



**D.N.R. COLLEGE OF ENGINEERING & TECHNOLOGY**  
Balusumudi, Bhimavaram-534202

**Summary Report of Number of workshops/seminars/ Research  
Methodology/ Intellectual Property Rights (IPR) and Entrepreneurship**

**A.Y: 2019-20**

Sl. No.	Name of the workshops/seminars/ Research Methodology/ Intellectual Property Rights (IPR) and Entrepreneurship Organized	Date	Number of Participants
1	A Two days FDP on Research methodology	29 <sup>th</sup> &30 <sup>th</sup> Jul 2019	32
2	One Day Workshop on "Entrepreneurship and Startup for Beginners" by Dr.G.Nagendra	04-11-2019	42
3	A One day work shop on "Patent Rights"	26/08/2019	25
4	A Two days Workshop on Thesis Writing and Plagiarism Verification	10 <sup>th</sup> &11 <sup>th</sup> Jan 2020	58
5	One day Workshop on Multi Criteria Decision Making	09-02-2020	32
6	A One day work shop on "Thesis Writing and Plagiarism"	03-04-2020	24
7	One day Workshop on Intellectual Property Right	14-04-2020	29

*[Handwritten signature]*

*[Handwritten signature: H. Anandkumar]*  
Principal

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**BHIMAVARAM-534 202.**

1019-20

Phone: 08816-221238

# D.N.R.COLLEGE OF ENGINEERING & TECHNOLOGY

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**Dr. U.RANGA RAJU,**  
M.E., Ph.D., MIGS, MIE, MISTE, MIRC.  
**PRINCIPAL**



BHIMAVARAM  
W.G.Dist. (A.P)  
Pin: 534 202

Date: 26-07-19

## CIRCULAR

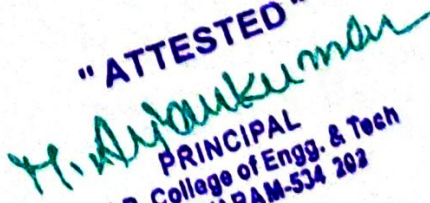
All the faculty members are hereby informed that Dr. B. Srinivas and Dr. M. Senthil will be giving presentation for two day's FDP on "Research Methodology" organizing by Electronics & Electrical Engineering department at DNR CET Seminar Hall during 29<sup>th</sup> & 30<sup>th</sup> Jul 2019. All are requested to attend the same.

  
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Balusumudi, Bhimavaram – 2

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(Accredited with B<sup>++</sup> Grade by NAAC)

Ph: 08816-221238 Email: [dnrcet@gmail.com](mailto:dnrctet@gmail.com) website: <https://dnrcet.org>

## REPORT ABOUT THE PROGRAMME

Dt: 31-07-2019

**Title of the Programme:** A Two day FDP on “Research Methodology “

**Inauguration Date & Venue:** 29<sup>th</sup> Jul 2019 & DNR CET Seminar Hall

**Organized By:** Department of Electrical & Electronics Engineering, DNR CET

**Resource Person:** Dr. B. Srinivas, HOD ECE, MLRIT, Hyderabad.

Dr. M. Senthil, President Innovation Cafe institute innovation council

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)

Secretary & Correspondent, DNR College Association


**Inauguration:** Dr. U. Ranga Raju


Prinicpal, D.N.R College of Engineering & Technology

**Number of Faculty Attended:** 32

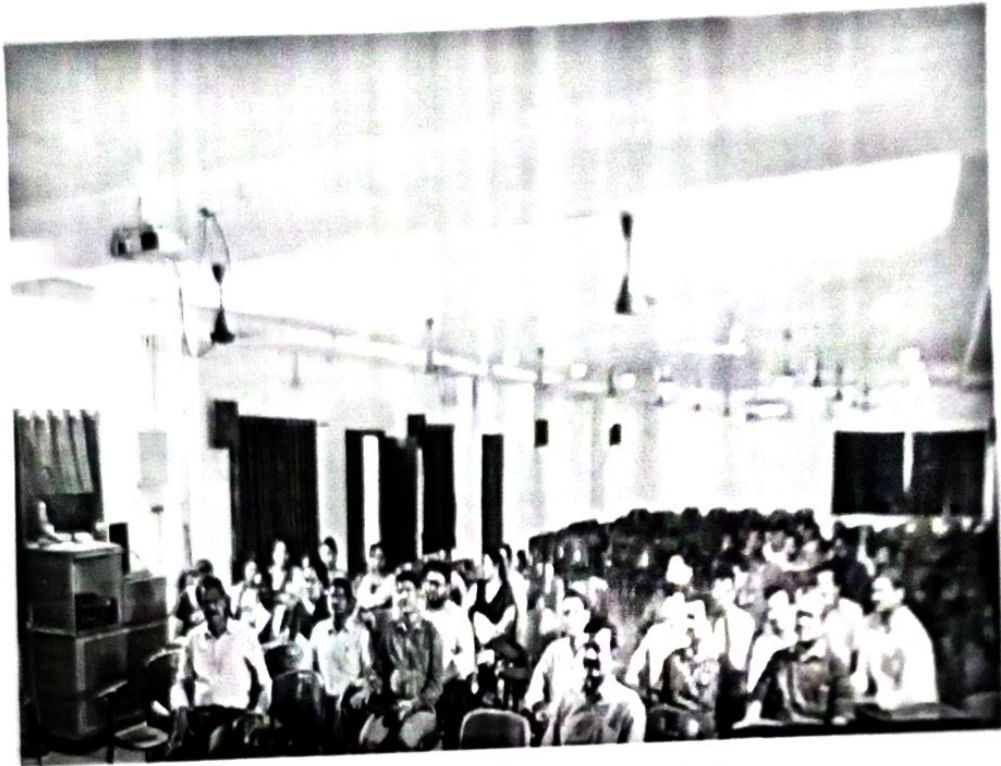
### Concept:

Methodology in research is defined as the systematic method to resolve a research problem through data gathering using various techniques, providing an interpretation of data gathered and drawing conclusions about the research data. Essentially, a research methodology is the blueprint of a research or study. The confusion between “methodology” and “methods” in research is a common occurrence, especially with the terms sometimes being used interchangeably. Methods and methodology in the context of research refer to two related but different things: method is the technique used in gathering evidence; methodology, on the other hand, “is the underlying theory and analysis of how a research does or should proceed”. Similarly, Birks and Mills define methodology as “a set of principles and ideas that inform the design of a research study.” Meanwhile, methods are “practical procedures used to generate and analyze data

  
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Photos:



A Two Days FDP on Research Methodology

*H. Anandkumar*

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## A Two days FDP on Research methodology 29<sup>th</sup> & 30<sup>th</sup> Jul 2019

Sl. NO	NAME OF THE FACULTY	DEPT	Date 29-07-2019		Date 30-07-2019	
			FN	AN	FN	AN
			1	MR. D D D SURI BABU	CSE	Sun
2	J. Keerthana	CE	Kesth	Kesth	Kesth	Kesth
3	P. prasanth	CE	pre	pre	pre	pre
4	A. Jamsi Krishna	BSH	V.K.R	V.K.R	V.K.R	V.K.R
5	Dr. K. Rajesh	ME	Raj	Raj	Raj	Raj
6	TS Chakrathi	BSH	Ch	Ch	Ch	Ch
7	B. Sridel P	ECE	B. Gur	B. Gur	B. Gur	B. Gur
8	Dr. Pralokan	CSG	Pr	Pr	Pr	Pr
9	N. Naya (Guram Y)	ME	N	N	N	N
10	P. Allthe Rajeswari	CSE	lall	lall	lall	lall
11	Mrs. U. Sumitha	CSE	Sumitha	Sumitha	Sumitha	Sumitha
12	K.V. Chandran	CSE	Chan	Chan	Chan	Chan
13	S. Swathi	BSH	Sw	Sw	Sw	Sw
14	Dr. A. padmarabhan	BSH	padm	padm	padm	padm
15	B. nathan Kumar	CSE	N	N	N	N
16	Gr. Sai baba	EEE	Gr. Sai	Gr. Sai	Gr. Sai	Gr. Sai
17	K. Sathya Kumari	CE	Kumari	Kumari	Kumari	Kumari
18	M. Srinu	EEE	Srinu	Srinu	Srinu	Srinu
19	Dr. A. Ranganath	CE	A. Ranga	A. Ranga	A. Ranga	A. Ranga
20	Dr. Ranija Swetha	CE	R	R	R	R
21	K. Raja Rajeswari	CSE	R	R	R	R
22	Dr. M. Vasantha	BSH	Vas	Vas	Vas	Vas
23	K.V.S. Satyanarayana	BSH	Sat	Sat	Sat	Sat
24	K.V.S. Geetha	BSH	G	G	G	G
25	V. Bhavani durga	ECE	V	V	V	V
26	G. Ram Lakshmi	CSE	G	G	G	G
27	M.V. Rathnam	V	R	R	R	R
28	S. Rajesh	EEE	S	S	S	S
29	N. Mary Teena	EEE	N	N	N	N
30	K.V. Subramanya	CE	K.V. Sub	K.V. Sub	K.V. Sub	K.V. Sub
31	Dr. G. V. Raju	ME	Raju	Raju	Raju	Raju
32	Dr. Sathya Rajam	CSE	Sathya	Sathya	Sathya	Sathya

*H. Anjan Kumar*  
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PRINCIPAL

## Dr. Srinivas Bachu

**Present Position and Address:**

**Professor & HOD**

Department of ECE

**Marri Laxman Reddy Institute of Technology and Management (Autonomous)**

Dundigal, Hyderabad, R.R Dist, Telangana, India

Phone: +91- 99127 12798

E-Mail: [bachusrinivas@gmail.com](mailto:bachusrinivas@gmail.com)



**Marital Status:** Married

**Date of Birth :** May 8<sup>th</sup>, 1984

**Academic Background:**

Degree/Examination	Board/University	Year of Passed	%
Ph.D (Image & Video Processing)	GITAM School of Technology, GITAM (Deemed To Be University) Visakapatnam, Andhra Pradesh.	October, 2018	Pass
M.Tech (Embedded Systems)	JNT University Hyderabad VVIT, Chevella, RR Dist., T.S.	2010	72.75%
B. Tech (ECE)	JNT University Hyderabad BEC, Nirmal, Telangana.	2006	69.32%
Intermediate (10+2) <sup>th</sup>	BIE, Telangana.	2001	82.20%
X <sup>th</sup> Standard	BSE, Telangana.	1999	60.00%

**Publications:**

SCI / SCIE / ESCI / SCOPUS Indexed / UGC CARE Journals	Text Books / Monographs/ Book Chapters	Conference (SCOPUS Indexed) Papers
	<i>International</i>	<i>International</i>
10	3	6

**Total No. of SCOPUS Indexed Papers at MLRITM: 16**

SCI/SCIE/ESCI/ SCOPUS Indexed/ UGC CARE Journals	Other indexing (Ei-Compendix, Google Scholar, ICI)	Text Books/Monographs/ Book Chapters		Conference Papers	
		National	Int.	National	Int.
*16	4	1	7	2	*9
20 (*16-SCOPUS Indexed)		8		11 (*8-SCOPUS Indexed)	

**Total No. of SCOPUS/SCIE/ESI Indexed Publications (Conf. & Journal Papers): 24**

Awards	FDP/STTP/ Seminars/ Workshops Attended	National Level Tech. Symposium Papers	Citation & h-index	
			Google Scholar	SCOPUS
National Level	15	10	Citations: 45 h-index: 3	Citations: 13 h-index: 2
3 (1-within the college)	15	10	Citations: 45 h-index: 3	Citations: 13 h-index: 2

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## Google Scholar & SCOPUS Citations:

<https://scholar.google.com/citations?user=R5O3NNcAAAAJ&hl=en>

<https://www.scopus.com/authid/detail.uri?authorId=56638033600>

## Academic Experience: 13 years

Name of the Organization	Position Held	Period	
		From	To
MLR Institute of Tech. and Management (Autonomous), Dundigal, Hyderabad, Telangana.	Professor & HOD	19-11-2018	Till Date
KL Deemed To Be University Hyderabad Aziz Nagar, Hyderabad, R.R Dist, Telangana.	Associate Professor	21-05-2018	17-11-2018
Guru Nanak Institutions Technical Campus (Autonomous), Hyderabad, Telangana.	Associate Professor	01-02-2016	19-05-2016
	Assistant Professor	02-06-2014	31-01-2016
Sagar Group of Institutions, Chevella, Hyderabad, Telangana.	Assistant Professor	01-07-2010	30-04-2014
Mannan Institute of Science & Tech., (MIST), Chevella, Hyd, Telangana, India.	Assistant Professor	28-07-2007	10-05-2008
Institute for Electronic Governance, IIIT Campus, Gachibouli, Hyderabad, Telangana.	IT Associate	20-08-2006	15-06-2007

## Achievements:

1. Received the "Certificate of Appreciation" from the GNITC (Autonomous), Management for publishing text book on "Design Manual on Signals & Signal Processing Simulation using MATLAB" at Canadian Academic Publishing, Canada. June 10<sup>th</sup>, 2016.
2. Received the "Appreciation Letter" from the Management and Principal, for the successful conducting of the workshop on "Signals & Signal Processing Simulation using MATLAB" during 28<sup>th</sup> – 29<sup>th</sup> July, 2011 at SITECH, Chevella, Telangana.
3. Received as "Winner" in "Technical Quiz" during the academic year 2004-2005, at Bapuji Engineering College, BESMA-2005, Nirmal, Adilabad, Telangana.
4. Received the "Certificate of Merit" in "National Level Students Technical Paper Contest" at TKR Engineering College, Zignasa-2010, Hyderabad, Telangana.

