ranjith	Inculcating Universal Human Values in Technical Education	All India Council for Technical Education	5 Days
9	Mr. K.R. Ranjith	Online UHV Refresher 1 FDP	All India Council for Technical Education	5 Days

Book Publication by Faculty Members

S. No.	Authors	Title of the Book	Name of the Publisher	Page No. & ISBN Number	Month & Year of Publication
1	M. Selvakumar T. Ramkumar S. Vinoth Kumar P.Chandramohan R. Ganesh	Advances in Sustainable Machining and Manufacturing Processes	CRC Press	ISBN 9781003284574	19-05-2022



Chapter

Data-driven optimization of manufacturing processes

By T. Ramkumar, M. Selvakumar, S. K. Ashok, M. Mohanraj

Book Materials for Lightweight Constructions

Edition	1st Edition
First Published	2022
Imprint	CRC Press
Pages	13
eBook ISBN	9781003252108

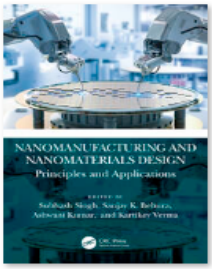
Share

ABSTRACT

In manufacturing and materials engineering the most effective use of resources is always the goal. A case study on Friction Stir Welding (FSW) is widely used in many industrial sectors. This process involves various inputs such as welding speed, tool rotation speed, current, voltage, etc. Researchers are always working to achieve better material performance like tensile strength, hardness, wear, and corrosion. This article contains two sections. The first is a review of optimization FSW input process parameters and how to achieve optimum results. The second section discusses experimental results and optimization of FSW process parameters for AA2014-T6 similar weldments. Selected input parameters are load (20 N), speed (1.5 m/s), track diameter (100 mm), and distance (1500 m). The weldments' wear rate is calculated based on the weight loss method. Results showed that the wear rate was decreased for 700 rpm tool rotational speed weldments compared to other higher tool rotation speed weldments (1400 rpm). This chapter will be helpful to researchers in determining the proper process parameters.

Book Chapter Publication by Dr.M.Selvakumar & Dr.S.K.Ashok

of End Milling Process Parameters for Surface Integrity on Al7075-B4C-BN Nanocomposites



Chapter

Experimental Investigation and Multi-Response Optimization of End Milling Process Parameters for Surface Integrity on Al7075-B4C-BN Nanocomposites

By N. Zeelanbasha, M. Selvakumar, T. Ramkumar, V. Sivananth

Book Nanomanufacturing and Nanomaterials Design

Edition	1st Edition
First Published	2022
Imprint	CRC Press
Pages	14
eBook ISBN	9781003220602

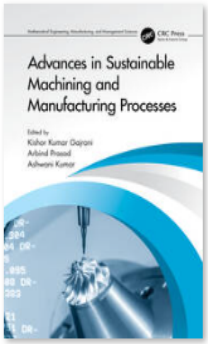
Share

ABSTRACT

This research investigation reports the multi-response optimization of end milling process parameters for the improvement of surface integrity on Al7075-B_4C-BN nanohybrid composites. The composites are prepared using a conventional stir casting process. The composites are fabricated with varying the wt.% of the secondary particles BN as 3, 6 and 9 wt.% and B_4C as kept constant at 3 wt.%. The fabricated composites were characterized using Scanning Electron Microscope (SEM)and Energy Dispersive X-ray Spectroscopy (EDAX. HSS end mill cutter is preferred for machining operation for the fabricated samples by varying the spindle speed, feed rate, axial depth of cut, radial depth of cut and radial rake angle on temperature rise. During end milling operation, an increase in temperature can seriously affect the structural integrity of milled components. Thirty-two sets of experimentation are performed through Central Composite Design. The statistical influence of parameters with respect to responses is studied using Analysis of Variance (ANOVA) and Response Surface Methodology (RSM) is used to explore the direct interactions of parameters for machining and responses. The multi-objective optimization problems are solved with Multi-Objective Genetic Algorithm (MOGA) using MATLAB solver. The results revealed the statistical values of R^2 (90%) for temperature rise, R^2 (98%) for micro-hardness. While analyzing the temperature rise (relation between interaction and direct surface plot), it is established that the temperature can be accomplished minimum between spindle speed (1400 and 2000 rpm), feed rate (0.04 and 0.05 mm/rev), axial depth of cut (0.4 and 0.6 mm), radial depth of cut (0.4 and 0.6 mm) and radial rake angle (12° and 15°).