## Workshops Organized:

1. Two Day National Workshop on "Image Processing Theory, Algorithms & Applications (IPAA'16)," December 16<sup>th</sup> & 17<sup>th</sup>, 2016 at Guru Nanak Institutions Technical campus (Autonomous), Hyderabad, R.R Dist, Telangana.  
**Responsibility:** Co-Convener
2. A Two Day National Level Workshop on "Signals & Signal Processing Simulation using MATLAB during July 28<sup>th</sup>–29<sup>th</sup>, 2011" at Sagar Institute of Technology (SITECH), Chevella, RR Dist Telangana.  
**Responsibility:** Coordinator cum Resource Person
3. International Workshop on "Image Processing Theory, Tools & Applications (IPTTA'14)," January 23<sup>rd</sup> – 25<sup>th</sup>, 2014 at Sagar Group of Institutions, Chevella, RR Dist, Telangana.  
**Responsibility:** Co-Convener

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## Professional Society Membership:

- **MISTE** (Life Member of Indian Society for Technical Education, New Delhi).  
M. No: LM68554
- **MIE** (Member of Institute of Engineers, India, Kolkata).  
M. No: AM1474424
- **M.IAENG** (Member of International Association of Engineers, Hong Kong).  
M. No: 126588
- **UACCE**. M. No: AM10100056883

## Editorial/Reviewer Board Member:

- Reviewer Board Member of International Conference on **ICIECE 2016 and ICIECE 2017 ICIECE-2018, ICIECE-2019 at GNITC (Autonomous)**.
- IGI Global Journal: Computer Vision and Image Processing
- Reviewer Board Member of "43th Annual Conference of IEEE Industrial Electronics Society (IECON 2017)", National Convention Center, Beijing, China.
- International Journal of Engineering Trends & Technology (**IJETT**).  
Membership Id: SSRGJ-IJETT-1409.
- International Journal of Scientific and Engineering Research (**IJSER**)
- International Journal of Multidisciplinary Research and Modern Education (**IJMRME**)

## Academic/Administration Responsibilities:

1. **BoS Chair Person**, Department of ECE, MLRITM (Autonomous), 2019-20 to Till Date.
2. Department level **Autonomous Coordinator** at MLRITM, Hyd, 2019-2020.
3. Department level **NBA Coordinator** at MLRITM, Hyderabad, 2018-2019.
4. Department level **Project Coordinator (UG and PG level)** at MLRITM, Hyderabad from June 2019.
5. International Conference Proceedings Coordinator of ICIECE-2015, ICIECE-2016 at GNITC (Autonomous), Hyderabad.
6. **Faculty Research Publication** In-charge for UGC Autonomous, NBA, NIRF and NAAC Work at GNITC Hyderabad, during 2014-2017.
7. **NAAC Criteria – 3 Coordinator** at GNITC, Department of ECE, during 2017-2018.
8. **NIRF and FFC Work Coordinator** at GNITC, Department of ECE, during 2015-2017.
9. **Project Co-Ordinator (Mini & Major)** at U.G level for 7 Sections, Department of ECE GNITC, during 2017-2018.
10. **Criteria 2 & 9 Member** for the **NBA** Accreditation work at GNITC Hyderabad.
11. Worked as **Managing Staff Member** of Examination Branch at Sagar Group of Institutions.  
Duration: November 2010 – February 2012.
12. **Time Table Coordinator** from 2006 to 2007 and 2010 to 2014 at Sagar Group of Institutions.
13. **Attendance In-charge** from June 2010 to April 2014.
14. **Class Mentor** from 2010 to till date at Sagar Group of Institutions and GNITC.
15. **PTSP Subject Coordinator** at GNITC from 2014 to till date
16. **Coordinator** for various Technical Activities (Engineers Day, Fresher's Party, Annual Day Celebrations, Technical Fest, and Paper Presentation) at Sagar Group of Institutions from 2010-2014 and GNITC from 2014 – till date.



## Courses Taught:

1. Signals & Systems
2. Probability Theory & Stochastic Processes
3. Digital Signal Processing
4. Electromagnetic Theory & Transmission Lines
5. Analog Communications
6. STLD
7. Control Systems

## References:

- 1. Dr. K. Manjunathachari**  
Professor & Head of ECE  
GITAM Deemed To Be University  
Hyderabad  
Mobile No: 9246923578  
E-Mail ID: [manjunath4005@gitam.edu](mailto:manjunath4005@gitam.edu)
- 2. Dr. K. Koteswara Rao**  
Professor & Head of ECE  
KL Hyderabad (Deemed To Be University)  
Hyderabad  
Mobile No: 99948796039
- 3. Prof. R. K. Singh**  
Associate Director – 2  
Guru Nanak Institutions Technical Campus (Autonomous)  
Hyderabad  
Mobile No: 8096185678

## Declaration:

I hereby declare that the information mentioned above is true to the best of my knowledge.

Place: Hyderabad

Date: 13.11.2020



(Dr. Srinivas Bachu)

*H. Arjankumar*  
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## Research Methodology

Research is basically a term used for a systematic search for getting relevant answers on any taken up topic. Methodology may be understood as all those methods and techniques that are used for conducting a particular research. It may include the methods of data collection, statistical tools for analyzing the data etc. In my research both the primary and secondary data has been used in order to reach to a conclusion.

**Research design:** The research in this study is descriptive and analytical in nature.

**Primary data:** The primary data is collected through a survey through a structured questionnaire and direct interview method.

**Secondary data:** The secondary data is being collected from different sources. The main source of secondary data was the annual reports of the selected banks. This study is based on last 10 years bank data i.e. 2005 to 2015.

Other sources of secondary data are websites, journals, and magazines etc. Previous research papers have also provided a good collection of data.

**Sample size:** For my study I have taken a sample size of 500 customers of different banks using plastic money.

## Tools and techniques

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Tools and techniques in research are the statistical methods of collection, analysis, interpretation, presentation, and organization of data. Statistics provides numerous tools and techniques to analyze the data and interpret the results of the analysis.

In my study I have used the following statistical tools for the analysis of collected data:

- Average
- Percentage
- Correlation
- Variance –NOVA,ANOVA
- SPSS

## Chapter plan

The research is carried out in a systematic manner and the following chapter plan is being followed for the final report:

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1. Introduction
2. Literature review
3. Objectives and Hypothesis
4. Research methodology and data collection
5. Data analysis.
6. Findings and interpretations
7. Conclusion
8. References

## Work plan

A work plan is a detailed accounting of how an individual proposes going about accomplishing a specific task, approaching a project. Sometimes referred to as a "statement of work," a work plan generally includes an overview of a project, a breakdown of how individual project-related tasks will be accomplished, and a timeline for completion of the given project.

My research will be carried on for a period of 24 months as per the university requirements. I have divided my research work into four intervals which will be carried on in the following manner:

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MONTHS	WORK PLAN
1 TO 6	Problem decide, Objective decide Completion of coursework of 200 hrs DRC done
6 TO 12	Literature review Introduction Data collection Survey
12 TO 18	Data analysis Result interpretation conclusion summary write-up and submission
18 TO 24	Preparation for pre thesis, Submit the final thesis Preparation for final viva

### Limitations of the study

The study is basically limited to certain factors such as:

1. It is only confined to Jhunjhunu area.
2. Only 5 banks have been chosen for the research namely ICICI bank, Axis bank, Punjab National Bank, SBI, and Gramin bank.
3. The comparison of data is only up to 10 years i.e. 2005 to 2015.
4. The study mainly focuses on four variables namely

  
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- Income
- Awareness
- Occupation
- Standard of living.

*H. Anandkumar*

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DUMMAVA 2022.

Phone: 08816-221238

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Pin: 534 202

Date: 01-11-2019


## CIRCULAR


All the faculty members are hereby informed that Dr. D. J. Nagendra Kumar will be giving presentation for one day workshop on "Entrepreneurship and Start up for Beginners" organizing by Computer Science & Engineering department at DNR CET Seminar Hall dated on 4<sup>th</sup> Nov 2019. All are requested to attend the same.

  
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## REPORT ABOUT THE PROGRAMME

Dt: 05-11-2019

**Title of the Programme:** One Day Workshop on "Entrepreneurship and Startup for Beginners" by Dr. D.J Nagendra Kumar

**Inauguration Date & Venue:** 4<sup>th</sup> Nov 2019 & DNR CET Seminar Hall

**Organized By:** Department of Computer Science & Engineering, DNR CET

**Resource Person:** Dr. D. J Nagendra Kumar, Professor & Head, Dept of IT, Vishnu Engg College, Bhimavaram

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)

Secretary & Correspondent, DNR College Association


**Inauguration:** Dr. U. Ranga Raju


Prinicipal, D.N.R College of Engineering & Technology

**Number of Faculty Attended:** 42

### **Concept:**

Entrepreneurship is the art of starting a business, basically a startup company offering creative product, process or service. We can say that it is an activity full of creativity. An entrepreneur perceives everything as a chance and displays bias in taking decision to exploit the chance. While entrepreneurship refers to all new businesses, including self-employment and businesses that never intend to become registered, startups refer to new businesses that intend to grow large beyond the solo founder.

  
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**Photos:**



One Day Workshop on "Entrepreneurship and Startup for Beginners"

*H. Sankar Kumar*

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Ph: 08816-221238 Email: [dncet@gmail.com](mailto:dncet@gmail.com) website:

<https://dncet.org>

## One Day Workshop on "Entrepreneurship and Startup for Beginners" by Dr.G.Nagendra 4th nov 2019

Sl. NO	NAME OF THE FACULTY	DEPARTMENT	Date 04/11/19	
			FN	AN
1	J Keerthana	CE	J. Ke	J. Ke
2	K.V. Chandan	CSE	Chandani	Chandani
3	DR.M. vacantha	BSH	vacantha	vacantha
4	DR.V. S. Varna	CSE	V.S.Varna	V.S.Varna
5	DR.A.Barganathan	CE	A.Rangan	A.Rangan
6	T PRasanth	CE	T. Prasanth	T. Prasanth
7	Mrs.U.Sushmita	CSE	Sushmita	Sushmita
8	S. Swathi	BSH	Swathi	Swathi
9	E. Ramalakshmi	CSE	E. Rama	E. Rama
10	T.S.chakravathy	BSH	S. Chak	S. Chak
11	S. Rajesh	EEE	S. Rajesh	S. Rajesh
12	GURIJALA SAIBABA	EEE	SAIBABA	SAIBABA
13	K. Raja Rajeswari	CSE	Rajeswari	Rajeswari
14	K.V.S. Satyanarayana	BSH	Satyan	Satyan
15	N. Dharaathi	CSE	N. Dhara	N. Dhara
16	DR.G.V. Raju	MECH	G.V. Raju	G.V. Raju
17	P. Jayalakshmi	BSH	P. Jayal	P. Jayal
18	MR.M.Ratnam	CE	ratnam	ratnam
19	A. Vamsi Krishna	BSH	Vamsi Krishna	Vamsi Krishna
20	K. Satya Kumar	CE	K. Satya	K. Satya
21	MOSHE. G	BSH	Moshe	Moshe
22	L. Bujjibabu	CSE	L. Bujji	L. Bujji
23	D. Praveen	CSE	D. Praveen	D. Praveen
24	G. Koteswara	EE	G. Koteswara	G. Koteswara
25	DR. IPPILI Harish	ME	Harish	Harish

26	K.V.S. Sireesha	B SH	Sireesh	Sireesh
27	I Greetha	ECE	Greetha	Greetha
28	Dr. A. Padmanabhan	B SH	padman	padm
29	P. Lalitha Rajeswari	CSE	P. Latha	P. Lalitha
30	P. Srinivas	ECE	N. Srinivas	N. Srinivas
31	M. Nagabhiswami	CSE	M. Naga	M. Naga
32	M. Srinivas	EEE	M. Srinivas	M. Srinivas
33	G.V. Satya Sridhan	CSE	G.V. Satya	G.V. Satya
34	H.S.V.L. Sowjanya	ECE	N.S.V.L. Sow	N.S.V.L. Sow
35	G. Koteswararao	ECE	Koteswararao	Koteswararao
36	Dr. K. Rajesh	ME	Rajesh	Rajesh
37	V. Bhavani Durga	ECE	V. Bhanu	V. Bhanu
38	V. Sridevi	ECE	V. Srinivas	V. Srinivas
39	J. Keerthana	CE	J. Keer	J. Keer
40	M. Venkatesh Krishna	CE	M. Ven	M. Ven
41	B. Nardhan Kumar	CSE	B. N	B. N
42	Dr. N. Venkata Rao	ECE	Venkatesh	Venkatesh

  
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H. Anjan Kumar

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## PROFILE

**Dr.D.J.NAGENDRA KUMAR**

Professor & Head

### **CURRENT POSITION:**

Dean, Statutory Affairs

Professor&Head,

Department of Information Technology

### **EDUCATION:**

Ph.D. from JNTUH,

M.Tech from ANDHRA UNIVERSITY

MCA from ANDHRA UNIVERSITY

### **RESEARCH INTEREST:**

- Data Mining
- Machine Learning, Genetic Programming

Present Working in Vishnu engineering college bhimavaram

Bhimavaram

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**One Day Workshop on "Entrepreneurship and Startup for Beginners" by  
Dr.D. J. Nagendra Kumar**

The Entrepreneurship in the Raw Materials Sector proceeding is a collection of papers focusing on the macroeconomic aspects of green growth, the business opportunities in the raw materials sector, and the challenges in entrepreneurship, entrepreneurship training. These papers were presented during the closing conference of LIMBRA ('Decreasing the negative outcomes of brain drain in the raw materials sector'), a project funded by EIT Raw Materials in the period of 2019-2021. LIMBRA primarily aims at generating new entrepreneurial ideas in the raw materials sector, and to encourage engineering students graduating in raw materials-related programmes to start their own businesses. This proceeding offers a good summary of our approach, and our results: identify the critical trends in the macroeconomic environment; learn about the specifics of the raw materials markets; develop new business ideas, and rely on your local ecosystem for extra knowledge, mentoring; and finally, help students to "Become stay-at-home entrepreneurs".