< Previous Chapter Next Chapter >

Book Chapter Publication by Dr.M.Selvakumar



Chapter

Machining and Vibration Behavior of Ti-TiB Composites Processed through Powder Metallurgy Techniques

By M. Selvakumar, T. Ramkumar, S. Vinoth Kumar, P. Chandramohan, R. Ganesh

Book Advances in Sustainable Machining and Manufacturing Processes

Edition	1st Edition
First Published	2022
Imprint	CRC Press
Pages	9
eBook ISBN	9781003284574

Share

ABSTRACT

In this chapter, the machining and vibration behavior of titanium (Ti)–titanium boride (TiB) composites fabricated through powder metallurgy techniques are presented. Twenty and 40 vol% of titanium boride were reinforced with titanium and processed with spark plasma sintering, hot isostatic pressing (HIP), and vacuum sintering. The fabricated composites were characterized by scanning electron microscopy. The machining performance of the sintered composites was evaluated using electrical discharge machining. Peak current, pulse-on, and -off time were selected as input factors. Material removal rate, tool wear rate, and surface roughness were considered as performance indicators. Furthermore, the damping behavior of the composites was also analyzed. Damping measurements of all the specimens were attained by a dynamic mechanical analyzer at different frequencies. The results revealed that 40 vol% TiB through HIP exhibit better performance than other sintering techniques for machining. On the other hand, the frequency influences the damping capacity of the composite for temperatures above 230 °C. Its value reaches 975 × 10^{-3} N m/s for the frequency of 0.5 Hz, which endorses that TiB is a capable reinforcement for titanium composites to achieve enhanced damping properties without compromising the strength and stiffness of the matrix.

Book Chapter Publication by Dr.M.Selvakumar

Students Participations

S.No	Name of the Students	Title/Event Name	Name of the Organization	Event Date
1	Dharun T	AICTE-CII Conference On Aatma Nirbhar Bharat & Ease Of Doing Business	AICTE-CII	17-05-2021 to 21-05-2021
2	Rubakeswaran T	AICTE-CII Conference On Aatma Nirbhar Bharat & Ease Of Doing Business	AICTE-CII	17-05-2021 to 21-05-2021
3	Sushruthan U	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
4	Guru Prasath N	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
5	Dhinesh Kumar S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
6	Jeffry Rufus R	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
7	Sanjith Karthi R	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
8	Yeshwanth N	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
9	Thulasiram R	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
10	Varunvisvanath P S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022

11	Nallasenathipathi K	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
12	Sridaran T	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
13	Harish G	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
14	Muthu Kumar G	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
15	Ajay S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
16	Sanjay R	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
17	Vishnu Aadithyan M	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
18	Kamalesh S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
19	Sabarinath S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
20	Rubaneshwaran A	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
21	Thaneshwar A S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022
22	Sabaresan K S	SAE Self driving car challenge (SAE SDCC-2021)	SRM Institute of Science and Technology	11-06-2022 & 12-06-2022

Alumni Interactions

S.No	Name of the Students	Event Date
1	Mr.Manobalaji S Mr.Vishnu Ram P Senior Engineer HCL Technologies Private Limited, Chennai	26/05/2022

Conference Presentation by T Palaniappan Assistant Professor

udemy

Certificate no: UC-d5c94475-c127-426f-9dd0-96234b68cbdf
Certificate url: ude.my/UC-d5c94475-c127-426f-9dd0-96234b68cbdf
Reference Number: 0004

CERTIFICATE OF COMPLETION

Instructional Design for Learning and Development

Instructors John Hinchliffe

Calvin Sophistus King

Date June 11, 2022
Length 2 total hours

Course Completed by Dr.Calvin Sophistus King

BOS Meeting

Course Completion by Mr.K R Ranjith, Assistant Professor

Automobile Laboratory

No: 08/2022/1/M1-M8/15026

अखिल भारतीय तकनीकी शिक्षा परिषद्

प्रमाणपत्र

प्रमाणित किया जाता है कि

रंजीत के आर

एनआईटीटीटी पंजीयन क्रमांक : 20212115078

ने

राष्ट्रीय तकनीकी शिक्षक प्रशिक्षण पहल के अंतर्गत

मॉड्यूल १ : तकनीकी शिक्षा और पाठ्यचर्या पहलुओं का अभिविन्यास
मॉड्यूल २ : वृत्तिक आचार नीति और संधारणीयता
मॉड्यूल ३ : संचार कौशल, मोड और ज्ञान प्रसार
मॉड्यूल ४ : अनुदेशात्मक योजना और क्रियान्वयन
मॉड्यूल ५ : प्रौद्योगिकी समर्थित अधिगम और आजीवन स्वअधिगम
मॉड्यूल ६ : छात्र निष्पत्ति और मूल्यांकन
मॉड्यूल ७ : सृजनात्मक समस्या समाधान, नवाचार और सार्थक आर ए डी
मॉड्यूल ८ : संस्थागत प्रबंधन और प्रशासनिक कार्यविधि

को सफलता पूर्वक पूर्ण किया।

All India Council for Technical Education (AICTE)

Certificate

This is to certify that

RANJITH K R

NITTT Registration No: 20212115078

has successfully completed

Module 1 : Orientation towards Technical Education and Curriculum Aspects
Module 2 : Professional Ethics and Sustainability
Module 3 : Communication Skills, Modes and Knowledge Dissemination
Module 4 : Instructional Planning and Delivery
Module 5 : Technology Enabled Learning and Life-Long Self Learning
Module 6 : Student Assessment and Evaluation
Module 7 : Creative problem Solving, Innovation and Meaningful R & D
Module 8 : Institutional Management and Administrative Procedures

of

National Initiative for Technical Teachers Training

Director NITTTR, Bhopal | Director NITTTR, Chandigarh | Member Secretary AICTE | Director NITTTR, Chennai | Director NITTTR, Kolkata