Every company needs "literature," printed pieces that do a careful and well thought-out job of presenting its products and services: catalogs, newsletters, product sheets and brochures, letterhead, business cards, presentation folders, specification sheets, case histories or application sheets, special event brochures, annual reports, manuals, technical bulletins, posters, product insert sheets, labeling, recruitment materials and so on.

With the increased availability of powerful desktop publishing systems and software, many companies decide to meet these needs internally. Resist this impulse. Your homegrown materials will betray their off-the-cuff origin to most of the people who read them. Appearance is reality in marketing, and you have to look as professional as you are. And no matter how creative you are, a commercial copywriter or graphic designer can vastly improve almost any materials created by an entrepreneur.



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Here are some tips in dealing with the literature needs you'll face as your company expands and grows:

**Get a logo and stationery package designed professionally.**

Do this, and don't change it for at least 10 years. Either hire an advertising agency to create it or a design studio/graphic artist. Don't try this yourself, no matter how artistic you consider yourself. A professional artist will make sure your stationery materials reflect your corporate personality, while maintaining a clean and professional look. They will look good in color and in black and white; they'll reproduce well in smaller sizes; they'll fax clearly; and they'll simply be more attractive than what you can expect to do yourself.

**Learn the principles of solid graphic design.** Understanding graphic design is a lifetime's work, of course, but some reading and a sensitive eye can teach you a lot. Get hold of some graphic design books at a local bookstore and educate yourself. All your printed materials should follow fundamental design principles:

- Keep the look clean and simple. Don't overload the reader visually. Use a graphic grid to align the different elements in an orderly fashion.
- Use heads and subheads to lead the reader. When the reader turns the page, where will he or she look? Use heads and subheads to provide scanning points to keep the reader moving along.
- Avoid too much type. Pages filled with writing are not appealing to the reader. Break up the copy with photos, illustrations, cartoons, charts and so on.
- Use white space. Avoid a crowded look, despite the temptation to make use of every inch of paper you are paying for. White space serves as a visual frame for the rest of the content on the page.
- Stay with standard formats unless you have a good reason not to. All of us have grown accustomed to the standard 8-1/2" x 11"

*H. Arunkumar*

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format for print materials. Even our filing systems are made for things that size. If you go with an unusual size, your pieces may not lend themselves to being filed easily for reference.

- Put a caption with each photo. We all want to know what we are looking at. And a caption gives you the chance not just to identify your product but to remind the reader of the benefit.
- Use charts and graphs rather than tables. A brochure is a visual document. Use graphics to boost visual interest and make numbers meaningful.

**Be sure your materials have a "family look."**

Every piece of literature doesn't have to look identical, but they should all look planned as a compatible unit. Imagine your literature laid out in front of you on a conference table. Does it all look like it comes from the same company? It should.

**Invest in good photography.**

Small companies sometimes scrimp on getting good photos of their equipment, their job sites, their equipment in use or their accessories and supplies. Strong, professionally done photography will set you apart from other small companies. Your customers want to be reassured of the quality of your product. Amateur snapshots give a very damaging impression of your professionalism. Good photography is an investment in your future.

**Appoint one person as lit boss.**

Your literature needs will be ever changing, with trade shows, with new products and markets and with normal growth. You must have one person responsible for anticipating future needs, handling literature production and maintaining inventory. Untended literature grows increasingly less useful and more frustrating. Every new piece should have a written rationale, audience description and content outline, not unlike the rationale you develop for a piece of advertising copy.

*H. Arjankumar*

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Phone: 08816-221238

# D.N.R.COLLEGE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)

**Dr. U.RANGA RAJU,**  
M.E., Ph.D., MIGS, MIE, MISTE, MIRC.  
**PRINCIPAL**



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W.G.Dist. (A.P)  
Pin: 534 202

Date: 23-08-2019


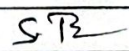


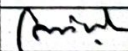

## CIRCULAR

All the faculty members are hereby informed that Dr. Dasaraju Srinivasa Rao will be giving presentation for one day workshop on "PATENT RIGHTS" organizing by department of MBA at DNR CET Seminar Hall dated on 26<sup>th</sup> August 2019. All are requested to attend the same.

  
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(Accredited with B<sup>++</sup> Grade by NAAC)

Ph: 08816-221238 Email: [dncet@gmail.com](mailto:dncet@gmail.com) website: <https://dncet.org>

## REPORT ABOUT THE PROGRAMME

Dt: 27-08-2019

**Title of the Programme:** A One day work shop on “PATENT RIGHTS”

**Inauguration Date & Venue:** 26<sup>th</sup> Aug 2019 & DNBCET Seminar Hall

**Organized By:** Department of MBA, DNBCET

**Resource Person:** Dr. Dasaraju Srinivasa Rao, Dept of Business Management, Koneru Lakshmaiah Education Foundation.

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)  
Secretary & Correspondent, DNR College Association


**Inauguration:** Dr. U. Ranga Raju  
Principial, D.N.R College of Engineering & Technology


**Number of Faculty Attended:** 25

### **Concept:**

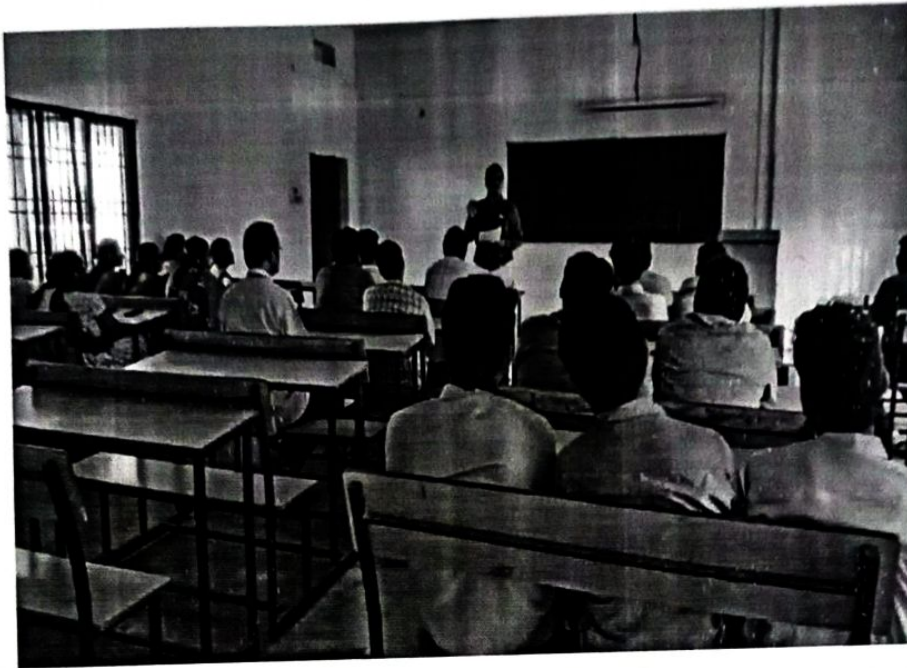
A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. To get a patent, technical information about the invention must be disclosed to the public in a patent application. There are four different patent types:

- Utility patent. This is what most people think of when they think about a patent.
- Provisional patent.
- Design patent.
- Plant patent.

  
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**Photos:**



A One Day Work Shop on "Patent Rights"

*H. Arunkumar*

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Ph: 08816-221238 Email: [dncet@gmail.com](mailto:dncet@gmail.com) website:

<https://dncet.org>

## A One day work shop on "PATENT RIGHTS 26th Aug 2019

SL NO	NAME OF THE FACULTY	DEPARTMENT	Date 26/08/19	
			FN	AN
1	Baba Nandana Kumar	CSE		
2	v. Bhavani Durga	ECE		
3	k. Rajarajeshwari	CSE		
4	D.D. Sri Babu.	ESE		
5	Arna Ramashe	ECE		
6	Dr A. Rama Prathy	CSE		
7	r. Bujji babu	CSE		
8	Dr A. Anand Kumar	BSH		
9	I. Geetha	ECB		
10	Dr. M. ANJAN KUMAR	CE	M. Anjan Kumar	M. Anjan Kumar
11	M. Srinu	EEE		
12	Dr. A.P. Ramesh	ECE		
13	G. Sai Babu	BEEE		
14	NSVL Sowjanya	BCB		
15	k. Lakshmi	EEE		
16	Dr P Y V Satyanarayana	BSH		
17	B. Sridevi	ECE		
18	M. Srinu	EEE		
19	G.V. SATYA SRINAM	CSE		
20	K. S. Satish Kumar	BCB		
21	B. Sridevi	ECB		
22	v. Bhavani Durga	ECB		
23	G. Kaksha	ECE		
24	K. P. Mani	ECE		
25	Y. Srinivas	ECE		

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## PERSONAL PROFILE

Dr. Srinivasa Rao Dasaraju  
Professor at IBS  
Krishna, Andhra Pradesh, India

- Professor and Researcher with 25 years of Teaching Experience.
- Doctorate in Econometrics, Masters in Data Science (IIIT-B+LJMU)
- Specialized in Data Science, Econometrics and Research Methodology.
- Published 30 Scopus Indexed Journal Papers.
- Guided 5 PhDs.
- Best Teacher Awardee at KL University for the years: 2012-13,, 2017-'18, 2018-'19, 2019-'20
- Programming Skills: R and Python.
- Proficient in SPSS,Tableau, JASP, AMOS, Smart PLS.
- Subjects Taught at PG Level:
  - #Machine Learning with Business Applications ( Python)
  - #Advanced Analytics with R
  - #HR Analytics with R
  - #Business Forecasting and Econometrics with R
  - # Data Visualization with Tableau
  - # Research Methodology
  - #Structural Equation Modelling(SEM)
- Other Achievements:
  - Worked as Chairman, Research Board (PhD. Program in MBA) KL University Business School.
  - Member Academic Council, KL University
  - Currently in Charge for Center for Data Analytics, KL University.
  - Developed the Entire Curriculum for MBA Program in Data Science at KL University.

*H. Anandkumar*

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- Designed the Entire Curriculum for Both UG and PG in Business Analytics at KL University.
- Conducted several workshops on Research Methodology and Data Analysis with R for Ph.D. Students.
- Resource Person for FDP's on Business Analytics for several Institutes in AP.
- Consultant for MHRD for PG Teacher's Training in Economics for Navodaya Schools.
- Attended several FDP's on Data Science conducted by IIMs

*H. Anjan Kumar*  
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## What Is a Patent?

A patent safeguards an original invention for a certain period of time and is granted by the United States Patent and Trademark Office (USPTO). By granting the right to produce a product without fear of competition for the duration of the patent, an incentive is provided for companies or individuals to continue developing innovative new products or services.<sup>1</sup>

There are three types of patents: utility patents, plant patents, and design patents.<sup>2</sup>

### Utility Patent

A utility patent covers the creation of a new or improved product, process, or machine. Also known as a "patent for invention," it bars other individuals or companies from making, using, or selling the creation without consent. Utility patents are good for up to 20 years after the patent application is filed, but require the holder to pay regularly scheduled maintenance fees.<sup>3</sup>

While most people associate patents with machines and appliances, they can also apply to software, business processes, and chemical formulations such as in pharmaceutical products.

### Plant Patent

A plant patent protects a new and unique plant's key characteristics from being copied, sold, or used by others. It is also good for 20 years after the application is filed. The plant must be asexually reproducible with reproduction being genetically identical to the original and performed through methods such as root cuttings, bulbs, division, or grafting and budding.<sup>3</sup>

### Design Patent

A design patent, on the other hand, applies to the unique look of a manufactured item. Take, for example, an automobile with a distinctive hood or headlight shape. These visual elements are part of the car's identity and may add to its value; however, without protecting these components with a patent, competitors could potentially copy them without legal consequences.<sup>3</sup>

*The total number of patents issued in the United States in 2021.*<sup>4</sup>

Design patents issued since May 2015 last for 15 years from the date the patent is granted and do not require maintenance fees. Patents issued prior to that last for 14 years.<sup>3</sup>

## What Is a Trademark?

Unlike patents, a trademark protects words and design elements that identify the source of a product. Brand names and corporate logos are primary examples. A service mark is similar, except that it safeguards the provider of a service instead of a tangible good. The term "trademark" is often used in reference to both designations.<sup>5</sup>

Some examples of trademark infringement are fairly straightforward. You'll probably run into trouble if you try to bottle a beverage and call it Coca-Cola or even use the famous wave from its logo since both have been protected for decades.

However, a trademark actually goes a bit further, prohibiting any marks that have a "likelihood of confusion" with an existing one. Therefore, a business can't use a symbol or brand name if it looks similar, sounds similar, or has a similar meaning to one that's already on the books, at least if the products or services are related. If the trademark holder believes there's a violation of these rights, it may decide to sue.<sup>6,7</sup>

## What Is a Copyright?

Copyrights protect "original works of authorship," such as writings, art, architecture, and music. For as long as the copyright is in effect, the copyright owner has the sole right to display, share, perform, or license the material.<sup>8</sup>

One notable exception is the "fair use" doctrine, which allows some degree of distribution of copyrighted material for scholarly, educational, or news-reporting purposes.<sup>9</sup>

Technically, you don't have to file for a copyright to have the piece of work protected. It's considered yours once your ideas are translated into a tangible form, such as a book, music, or published research; however, officially registering with the U.S. Copyright Office before—or within five years of—publishing your work makes it a lot easier to establish that you were the original author if you ever have to go to court.

The duration of a copyright depends on the year it was created, as the laws have changed over the years. Since 1978, most compositions have been copyright-protected for 70 years after the author's death. After that time, individual works enter the public domain and can be reproduced by anyone without permission.<sup>10</sup>

As a general rule, the author retains ownership of copyright privileges, even if the material is published by another company. There is an important exception to this rule, though.

Materials you create for your employer as part of your job requirements, for example, contributions to a podcast the company publishes, are usually considered "works for hire." The employer, not you, retains the copyright. If there's a gray area, you can try to negotiate with the publisher over copyright ownership prior to creating the piece; just be sure to get it in writing.<sup>11</sup>

### What Is the Difference Between a Patent, Copyright, and Trademark?

A patent protects new inventions, processes, or scientific creations, a trademark protects brands, logos, and slogans, and a copyright protects original works of authorship.

### What Are the 3 Types of Patents?

The three types of patents are design, utility, and plant. Utility patents are for new discoveries, compositions of matter, machines, or processes. Plant patents are for anyone that discovers or develops and asexually reproduces a new variety of plant. A design patent is for anyone that creates a new, original, and ornamental design.<sup>2</sup>

### What Is Included in a Trademark?

A trademark includes words, phrases, designs, or any combination of these that particularly identify a good or service.<sup>7</sup>

### The Bottom Line

The decision to pursue a patent, trademark, or copyright depends on the type of intellectual property you're trying to shield. Whether it's a new product, logo, or creative work, registering your idea with the appropriate body can help ensure you enjoy the fruits of your labor.

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**Dr. U.RANGA RAJU,**  
M.E., Ph.D., MIGS, MIE, MISTE, MIRC.  
**PRINCIPAL**



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Date: 07-01-2020


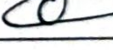
## CIRCULAR

All the faculty members are hereby informed that Dr. M.C S Madan will be giving presentation for two day's workshop on "Thesis Writing and Plagiarism Verification" organizing by Electronic & Communication Engineering department at DNR CET Seminar Hall during 10<sup>th</sup> & 11<sup>th</sup> Jan 2020. All are requested to attend the same.

  
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Ph: 08816-221238 Email: [dncet@gmail.com](mailto:dncet@gmail.com) website: <https://dncet.org>

## REPORT ABOUT THE PROGRAMME

Dt: 13-01-2020

**Title Of The Programme:** A Two days Workshop on Thesis Writing and Plagiarism Verification

**Inauguration Date & Venue:** 10<sup>th</sup> Jan 2020 & DNR CET Seminar Hall

**Organized By:** Department of Electronics & Communication Engineering, DNR CET

**Resource Person:** Dr. M. C S Madan, Professor in Civil, BVCITS, Amalapuram.

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)

Secretary & Correspondent, DNR College Association

**Inauguration:** Dr. U. Ranga Raju


Principial, D.N.R College of Engineering & Technology


**Number of Faculty Attended:** 58

### Concept:

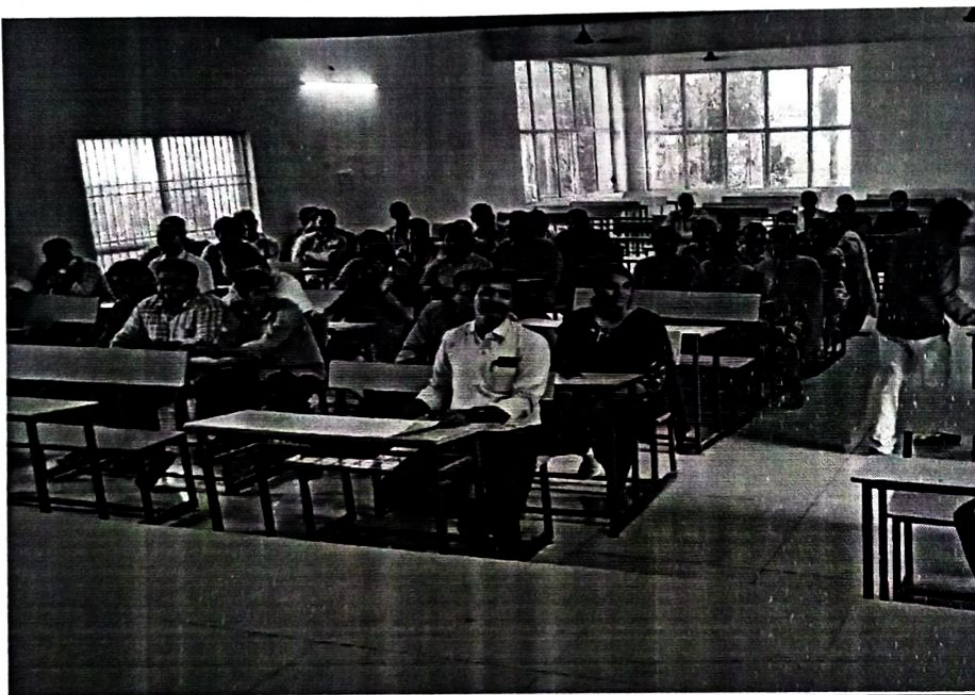
Plagiarism is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition. Plagiarism constitutes a breach of academic integrity and represents substandard scholarship. Plagiarism can have lasting impact on the future career, regardless of whether it was intentional or not. The responsibility to avoid plagiarism belongs with the student or researcher. The main purpose of plagiarism

- 1) To steal and pass off (the ideas or words of another) as one's own
- 2) To use (another's production) without crediting the source
- 3) To commit literary theft
- 4) To present as new and original an idea or product derived from an existing source. In other words, plagiarism is an act of fraud.

  
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Principal  
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**Photos:**





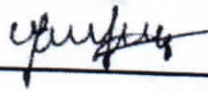
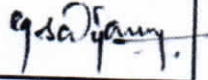






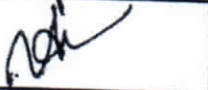

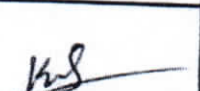

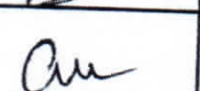
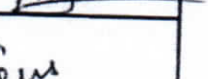


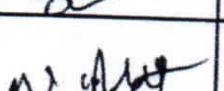
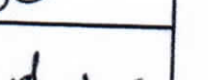
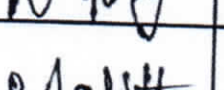
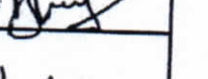
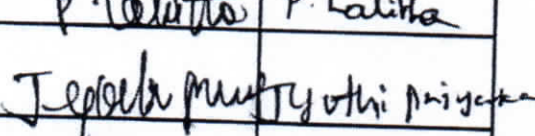


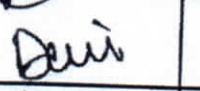
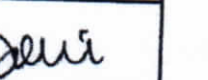
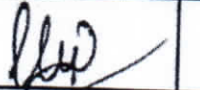



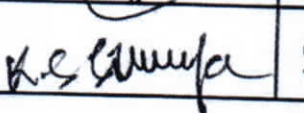
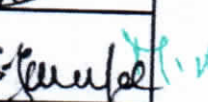


**A Two Days Workshop on Thesis Writing and Plagiarism Verification**

*H. Arunkumar*

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BHIMAVARAM-534 222**

**Workshop for two days on thesis writing and plagiarism verification**

SNO	NAME	DATE 10-1-2020 & SIGN	DATE 11-1-2020 & SIGN
1	Dr.B.V.S.VARMA		
2	Dr.A.RAMA MURTHY		
3	Dr. G SATYANARAYANA		
4	Dr. P SAMBA SIVA RAO		
5	K.SURYA RAM PRASAD		
6	B.V RAM KUMAR		
7	B.NANDANA KUMAR		
8	G SUNIL PREM KUMAR		
9	G.V.SATYA SRI RAM		
10	S.LAKSHMAN RAO		
11	N.BHARATHI		
12	P. LALITHA RAJESWARI(V)		
13	B .JYOTHI PRIYANKA		
14	M.MOUNICA DEVI(V)		
15	V NAVYA DEVI		
16	L BUJJI BABU		
17	K S H PRASANNA KUMAR		
18	K SIVA SYAMALA		

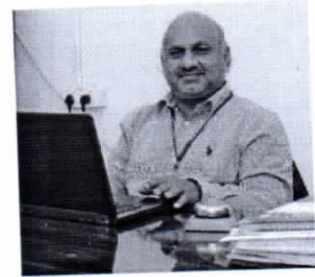
19	E RAMA LAKSHMI	E. Ramalakshmi	E. Rama lakshmi
20	V LAKSHMI(V)	V. Lakshmi	V. Lakshmi
21	KORADA KALYANI(V)	K. Kalyani	K. Kalyani
22	M.PRABHAVATHI(V)	M. Prabhavathi	M. Prabhavathi
23	K.SPANDANA(V)	K. Spandana	K. Spandana
24	K SARATH CHANDRA	K. Sarath Chandra	K. Sarath Chandra
25	M NAGA LAKSHMI	M. Nagalakshmi	M. Nagalakshmi
26	CH SAI SIVA DURGA	Ch. Sai	Ch. Sai
27	U SUSHMITHA	U. Sushmitha	U. Sushmitha
28	M S N Srikanth	M.S.N Srikanth	M.S. Srikanth
29	K.VENKATA CHANDRAN	K.V. Chandran	K.V. Chandran
30	PRAVEEN PRAKASH	Praveen Prakash	Praveen Prakash
31	INDUKURI TANUJA LAKSHMI	I.T. Lakshmi	I.T. Lakshmi
32	BARRE DANAMMA	B. Danamma	B. Danamma
33	TATIPATTI CHIRANJEEVI	T. Chiranjeevi	T. Chiranjeevi
34	BOMMIDI PHANINDRA	D. Phanindra	D. Phanindra
35	PENUMATHSA THARUN KUMAR RAJU	P.T.K. Raju	P.T.K. Raju
36	MUDUNURI TARUN KRISHNA VARMA	M. Tarun Krishna	M. Tarun Krishna
37	PADAMATA BHUVANESWARI	P. Bhuvaneshwari	P. Bhuvaneshwari
38	GEDELA DURGA DEVI	G. Durga devi	G. Durgadevi

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39	ALLURI TARUN VENKATA SATYA SAI SIVA VARMA	A.T.V.S.S.Svarma	A.T.V.S.Svarma
40	PENUMAKA VAMSI KRISHNA PHANEENDRA	P.V.K.Phameendra	P.V.K.Phameendra
41	SIRIGINEEDI SIVA SAI PANDU RANGA RAO	S.Siva Sai Pandu	S.Siva Sai Pandu
42	B.V.RAM KUMAR	B.V Ram Kumar	B.V Ram Kumar
43	K.SRINIVAS	K. Srinivas	K.Srinivas
44	APVDL KUMAR	A. Kumar	A. Kumar
45	K.L.G.REDDY	K.L.G Reddy	K.L.G Reddy
46	BORRA GAYATHRI DEVI	B. Gayathri Devi	B. Gayathri Devi
47	BORRA PURNA CHANDU	B. Purna Chandu	B. Purna Chandu
48	BORRA VENKATESWARAMMA	B. Venkateswamma	B. Venkateswamma
49	CHALLA PRASANTHI	C. prasanthi	C. prasanthi
50	CHENNU LAKSHMI DURGADEVI	CH. Lakshmi	CH. Lakshmi
51	CHINTA SHIVA KUMAR	C. Shiva Kumar	C. Shiva Kumar
52	CHIPPADA RAMYA SRI	C. Ramya Sri	C. Ramya Sri
53	DANDU DIVYA SRI	D. Divya Sri	D. Divya Sri
54	DANDU JAGADEESWARI	D. Jagadeswari	D. Jagadeswari
55	DANIKONDA DEVI VARA PRASAD	D. Devi Varaprasad	D. Devi Varaprasad
56	DASARI MAHI MANVITHA	D. Mahi Manvitha	D. Mahi Manvitha
57	DATLA JHANSI LAKSHMI	D. Jansi Lakshmi	D. Jansi Lakshmi
58	N.SUSHMA	N. Sushma	N. Sushma

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## PROFILE



**Dr. M C S MADAN**

Ph.D. in Environmental Engineering and Management specialization.