FEBRUARY 2022

Mr.K R Ranjith Completed All the Eight Modules of National Initiative for Technical Teachers Training

ISTE U

This Certificate of Completion is awarded to

Calvin King

for successfully completing the course

Designing for Inclusion

provided by the International Society for Technology in Education

Course Credit Hours: 2 hours

Issued on: Wednesday, January 12, 2022

Joseph South, Chief Learning Officer, ISTE

Course Completion by Dr.Calvin Sophistus King

The 22 new cars we're most excited about in 2022

No: ATAL/2021/1638935430

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

Nelson Mandela Marg, Vasant Kunj, New Delhi – 110 070

AICTE Training and Learning (ATAL) Academy

Certificate

This is certified that Calvin Sophistus King, Professor of Dr. Mahalingam College of Engineering and Technology participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Research Trends in Design and Control of Electric Vehicles" from 17/01/2022 to 21/01/2022 at College of Engineering Perumon.

Advisor-I, ATAL Academy
Mamta Rani Agarwal

Coordinator

Faculty Development Program attended by Dr.Calvin Sophistus King in ATAL

F.No AICTE/FDP-SI/OnlineWorkshop/201/128204

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

NELSON MANDELA MARG, VASANT KUNJ, NEW DELHI

Certificate of Participation

This is to certify that Mr. Ranjith K R from Dr.Mahalingam College of Engineering and Technology, Pollachi has participated and successfully completed the Part 1 of the online UHV Refresher 1 FDP organized by All India Council for Technical Education(AICTE) from 25th April, 2022 to 29th April, 2022.

Dr. Rajneesh Arora
Chairman
National Coordination Committee for Induction Program

Prof. Rajive Kumar
Member Secretary, AICTE

Mr.K R Ranjith Attended FDP in UHV Refresher Course

F.No AICTE/FDP-SI/OnlineWorkshop/201/117362

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

NELSON MANDELA MARG, VASANT KUNJ, NEW DELHI

Certificate of Participation

This is to certify that Mr. Ranjith K R from Dr.Mahalingam College of Engineering and Technology, Pollachi has participated and successfully completed the 5-day online FDP on the theme "Inculcating Universal Human Values in Technical Education" organized by All India Council for Technical Education(AICTE) from 31st January, 2022 to 4th February, 2022.

Dr. Rajneesh Arora
Chairman
National Coordination Committee for Induction Program

Prof. Rajive Kumar
Member Secretary, AICTE

No: 04/2022/1/M4/38819

अखिल भारतीय तकनीकी शिक्षा परिषद्

प्रमाणपत्र

प्रमाणित किया जाता है कि

रंजीत के आर

एनआईटीटीटी पंजीयन क्रमांक :20212115078

ने

राष्ट्रीय तकनीकी शिक्षक प्रशिक्षण पहल

के अंतर्गत

मॉड्यूल 4 : अनुदेशात्मक योजना और सुपुर्दगी

को सफलता पूर्वक पूर्ण किया।

All India Council for Technical Education (AICTE)

Certificate

This is to certify that

RANJITH K R

NITTT Registration No: 20212115078

has successfully completed

Module 4 : Instructional Planning and Delivery

of

National Initiative for Technical Teachers Training

Director NITTTR, Bhopal | Director NITTTR, Chandigarh | Member Secretary AICTE | Director NITTTR, Chennai | Director NITTTR, Kolkata

FEBRUARY 2022

No: 04/2022/1/M3/38818

अखिल भारतीय तकनीकी शिक्षा परिषद्

प्रमाणपत्र

प्रमाणित किया जाता है कि

रंजीत के आर

एनआईटीटीटी पंजीयन क्रमांक :20212115078

ने

राष्ट्रीय तकनीकी शिक्षक प्रशिक्षण पहल

के अंतर्गत

मॉड्यूल 3 : संचार कौशल, मोड और ज्ञान प्रसार

को सफलता पूर्वक पूर्ण किया।

All India Council for Technical Education (AICTE)

Certificate

This is to certify that

RANJITH K R

NITTT Registration No: 20212115078

has successfully completed

Module 3 : Communication Skills, Modes and Knowledge Dissemination

of

National Initiative for Technical Teachers Training

Director NITTTR, Bhopal	Director NITTTR, Chandigarh	Member Secretary AICTE	Director NITTTR, Chennai	Director NITTTR, Kolkata

FEBRUARY 2022

Editorial Board :

Staff Coordinator : Mr.K.R.Ranjith Assistant Professor/Auto

Student Editors : V.G. Kalingaraja (19BAU337)
IV –Year Automobile

T.Dharun (19BAU016)
III –Year Automobile

Reghuram (19BAU047)
III –Year Automobile

S. Elladurai (20BAU004)
II –Year Automobile