Dr M Chandra Shekhar Madan has been with us for the last 15 years, and he is responsible for the College Academic Committee. He has prepared courses for the Civil Engineering department, such as Environmental Engineering I & II and Waste Water Management, along with handling courses like Industrial Waste and Waste Water Management, Air Pollution Control, Solid Waste and Hazardous Waste Management, Engineering Geology.

In his 25+ years of experience, he has deployed different teaching methodologies such as the traditional White Board & Marker, PowerPoint Presentations, Demonstration based lectures, textbook Assignments, Web References, Video Lectures, Enquire oriented Education, Interactive Learning and Group Discussion.

He is a member of the ISTE professional body, and has published research journals and papers on :

- Effect of Structural Irregularity in Multistoried Effect of Carbon Fibre Reinforced Polymer (CFRP) sticking on Load Carrying Capacity of Columns
- Effect of basalt Fibre reinforced Polymer (BFRP) sticking on Load Carrying Capacity of Columns
- Enhancement and partial Replacement of Cement by Glass Powder based on Concrete
- Utilization of Demolished Concrete Waste for New Construction

He has also mentored and guided research committees on the following projects:

- A Study on drinking Water Quality and Security in Amalapuram Municipality
- A Study on Municipal Solid Waste (MSW) designing of Sanitary Land Filling (SLF) site and management of MSW in Amalapuram
- A Study on Effect of Sea Food Processing Effluent in Coringi River
- A Study about Effects on Compressive Strength of Concrete by Partially Replacing Concrete with Marble Dust Powder and Using Polycarboxylate Ethane as Super Plasticizer
- A Study on Shrimp Processing Industry effluent waste and utilisation of treated waste in East Godavari District, Andhra Pradesh
- A Study on Disposal of Untreated Sewage for Land treatment in Amalapuram
- A Study on Use of Rice Husk Ash in Concrete

He has received the following recognitions and awards by the University:

- Lab External for Environmental Engineering
- E Waste management (NPTEL)
- Paper Evaluation of Environmental Engineering course (JNTUK)
- Paper Evaluation of IWHWM course (JNTUK)
- Paper Evaluation of APC course (JNTUK)
- Paper Evaluation of WWM course (JNTUK)
- Lab External Examiner for EE (JNTUK)
- Project External for viva voce for B.Tech & M.Tech
- Lab External for UG & PG courses (JNTUK)
- Preparation for Scheme of Evaluation for UG subjects (JNTUK)
- Chief Examiner for UG subjects (JNTU)

He has been a vital part in organizing Seminars and Workshops on E Waste Management, Auto CAD 2D, Internship Program Restructuring, ARC GIS amongst a few.

In his previous stint, he was an Assistant Professor at Aditya College (2005-2007) & Founder HoD and Associate Professor at SGCSR College (1994-2005)

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## INTRODUCTION

Thesis is a kind of obligatory academic writing for the students in higher education level. In most universities in Indonesia, the students from undergraduates, masters, and doctorates, have a requirement to conduct a research and report it in a form of thesis or dissertation. Surely, that assignment must be completed properly, considering that the critical issue in academic writing is the originality and honesty.

Academic dishonesty became a great concern in education, particularly in the higher level. Sadly, cheating and plagiarism are still committed by many scholars. For that matter, the scholars have taken many efforts to reduce plagiarism in their community. Nonetheless, Dahl (2007) claimed that the effort would be challenging since there is an ambiguity in defining the clear concept of plagiarism. Supporting the statement, Razera (2011) explained that the concept of plagiarism might be straightforward in theory, but it will be harder to be determined practically.

Furthermore, some students still have lack of understanding about the boundaries in plagiarism, in terms of the limit of direct quotation allowed in their papers (Goddard & Rudzki, 2005). Therefore, there must be a common understanding among the academics including the students about the definition or plagiarism in their paper writing. Goddard & Rudzki (2005) believed that having prior knowledge of the sources used by the students was the initial way the lecturer did in detecting plagiarism.

These days, the internet provides countless sources the students can take. They can easily just copy and paste the texts or images from the internet with or without making citations. Regarding to the issue, the essential way to avoid plagiarism is by using proper citations and paraphrasing or quotations. In using the idea of other's work, it should be well paraphrased and included a citation of the author's name and the year. The materials taken from other sources are initially to support the writer's idea. Minor role of the writer's idea in a paper even contain well-paraphrased sources and proper citation may still be considered as plagiarism (Turnitin, 2012).

Conversely, a common way to prevent plagiarism in this digital era is by implementing plagiarism detection software. *Turnitin*, as one of many online services in detecting similarity index of students' writing, is very helpful for the tutors/lecturers in spotting suspected plagiarism in the students' paper and using the result to keep them revise their writings (Dahl, 2007). Parkhurst & Moore (2006) noted that *Turnitin* is very reliable in detecting similarity since its algorithm can find matching text even if some words or phrases in the text have been replaced. Many studies proved that the access to such websites is effective in reducing plagiarism among students (e.g. Baker, Thornton, & Adams, 2008; Batane, 2010; Sutherland-Smith & Carr, 2005).

The software analysed and then highlighted the sentences, which were found as similar to the other publications – in their huge database. By using the software, the students can directly



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notice the bad paraphrased sentence or paragraph, the highlighted ones, and then they may re-paraphrase them appropriately.

In general, many studies concluded that the students have a good perception about plagiarism-prevention software (e.g. Ali, 2013; Dahl, 2007; Davis, 2007; Graham-Matheson & Starr, 2013). Thus, it can be assumed that reducing plagiarism will depend on the use of such software. On their study, Graham-Matheson & Starr (2013) and Dahl (2007) concluded that the students seem tend to support the implementation of *Turnitin*. Moreover, some studies pointed out that the software is effective in detecting and reducing plagiarism practices among the students (e.g. Ali, 2013; Biggam & McCann, 2010; Kiriakidis, 2012). Nevertheless, Davis (2007) had a doubt that the students, who used the software without intention to learn, will likely commit a 'well-organised plagiarism' since the website only display the similarity index of the text.

Davis (2007) recommended that in order to get a valuable learning opportunities, the scholars should use the software to submit the draft of their papers before assessment. Furthermore, to avoid the students misinterpreting of the originality reports from the website, the supervisor should assist them through the process. On the other hand, the students must understand clearly the concept of plagiarism.

Nonetheless, plagiarism is a complex problem that requires many kinds of efforts to reduce it. The implementation of *Turnitin* is simply a tool to educate the importance of originality and novelty in writing to the students (Sutherland-Smith & Carr, 2005). For that reason, the decision to determine whether a paper contains plagiarism will depend on the tutors/lecturers.

The implementation of plagiarism prevention software will be a challenge to all of the students to prove the originality of their theses and dissertations. On the other hand, this will also be a chance for the students to improve the quality of their academic writings. Therefore, related to those issues, this paper elaborates the advantages of plagiarism prevention software and the students' attitudes towards the use of such software in checking their theses.

## **METHODS**

The participants in this study were the students of Master's Degree in English Language Education. In selecting the participants, the researcher employed purposive sampling technique. Seven students, who already completed writing their theses and were in the final stage of their study, were selected for interview.

The researcher applied in-depth interview to gain the information on the advantages and the students' attitudes towards plagiarism prevention software in checking their theses writing. The data of the interview was examined and reduced into specific information needed from the interview transcripts. Afterwards, the researcher displayed the data and provided description and analysis related to the purpose of this study.



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## FINDINGS AND DISCUSSION

### The Advantages of Plagiarism Prevention Software

This part elaborates the advantages that the students got from plagiarism prevention software. The students believed that there were several advantages of the implementation of the software, such as:

1. Encouraging the students to be more aware of learning the skills of quoting other people's ideas, paraphrasing sentences, and citing the source properly;
2. Encouraging the students to improve the quality of their academic writings; and
3. Encouraging the students to be more creative and confident in formulating their own ideas, rather than 'stealing' other people's ideas

The following excerpt was taken from the interview of the students' statements about the advantages.

#### *Excerpt 1. Advantages of plagiarism prevention software*

"Firstly, from the perspective of introduction and development of science and technology, it was quite well-intentioned. Secondly, for the students themselves, when their theses had been submitted and detected the similarity, they would learn on what steps they should do about it." – (S01)

"...by the national level, it would contribute to our country in terms of our scientific abilities and our writings, because the writings were originally generated from our own ideas. Secondly, we could certainly promote our campus, as the use of the software would decrease the similarity (of our writings) compared to the others, there would be many journals published by our campus. The third, it would be a challenge for me myself in order to make my writings better and meet the international standard. It would be a pride to be able to create original writings." – (S02)

"...to prevent from committing plagiarism. This would reduce the number of plagiarism made by the students, not because of awareness, but because of fear. Besides, it would improve our creativities to be not only rely on other people's works, but also the students' original ideas." – (S04)

"Surely, it would decrease and preventing plagiarism. For me, it would help me keeping the quality and originality of my thesis." – (S05)

"It was useful because it made me more aware of the importance of knowing the source and citing the quotations in writing. Plagiarism detector would indirectly demand us to read, to dig (information), to formulate (ideas), and how to process the information, how to formulate our ideas, how to develop ideas in order not to commit plagiarism. So, the advantage would lead us to develop writing skill, to be a learning material, and to raise awareness (of plagiarism free)." – (S06)

"The true benefit of this software is helping us as a writer to be more careful in producing our work by quoting and using other people's ideas or arguments. In the past, we might just quote (people's ideas) and considered that it was our own ideas. This software will detect such actions. By the concern of being detected, we would be aware to learn that we must be honest in telling things in our writing." – (S07)

The students agreed that the use of plagiarism prevention software would benefit them in terms of their writing skill. Specifically, the software would help the students to learn about how to prevent and avoid plagiarism. Moreover, it would help them to be more creative and be aware of the importance of developing original writings.

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Another important issue that should be considered is the benefit of plagiarism prevention software in order to keep the academic integrity or ethics among the students. The students' responses on that issue are displayed in the following excerpt taken from the interview.

*Excerpt 2. Plagiarism prevention software in raising the academic integrity*

"Personally, Turnitin was one of many things that raise my awareness to not plagiarise other people's writings. Actually, I had such awareness before, but I did not know that we have to paraphrase (the words) in order to be not similar. Generally, Turnitin should have an impact to the academic awareness of the students. It might not be significant, but it should have (impact)." – (S02)

"Without the standard or regulation of using the software, such awareness had actually existed in every student who is writing their theses. I mean, the students should feel guilty when they use other people's idea without citing the author. Some students felt indifferent and some others felt guilty. Those who felt guilty should have the intention to admit that they actually did (plagiarism). Those who felt indifferent might only be degree-oriented. The use of such software should affect the students negatively; they should be worry of being accused for stealing." – (S03)

"Yes, I am sure. In the beginning, the students would be introduced to the software and then they would reach the stage of asking how to avoid plagiarism. I am sure that they would know the importance of citing properly, as the ideas belong to other people. An idea is the attribute of professionalism; therefore, we should not take it directly (without giving credit)." – (S06)

"As they learned that the software exists, even though not implemented entirely, it would have impacts. Inevitably, the students will be afraid, worried, and careful in writing or in quoting other people's statements." – (S07)

Some students were optimist that the implementation of plagiarism prevention software could help in keeping the academic integrity or ethics among the students. However, some others showed a different perspective. They doubt that the implementation of the software would only make the students to be trickier in avoiding the high similarity report of the software. The following are the excerpts of those students' statements.

"I think it would be difficult for the students to raise awareness themselves. Self-awareness is very difficult because it might be a tradition for the students. (The implantation of such software) could only make them to be more creative, trickier, on cheating and plagiarising. It could make them to be trickier even more, not making new things, but being shiftier, trickier." – (S04)

"The main purpose of plagiarism checking would definitely be keeping ethics in writing, to keep the quality and ethics in academic writing. I am not sure about that because there would always be students who cheat. Sometimes there would always be deviations, but it should definitely be prevented as much as possible. It always depends on the individual." – (S05)

Although some students doubt on the role of plagiarism prevention software in raising the academic integrity among the students, most of the students generally agreed that the integrity or ethics would always depend on the students themselves. The implementation of plagiarism prevention software might help the students in building or keeping their integrity. Nevertheless, the action of either ignoring or embracing it would always depend on each student's personality.

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### Utilizing the Software's Advantages

The implementation of plagiarism prevention software should have advantages into two terms: developing the students' individual skills and maintaining the integrity or ethics in academic environment. Based on the findings of this study, the students agreed that the software should benefit them in several things. Firstly, the software could encourage the students to be more aware of learning the skills of quoting other people's ideas, paraphrasing sentences, and citing or crediting the source properly. Secondly, the software could encourage the students to improve the quality of their academic writings. Thirdly, the software could encourage the students to be more creative and confident in formulating their own ideas, rather than stealing other people's ideas (see Excerpt 1: S01, S02, S04, S05, S06, S07). Furthermore, the academic integrity or ethics among the students should be maintained when the students become aware and skilful enough to avoid plagiarism (see Excerpt 2: S02, S03, S06, S07).

Nevertheless, there is also a hesitation of the possibility for some students to be trickier in committing intentional plagiarism (see Excerpt 2: S04, S05). That issue was also raised in previous study (Davis, 2007). The students who would like to do such thing must be those who have no intention to learn and develop themselves. By this fact, it surely would be better if the students develop their skills in writing and improve the quality of their writings rather than attempt to manipulate the software's detection.

Therefore, there will be two stages regarding the benefit of plagiarism prevention software in building up the academic integrity. The first will be the stage of plagiarism reduction. As it was explained previously, the first time checking will display the current quality of the students' theses, in terms of similarity. After the theses was properly revised and then rechecked through the software, the similarity should be decreased. Many studies proved that the use of plagiarism prevention software effectively reduced plagiarism among the students (e.g. Ali, 2013; Baker, Thornton, & Adams, 2008; Batane, 2010; Biggam & McCann, 2010; Kiriakidis, 2012; Sutherland-Smith & Carr, 2005).

The second will be the stage of prevention. As the students get used to the software, they will be aware of properly paraphrasing other people's sentences, and making proper quotations and citations in every time they write. As a result, the students will always try to avoid plagiarism in their academic writings. Likewise, if the university issue a regulation to require all students to check their theses through plagiarism prevention software, it would build the atmosphere of preparedness and awareness among the students to try their best in order to avoid plagiarism.

These findings are quite related to Twomey's (2009) study that there should be two highly beneficial purposes of plagiarism detection software. In the short term, it can enable the lecturers to check out every concern, to distinguish accurately between students who have done the work

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BHIMAVARAM-534 202.

correctly and those who have not. In the long term, the lecturers will be easier to assign and grade pedagogically valuable research papers and other written work.

### **The Students' Attitudes towards Plagiarism Prevention Software**

Regarding the regulation of implementing plagiarism prevention software, generally, there were two kinds of attitudes raised by the students:

1. Those who agreed and fully supported the implementation of plagiarism prevention software; and
2. Those who doubted and raised some concerns on the implementation of plagiarism prevention software.

The following excerpt displays the students' attitude toward the policy of implementing plagiarism prevention software.

#### *Excerpt 3. Attitudes toward the implementation of plagiarism prevention software*

"I certainly support this, in order to improve the quality of the alumni of this graduate program. If the (students') writings are good, they will be qualified to be published either nationally or internationally. Therefore, the grade of this campus will increase, although it will still be difficult. It might be difficult for the students as well. However, if they are willing to develop, I think they will be pleased to accept this. We should always pass the difficult things before something good come to happen." – (S02)

"If this is become a regulation in this institution, it will be great. It would teach the students not to steal. I mean, there are so many books in this world. You do not have to copy and paste. I think it is good. It would be even better in order to create creative people. Because, you can be creative without copy and paste other statements." – (S03)

Some students supported the idea of implementing plagiarism prevention software in checking the students' theses. Mostly they argued that such regulation could help the students develop their ability and skill in academic writing. In addition, they also believed that the use of the software could help the students to be more creative and honest. However, some students doubted the implementation of the software. They did not fully support the idea of such regulation. The following are the excerpt of those students' opinions.

"...ideally, the authorities of the graduate program should not change their system, but review their purpose of using that software. Because, I think it is clear that the software is not for detecting plagiarism, but similarity. That (matter) must be understood firstly. Therefore, they would not directly issue their judgments." – (S01)

"I am sure that the students will certainly be shocked, because unconsciously plagiarism has become a tradition. I guess that is very common. When they are introduced with plagiarism detector and they are introduced with the concept of plagiarism, they would firstly be shocked. The same thing happened to me. Their first question would be: Why should be like that? However, as the drafting progress, I am sure that they would reach the next stage by asking, how to avoid plagiarism." – (S06)

"I agree if the regulation intended to prevent plagiarism in scientific writing. However, in my opinion, the regulation was not implemented maximally. I mean, it was only said that there is a tool for detecting plagiarism and such, but in reality, it was not entirely applied. I think it would be ineffective if the regulation is not followed up by the authorities of this campus." – (S07)

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The students who doubted the policy of implementing the software argued that the authorities should reconsider their purpose of the policy. They mostly worried of being accused of plagiarism when the judgement made solely based on the report of the plagiarism prevention software. Moreover, as S06 stated, the students would likely be shocked if the use of such software directly implemented before they are ready and aware of the concept of plagiarism. On the other hand, S07 argued that the regulation of using plagiarism prevention software would be ineffective if it is not implemented entirely for all students.

### **The Students' Reactions towards the Software's Similarity Reports**

Different attitudes showed by the students towards the idea of the regulation. On the other hand, it would be interesting to find out how the students would react after their theses had been checked through the software. The researcher then interviewed the students about their reactions. Generally, they were willing to change the detected similar words in their theses. The following are the excerpt of the students' reactions.

#### *Excerpt 4. Reaction towards the similarity report*

"...reconstruct (the sentence), change the words, paraphrase, but remain putting the name of the author. That would reduce the percentage of similarity. So, that is what I would do, paraphrasing." – (S02)

"I will change it automatically to be more valid and original of my writing." – (S03)

"I will change it. I will replace (the words) immediately." – (S05)

"I will take the print out, and then look on which parts are detected as similar. The first step I would do is to find out if the script had existed or had been written before, and where is the source. The software would have provide the source of each similarity. Then, I would see the structure of the sentence. Is the context of that sentence similar with the context I intent? If I could not get that, I would not change it. On the contrary, if I could get that, and it is truly similar or had been written before, then I would take the second step. I would paraphrase that." – (S01)

"The first thing to do is introspection, making improvements. What else to do (?). It would be very high indeed in chapter two, because we quote words there. We could not paraphrase everything. Those contain sets of information that is related to our concentration. Therefore, the parts that would not be detected are our arguments in responding those ideas." – (S06)

The students seemed to show positive attitudes towards the report. Mostly they were willing to change or replace the similar words, which are displayed in the reports. They tend to criticise the reports by assessing the context meant by the source text compared to their own writings. Overall, they were all agreed to review the report of the software before making any changes of which sentences should and should not be replaced.

### **The Students' Attitudes: Trusts vs. Doubts**

The implementation of plagiarism prevention software in academic institutions aimed to control the quality and the originality of the students' academic writings. As the software exists, the students were encouraged to be more careful in quoting other people's sentences. Surely, each student would have particular attitude toward the university's regulation in implementing

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plagiarism prevention software. Previous studies indicated that the students tend to support the implementation of plagiarism prevention software (Dahl, 2007; Graham-Matheson & Starr, 2013). Similar to that, this study found that some students agreed and supported if such regulation remains implemented in this university (see Excerpt 3: S02, S03). Those students argued that with the implementation of plagiarism prevention software, it could improve the quality of the students' writings to be more qualified to be published in the reliable academic journals. Moreover, they also assumed that the regulation might encourage the students to be more creative in writing.

On the other hand, some other students still doubted the regulation (see Excerpt 3: S01, S06, S07). In general, they tend to support the regulation, but still concerning on some issues. They mostly doubted if the university only consider the result of similarity detection in issuing the judgment on plagiarism in students' theses. For this argument, the researcher assumed that it might be an unnecessary, but reasonable worry, since the university should have not implement such plagiarism prevention software without knowing the whole concepts of the software. Another argument, it seems that the university did not implement plagiarism prevention software for the entire study programs. Therefore, some students doubted the effectiveness of the software to this university.

Since the use of plagiarism prevention software considered as new things for most universities, there will be some concerns that the regulation of implementing such software will likely surprise most students. All these past years of ignoring the importance of proper paraphrasing, quoting, and citing sources will be drawn to an end. Subsequently, the new era of maintaining the academic integrity will arrive. Therefore, the students who are unprepared and unwilling to change will likely be shocked. However, it is only a matter of time until the students will get used to the regulation. Undeniably, changing a habit is not an easy thing to do. Therefore, it is crucial not to put an early judgement to the students' theses along with the initial implementation of the software.

The findings of this study supported that argument. This study found out that the students would likely display positive reactions if their theses detected by plagiarism prevention software (see Excerpt 4: S01, S02, S03, S05, S06). Those students were willing to improve their theses by replacing the detected similar words necessarily. They were all agreed to review the detected similar words before constructing newly well-paraphrased sentences. It might be many additional works left to do, but it is noteworthy if the students are willing to develop their skills in writing and correct their mistakes.

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### **The Act of Prevention**

Many studies refer the service of *Turnitin* and other similar services as 'plagiarism detection software.' However, the researcher does not totally approve such term. There are some reasons to be considered:

1. The software did not actually detect plagiarism on the checked texts. Instead, it would only detect word-by-word similarity patterns of the submitted texts with the previously published texts;
2. The similarity of the detected texts is not always mean plagiarism. It might be caused of poor paraphrasing skill or unintentionally suspected plagiarism. Referring to Introna & Hayes' (2008) term, 'to copy is not always to plagiarise' and 'to plagiarise is not always to copy.' Besides, the software could not detect well paraphrased ideas or translated ideas which failed to put credits to the original sources; and
3. The software should be used as a learning tool in developing writing skill, not only used as a detector that judge the students' papers.

The term 'plagiarism detection software' is not entirely unacceptable. Nonetheless, the use of the word 'detection' indicated that the main purpose of the software is to identify plagiarism made by the students in their theses. In this case, it sounds like the software would put judgement on whether the students committed plagiarism or not. In fact, the authorities or the students' research supervisors should make such decision. The report of software's detection should only become a consideration for the judgement.

Therefore, the researcher proposed the term 'plagiarism prevention software.' The word 'prevention' is used to describe the decent purpose of the software to help the students improving their writing skills. The software's similarity detection on the students' theses should not become the primary objective. Instead, the most important things are how to interpret the detection reports and how to react to the detections. In this case, the students should examine the software's detection reports, and then revise the detected similar words in their theses. This way, the students will learn and improve their academic writing skills, in terms of proper quoting, paraphrasing, and citing the reference in their theses. Zimitat (2008) argued that academic writing is a developmental skill, which needs more practices to be mastered. Unintentional 'suspected plagiarism' or patchwork writing might be a part of learning process. As those steps of learning, including the implementation of plagiarism prevention software, were conducted before the theses is submitted to the university or published, that way the software already played an important role in preventing the students from committing plagiarism.

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## CONCLUSIONS AND SUGGESTIONS

Plagiarism prevention software could benefit the students in encouraging them to be more aware of academic integrity and to develop their own skills in academic writing. Therefore, it would be unwise if the result of software's detection on the students' theses directly used in making judgement of plagiarism to the students. As a learning tool, the software should be used to prevent plagiarism by using it to make sure that the students' theses will be free of poorly paraphrased sentences. In other words, the students need to check their theses through the software, and then revise the detected similar words appropriately. The steps might be repeated until the similarity rates reach 20% or lower.

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Date: 06-02-2020

## CIRCULAR


All the faculty members are hereby informed that Dr. Lakshmi D will be giving presentation for one day workshop on "Multi Criteria Decision Making" organizing by Computer Science & Engineering department at DNRCE Seminar Hall dated on 9<sup>th</sup> Feb 2020. All are requested to attend the same.

  
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## REPORT ABOUT THE PROGRAMME

Dt: 10-02-2020

**Title of the Programme:** One day Workshop on Multi Criteria Decision Making

**Inauguration Date & Venue:** 9<sup>th</sup> Feb 2020 & DNR CET Seminar Hall

**Organized By:** Department of Computer Science Engineering, DNR CET

**Resource Person:** Dr. Lakshmi D, Senior Associate Professor, School of Computer Science Engineering, VIT, Bhopal University, Madhya Pradesh.


**Chief Guest:** Sri G. Satyanarayana Raju (Babu)  
Secretary & Correspondent, DNR College Association


**Inauguration:** Dr. U. Ranga Raju  
Prinicipal, D.N.R College of Engineering & Technology

**Number of Faculty Attended:** 32

### **Concept:**

Multiple-criteria decision-making (MCDM) or multiple-criteria decision analysis (MCDA) is a sub-discipline of operations research that explicitly evaluates multiple conflicting criteria in decision making (both in daily life and in settings such as business, government and medicine). MCDM is a generic term for all methods that exist for helping people makes decisions according to their preferences, in cases where there is more than one conflicting criterion. Integrated analytic hierarchy process and its applications—a literature review.

  
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**Photos:**



**One Day Workshop on Multi Criteria Decision Making**

*H. Sankumar*

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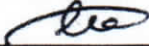










<https://dncet.org>

## One day Workshop on Multi Criteria Decision Making 9th Feb 2020

Sl. NO	NAME OF THE FACULTY	DEPARTMENT	Date 09/02/2020	
			FN	AN
1	J KEERTHANA	CE		
2	MINAPU LAKSHMI KUMAR	CE		
3	P. ANJANEYULU JD	CE		
4	MKMV RATNAM	CE		
5	T.PRASATH	CE		
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7	DR. R. RAMYA SWETHA	CE	Swetha	Swetha
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12	G. SURI BABU	ECE	Suri	Suri
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14	M. VIJAY DANIEL	ELECT	Daniel	Daniel
15	G.V. SATYA SRI RAM	CSE	Ram	Ram
16	K. VENKAT CHANDRAN	CSE	Chandru	Chandru
17	MRS. M. NAGA LAKSHMI	CSE		
18	K. RAJA RAJESWARI	CSE	Rajeswari	Rajeswari
19	U. SUSMITHA	CSE	Susmita	Susmita
20	DR. A. Rama murthy	CSE		
21	E. Paralakshmi	CSE		
22	MR. D.D.D SURI BABU	CSE	Suri	Suri
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28	Pochetti. Naga Kiran	EEE		
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Ph.D	Anna University, Chennai	Part-Time		May 2017
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M.Tech Computer Cognition Technology	University of Mysore, Mysore.	Department of Studies in Computer Science, University of Mysore, Mysore.	First Class with Distinction 4.83/5	2003 – 2005	
B.E Computer Science and Engineering	University of Madras, Chennai	VRS College of Engineering and Technology,	69.70%	1994-1998	
Higher Secondary Certificate	Board of Hr. Sec. Examination- Tamilnadu	Nirmala Girls Hr. Sec. School, Ariyalur. Tamil Nadu	85.00%	1992-1994	
Secondary School Leaving Certificate	Board of Secondary Education- Tamilnadu	Sevamandir Girl's Higher Secondary School, Parangipettai. Tamil Nadu.	85.00%	Mar-92	

### Teaching Experience

Sl. No	Designation	Institution	Period of Employment			
			From	To	Years	Months
1	Senior Associate Professor	VIT Bhopal University	03- March- 2021	Till date		9
2	Associate Professor	B V Raju Institute of Technology	15-June- 2016	Till Date	5	8
3	Educational Research Officer	Vishnu Educational and Development Center, Hyderabad	15-June- 2016	Till Date	5	8
4	Asso. Prof	AIMS Institute of Higher Education, Bangalore	17-July- 2015	10-June- 2016	0	11
5	Asso. Prof.	Adithya Institute of Technology, Coimbatore	Jun-10	16-July- 2015	5	1
6	Asst.Prof	Dr.N.G.P Institute of Technology, Coimbatore	13-Jul-09	31-May-10	0	11
7	Asst.Prof/ Sr. Lecturer	Bannari Amman Institute of Technology, Sathyamangalam	5-Jan-05	29-May-09	4	5

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8	Sr. Lecturer / Lecturer	Sri Krishna College of Engg & Tech, Kuniyathur, Coimbatore	20-Aug-01	30-Dec-03	2	5
9	Lecturer	Mahendra Engineering College, Tiruchengode	2-Jun-00	20 Aug -01	1	3
10	Lecturer	Sri Krishna College of Engg & Tech, Kuniyathur, Coimbatore	10-Aug-98	18-Mar-00	1	8

### Conference Presentations

1. Dr Lakshmi D, Abhinav Prakash, Ramesh Chandra Panda, and Amrita Snake Classification 'Venomous and Non-Venomous' using Transfer Learning Techniques on Indian Species: A Life-Saving Application. (Presented on March 19<sup>th</sup>, 2021 in the European, Asian, Middle Eastern, North African Conference on Management & Information Systems (EAMMIS) and won the best paper award.
2. Amrita, Ramesh Chandra Panda, and Dr Lakshmi D, A Novel Hydro Renewable Power Platform: A Sustainable Innovation (Presented on March 19<sup>th</sup>, 2021 in the European, Asian, Middle Eastern, North African Conference on Management & Information Systems (EAMMIS).
3. Dr . Lakshmi D, Mr. Srinivas Reddy Gurralla and Mr. Manideep Kuncharam, A Comparative Study on Breast Cancer Tissues Using Conventional and Modern Machine Learning Models, SCI-2020 (4th INTERNATIONAL CONFERENCE ON SMART COMPUTING & INFORMATICS)
4. Dr. D. Lakshmi & **Mr. C P Pavan Kumar Hota** , A Study on Adaptive Tutoring System using Learning Analytics, International Conference on Advances in Computing and Information Technology (ICACIT '19).
5. Dr. D. Lakshmi & U.Chandrasekhar Mining Maximal Association Rules on Soft Sets using Critical Relative Support based Pruning, Springer Conference at Panimalar Engineering College, Chennai, 22<sup>nd</sup> & 23<sup>rd</sup> March 2019.
6. Dr. D. Lakshmi & U.Chandrasekhar, "A New Student Model for an Intelligent Tutoring System Using Analytical Hierarchy Process" bearing the paper ID SCOPUS1077, International Conference on Research Advancements in Applied Engineering Sciences, Computer and Communication Technologies 12th & 13th July 2018, ICRAESCCT-2018.

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7. Dr. D. Lakshmi & Mr. S. Naveen Kumar, "Cloud Platform (SaaS) for the Development of Logical Reasoning and Programming Practices", Fifth International Conference on "Emerging Research in Computing, Information, Communication, and Applications" (ERCICA-18).
8. Dr. D. Lakshmi & Mr. C P Pavan Kumar Hota, Use Of Web 2.0 Educational Software's In The Higher Education A Multi-Dimensional Analysis, Ap International Conference On Transformations In Engineering Education July 15-17, 2018; SRM University, Amaravati, AP.
9. Dr. D. Lakshmi & Mr. S. Naveen Kumar Use, of e-Learning Platform (eLab v2.0) in Developing Logical Reasoning and Programming Skills - The State of Art ", Transforming Education Conference for Humanity (TECH 2017) at Visakhapatnam during 16th December to 18th December 2017.
10. Lakshmi Dhandabani & Rajeev Sukumaran, 2016, "Multi-Model Learning Practices Using TPACK Framework", International Conference on Indian Languages and their Kaleidoscopic Role in the Advancement of Literature, Teaching, Education, and Culture, Organized By Field Marshal K. M. Cariappa College, Madikeri In Association With International Association of Academicians and Researchers, Pune.
11. A H Parvin, Lakshmi D, Use of TPACK Framework Model in English Language Teaching, Two day International Conference on Emerging Approaches and Methods in English Language Teaching-(EAMELT) (from text to book to mind in association with The Global Association of English studies All India Network of English Teachers AINET) December 9-12-2015 and 10-12-2015.
12. Lakshmi Dhandabani & Rajeev Sukumaran , Use of Multiple Intelligences and Instructional Technologies in Learning Theory of Computation: An Experimental Case Study, 2015 International Conference on Advanced Computing and Communication Systems (ICACCS -2015), IEEE, Jan. 05 – 07, 2015, Coimbatore, INDIA.
13. Lakshmi Dhandabani & Rajeev Sukumaran , Exploring Relationship between Thinking And Learning Styles: An Experimental Study Towards Improving Learning Of Theoretical Courses In Engineering, 2015 International Conference on Computer Communication and Informatics (ICCCI -2015), IEEE, Jan. 08 – 10, 2015, Coimbatore, INDIA.

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14. Lakshmi D, D. Senthil Kumaran, Multifaceted Training Model for Enhancing the Capability of Acquiring Skills towards Better Placements in Engineering Education: A Case Study, 2nd National Conference on Sustainable Institute Industry Partnership SIIP – 2014, at IIT Madras, Chennai on 26th August 2014.
15. Lakshmi Dhandabani & Rajeev Sukumaran, Use of ICT in Engineering Education: A Survey Report, 2014 IEEE International Conference on Computational Intelligence and Computing Research (ICCI), Coimbatore, INDIA. [SCOPUS INDEXED]
16. Lakshmi Dhandabani & Rajeev Sukumaran, Use of ICT in teaching "Theory of Computation": An experimental case study at IEEE Conference on MOOC technologies at Poornima Institute of Technology, Jaipur. December 2013. Won the **best track award** for the presentation. The paper is available at DOI: 10.1109/MITE.2013.6756316
17. Lakshmi Dhandabani, Classification Rule Discovery with Ant Colony Optimization Meta-Heuristic in Third National Conference on Cutting Edge Technologies in Power Conversion and Industrial Drives, at Bannari Amman Institute of Technology, Feb 2007.

### Journal Publications

1. Dr. B. Mrunalini Sasanka, Dr. Lakshmi Dhandabani, Integration Of ICT In Language Classroom – Classroom Experiments In Teaching And Learning, Journal of Critical Reviews, Year: 2020, Volume: 7, Issue: 19,
2. Dr. D. Lakshmi & U.Chandrasekhar Mining Maximal Association Rules on Soft Sets using Critical Relative Support based Pruning, Springer Lecture Notes on Data Engineering and Communications Technologies series, SCOPUS, Book Chapter.
3. **"A new student model for an intelligent tutoring system using analytical hierarchy process"** in International Journal of Engineering & Technology (UAE) (IJET) in *Vol.7, No.3.29, Page 433-442, 2018* which is **SCOPUS INDEXED JOURNAL** ([www.sciencepubco.com/index.php/IJET](http://www.sciencepubco.com/index.php/IJET)). ISSN: 2227-524X  
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4. Vijay Bhasker V and Lakshmi D, "Individuals Personality – Multiple affects – Gender Differentiation!?", AIMS-Journal of Research, ISSN 2321-8487, Vol 12, Issue 2, Sep 2015.

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7. Lakshmi Dhandabani & Rajeev Sukumaran Causal Effect Analysis between Brain Dominance and Multiple Intelligences, International Journal of Applied Engineering Research, January 2015, Vol. 10, No. 2, Print-ISSN: 0973-4562. [SCOPUS INDEXED].
8. Chinnu Thomas & D. Lakshmi & Gesture-Based Computing as an Alternative to Mouse by Calibrating Principal Contour Process Actions, International Journal of Research in Advent Technology, Vol.2, No.5, May 2014, E-ISSN: 2321-9637.
9. P. Dhivya & D. Lakshmi & A Comprehensive Review of Image Retrieval Based On Example Video Clip, International Journal of Research in Advent Technology, Vol.2, No.5, May 2014, E-ISSN: 2321-9637.

#### **Book Chapter(s)**

1. Educational Technology Too and Software for Virtual, Flipped and Blended Learning, Immortal Publication, ISBN: 979-8-6432-1141-9.

#### **Book Publication**

1. Theory of Computation, Charulatha Publications, Chennai, 2006, ISBN: A100009222.
2. "Leading Education in Age of Disruption", An Educator Guideline Series with the ISBN Number: 978-93-5526-730-6.

#### **Indian Patent Publication**

1. Provisionally published patents waiting for examination: Dynamically Understanding 3D Visual Scenes Using Deep Learning, Application Number: 202041002488, IP India.

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2. Provisionally published patents waiting for examination: Hybrid Renewable Power Platform: Harvests Wind, Solar and Water Current Power from Running Water-Channel. Application Number: 332221 -001, IP India.
3. Provisionally published patents waiting for examination: A Novel Phenotypic Antimicrobial Resistance Testing Using Cost-Effective Integrated Biochip, 202031036654, IP India.
4. Provisionally published patents waiting for examination: A Novel Nanosilver Hand Rub Sanitizer Gel, Application Number: 202031037352-001, IP India.
5. Provisionally published patents waiting for examination: IoT Based Smart Electro-Mechanical Standing Ventilator, Application Number: 202031045420, IP India.
6. Provisionally published patents waiting for examination: A novel smart carbonless cooking Gasifier, Application Number 202031044344

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1. Arogya Odisha-Mobile App-Based Empowering TeleMedicine, Diary Number: 14815/2020/CO/L (Filed Under Copyright Act) Date: 03/10/2020
2. Investigations On Behavioral Analysis For Improving Learning Practices, Diary Number: 16131/2020/CO/L (Filed Under Copyright Act) Date 17/10/2020
- 3.

#### **Australian Patents**

1. AQUA LIFE: A COMPACT DEVICE EXTRACTING DRINKABLE WATER FROM SEAWATER ApplicationNumber-2021100286,  
Patent application type-Innovation, Filing date 2021-01-17  
Granted
2. A Novel Indigenous Sustainable Vaccine Carrier for Maintenance of Cold Chain,  
ApplicationNumber-2021101099, Patent application type-Innovation, Filing date 2021-01-17

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IEEE Member, Member of the Computer Science Teachers Association (CSTA), IAENG - International Association of Engineers, IFERP

#### **Online Certifications**

1. Big Data analytics – Demo from Big Data University
2. Brief Introduction to Psychology, NPTEL, IIT Kanpur

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3. "Quizlet-A cool for teachers" online course June 2nd, 2018
4. Edpuzzle Big Goals on 26-05-2018
5. Khan Academy for Teachers 101 May 14th, 2018
6. Google Digital Unlocked "The Online Marketing Fundamentals"
7. Using proper manuscript language by Elsevier Researcher Academy Certificate of Completion
8. Problem-Solving through C Programming, NPTEL
9. Mentorship Certification for "Problem Solving through C Programming, NPTEL"
10. Workshop on "IoT" Texas Instrument Certification
11. Python for Data Science, NPTEL
12. Advanced Deep Learning by Bennett University through leading India AI

#### **Book Reviewer**

Cambridge University Press, PEARSON Education, and Tata Mc Graw Hill Publications

#### **Workshops/Conferences/Seminar/Guest Lecture/Conclave Attended**

1. Attended NASSCOM Data Analytics Workshop 20-03-2018 to 24-03-2018.
2. Attended IBM 'Mobile application Development Workshop' at AIMS Institute of Higher Education, Bangalore in the month of December 2015.
3. Attended IBM 'HADOOP and Map Reduce workshop' at AIMS Institute of Higher Education, Bangalore in the month of November 2015.
4. Attended IBM 'SPSS training program' at AIMS Institute of Higher Education, Bangalore in the month of August 2015.
5. Became jury for many symposiums and n conferences.
6. Editor for Vivega - College Newsletter at Adithya Institute of Technology
7. Organized many orientation programs as a part of Women Development Cell both at Bannari Amman Institute of Technology and Adithya Institute of Technology.
8. Organized Memory Improving Techniques at both Bannari Amman Institute of Technology and Adithya Institute of Technology.
9. Organized five yoga programs, two eye and general checkups at Adithya Institute of Technology.
10. Internal Quality Auditor Training program at Bannari Amman Institute of Technology

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11. A two-day workshop on Concepts of Research and its Techniques on 25th & 26th 2014 at Adithya Institute of Technology.
12. Two-day national level workshop on Vulnerable Web Applications and Cyber Security on 19th & 20th August 2014 at Adithya Institute of Technology.
13. Workshop on Principles and Practices of Learning for Effective Teaching at Poornima Institute of Engineering & Technology, Jaipur in December 2013.
14. Workshop on Exploring Engineering Education Research at Poornima Institute of Engineering & Technology, Jaipur on December 2013.
15. A two-day workshop on Data Structures and Algorithms by Dr.D.S.Guru, Professor, the University of Mysore at Adithya Institute of Technology, December 2013.
16. A one-day workshop on Android Application Development jointly organized by LANSa Informatics Pvt Ltd and JP Infotech on 24/08/2013.
17. Two-day Workshop on Image and Video Processing Dr.Jharna Majumdar, Retired Scientist DRDO, Bangalore at Adithya Institute of Technology, June 2013.
18. Awarded Certification of Appreciation for Yoga Club Activities for the academic year 2010-2011 at Adithya Institute of Technology.
19. Awarded Certificate of Appreciation for Attaining 100% results for the academic year 2010-2011 for Advance Java Programming for final year IT at Adithya Institute of Technology.
20. One day Faculty Development Program on Web 3.0 Technologies at Dr.N.G.P Institute of Technology.
21. A one-day workshop on Oracle was held on 7th November 2009 at KGISL, Coimbatore.
22. National Level workshop for Eminent Technologies of Open Source Systems conducted by HCL and Dr.N.G.P Institute of Technology in October 2009.
23. One day Sensitization-Cum-Awareness Programme on Technology Information Facilitation at Bannari Amman Institute of Technology in December 2007.
24. One day workshop on Nanotechnology and its applications, Organized by IIT Chennai and Bannari Amman Institute of Technology
25. Attended Training the Trainer Programme on 8th and 9th December 2006 at the campus of M/s. Infosys Technologies Limited, Chennai.

*M. Arunkumar*

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26. A two-day workshop on Design and Analysis of Algorithm conducted by Dr.P.Nagabhushan at Bannari Amman Institute of Technology in August 2006.
27. One week short-term course on Web Technologies at SSN College of Engineering, Kalavakkam in June 2005.
28. Quality System Awareness took by Zandig TQM Solutions Private Limited in April 2005.
29. A workshop on 'Re-Engineer' teaching skills was taken by Mrs.Sushila Balagurusamy at R.R Engineering Technology in January 2003.
30. National Level Seminar on Cognition & Recognition at Sri Krishna College of Engg & Tech.
31. State Level Seminar on Mobile Computing at Sri Krishna College of Engg & Tech.
32. Personality Development Program took by Mr.Suresh Panjabi at Sri Krishna College of Engg & Tech.
33. Two-day residential meditation program at Chinmaya Vidyalaya, Coimbatore sponsored by Sri Krishna College of Engg & Tech.
34. One-day Yoga Program at Sri Krishna College of Engg & Tech conducted by Vethathiri Maharishi Manavalakalai Mandram.
35. Faculty Development Program ON Teaching Technology and Counselling Skill took by Abirami Academy at Sri Krishna College of Engg & Tech in November 2001.
36. Third National Level Conference on Soft Computing at P.S.G College of Technology, Coimbatore in 2001.
37. One day Seminar on Soft Computing at Bharathiar University in 1999

### Personal Attributes

- Effective communication & presentation skills
- Fond of gaining new experiences
- Sincere towards my work
- Readily accepting the challenges
- Involvement in work with continuous improvement at all levels
- Having exposure to the TPACK framework
- Expertise in designing and working with MOODLE educational software
- Having exposure in the arena of educational psychology
- Exposure to nature cures solutions

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### **Subject Expertise**

- Machine Learning & Deep Learning
- Internet of Things
- Educational Technology
- Educational Psychology
- Theory of Computation
- Compiler Design
- System Software
- Data Structures and Algorithms
- Data Warehousing and Mining
- Web Technologies

### **Responsibilities held so far**

- Interview panel member
- Project panel member
- Students Mentoring
- Project Coordinator
- Students Association In Charge
- Project Guide both for B.E and M.E Level
- Short term course Coordinator
- GATE Coaching Committee member
- Yoga Centre In-charge
- Deputy Warden for more than 10 years
- Faculty Recreation Club In-charge
- IAS Exam Coaching Coordinator
- National Level Technical Symposium (Futura'06) Project Coordinator
- National Level Technical Symposium (Futura'07) Project Coordinator
- National Level Technical Symposium (Futura'08) Coordinator

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- Women Development Cell In-charge
- HOD-In charge during 1998-2000 at Sri Krishna College of Engg. & Technology, During 2005-2009 Acting HOD at Bannari Amman Institute of Technology, HOD-In Charge during 2013-2014 at Adithya Institute of Technology.

### **Total Years of Experience**

U.G Teaching Experience: 20

P.G Teaching Experience: 9

Educational Research Officer : 3

### **Thesis Abstract**

In the conventional education system parameters like learning capacity, grasping skills, logical skills, mathematical skills, emotional quotient, rapport skills and language skills of students can be perceived easily. On the other hand, understanding students' strength, weaknesses, and attitude become a challenge in virtual education. To date understanding students' thinking ability, strengths, weaknesses, behavior, and learning capacity has not been considered in the Virtual Learning Environment (VLE). Online courses are attracted by self-determined and intellectually capable students. The student model is crucial for an intelligent tutoring system. It provides an ability to adapt to the needs and knowledge of an individual. The prime objective of this research study is to design the 'student model' based on individuals' 'biopsychological potential'. A major constituent of this research study includes educational technology, educational psychology, and data mining techniques.

The first phase of this research study focuses on primary data compilation using psychometric assessments, to categorize the cognitive traits and personality traits of every individual. The data samples (n=1145) are collected from 16 engineering colleges from Tamil Nadu, Kerala, and Puducherry.

Primary datasets are collected by administering suitable psychometric inventories such as Benziger Thinking Style Assessment (B TSA) for Brain Dominance Analysis, Kolb's Learning Style Inventory for learning style identification, Howard Gardner's MI inventory for multiple intelligence identification, and Paul Costa R. Robert McCrae's BIG Five personality identification.

Rule-based classification technique is used to understand the individual's innate capacity (Model-1 Dataset) and their holistic developmental characteristics (Model-2 Dataset). From these two models, the Personalized Profiling System (PPS) is built to generate the psychometric profile for all the individuals. Subsequently, feedback was collected in order to verify the system's robustness. PPS can be treated as a 'student model' for Virtual Learning Environment (VLE). The statistical measures Chi-Square

  
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analysis, Pearson inter and intra correlation analysis, and linear regression analysis are carried out. The statistical investigations are carried out to analyze the strength of association and inter-dependency between the dependent and independent variables.

The clustering technique is used to handle the diversified group of students into four different categories. The mean-difference clustering method is proposed to customize personalized education. Personalized education methods are suggested for all four groups of students.

In order to classify the unseen data, both categorical data and numerical data sets are used. The clustered data is classified using 6 different classifiers and 5 different classifiers in order to induce an efficient classification. Finally, the framework model is proposed for an Intelligent Tutoring System (ITS) in order to provide a personalized education considering an individual's thinking style, learning style, multiple intelligences, and personality traits. The proposed 'Student Model' consists of a Personalized Profiling System (PPS), classifier, and the outcome of Analytical Hierarchical Process (AHP).

### **Personal Profile**

**Marital Status:** Married

**Husband's Name:** S. Karunakaran

**Gender:** Female

**Date of Birth:** 06/06/1977

**Age:** 44

**Nationality & Religion:** Indian, Hindu

**Place of Birth:** Attur, Salem

**Known Languages to speak:** Tamil, English, Telugu, Kannda, Malayalam

**Known Languages to write:** Tamil, English

**Hobbies:** Meditation and Yoga, Blogging, Involvement in the social activities, Writing Tamil Poems, Voracious reader, Gardening, Volunteering, Playing Chess, Playing Shuttle Batmitton, Counseling, Public Speaking, Nature Therapist.

**Short Biography**

*H. Arunkumar*  
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Dr.D.Lakshmi, presently working as a Senior Associate Professor in the School of Computing & Assistant Director, Centre for Innovation in Teaching & Learning at VIT Bhopal University, Madhya Pradesh. Till February 2021, she was designated as an **Educational Research Officer** at **Vishnu Educational Development and Innovation Centre (VEDIC)** and **Associate Professor at B V Raju Institute of Technology** run by Shri Vishnu Educational Society, Hyderabad from 2016 to Feb 2021. She has been working in the educational sector since 1998. She has more than 22 years of teaching experience. Her key focus is on exploring the dynamics of learning, dynamics of the learner, and classroom dynamics, suitable to accelerate the learning efficacy of higher education students. Her research areas include educational technology, educational data mining, virtual education, and educational psychology. She has been actively involved in educational research and her research papers have been published both in international conferences as well as in peer-reviewed journals. Her main responsibilities at VEDIC include conducting workshops to foster quality initiative, quality sustenance and quality improvement in higher education, e-learning initiative, providing workshops to faculty members who are interested in integrated technology and researching educational trends.

Her **Ph.D.** research work is an interdisciplinary work "**Investigations On Behavioral Analysis for Improving Learning Practices**" in the cognitive science domain using data analysis and mining techniques. The prime objective of her research work is to build the "**Student Model**" for the **Intelligent Tutoring System (ITS)** based on '**bio-psychological potential**' grounded on the cognitive features such as Brain Dominance, Learning Style Preferences, Multiple Intelligences, and Personality models for the purpose of assessing an individual's innate capabilities. She completed her doctoral degree from **Anna University** in May 2017 under the supervision of **Dr. Rajeev Sukumaran, TCL, IIT-Madras**.

Earlier, she obtained her **Master of Technology** in **Computer Cognition Technology** with '**distinction**' from the **University of Mysore, Mysore**, and **Bachelor of Engineering** in **Computer Science & Technology** from **V.R.S. College of Engineering, Madras University**. My career, spanning over 19 years, started from humble beginnings as a **Software Instructor** in a computer academy which was located in a remote town, through various challenging and rewarding teaching assignments, such as: **Lecturer** and **Faculty Advisor** at **Sri Krishna College of Engg. & Tech, Coimbatore** in 1998; then as **Lecturer** at **Mahendra Engg. College, Tiruchengode**; a second stint at **Sri Krishna College, Coimbatore**, as **Lecturer CSE**, as **Sr. Lecturer** at **Bannari Amman Institute of Technology, Coimbatore**, later promoted as **Asst. Professor**, and at **Dr.N.G.P Institute of Technology, Coimbatore**, as **Asst. Professor**. She had joined **Adithya Institute of Technology, Coimbatore**, as **Asst. Professor**, where she had been promoted to the role of **Associate Professor-CSE** and **HoD of CSE/ITB**, and **Associate Professor, Department of Information Technology** at **AIMS Institute of Higher Education, Bangalore**. At AIMS institute, she has gained international exposure in handling various courses for international students and students from all over India too. This experience had brought her new insights into the different geographical perceptions on the academic and cultural context.

With reference to the academic interests, she is naturally aligned to the teaching and computation, as her specialization and core expertise lie in **Theory of Computation**, her favorite subject on which she has authored and published a book, **Theory of Computation**, and a handbook, and been the first Indian woman author in the subject. Her research paper presentation, **Use of ICT in Teaching Theory of Computation: An Experimental Case Study** at the IEEE Conference on MOOC Technologies at Poornima Institute of Technology, Jaipur (December 2013), won the **Best Paper Award**. She has addressed innumerable guest lectures, conducted and organized several Faculty Development Program (FDP) Training (covering approximately -50,000 plus faculty members including TEQIP, SERB, SWAYAM, DST, AICTE, MHRD, ATAL sponsored workshops and also self-financed workshops across India from different STEM Educational institutions) conducted numerous workshops at JNTU-

Hyderabad on various titles in association with UGC-HRDC, and have served as Subject Matter Expert and Consultant on *Theory of Computation*. The passion and deep reverence with which she approaches the subject, both as a student and as a teacher, have earned her much admiration and adulation, as well as reaping her rich rewards in terms of knowledge and experience.

She has been invited as a *jury for the national level conferences* and national level student's symposium. She had been invited as a Session *Chair and keynote speaker* as well. She had reviewed several books for Tata McGraw Hill and Pearson Publishers and conference papers and Journal papers too.

She had presented papers in 17 *international conferences* and published *9 international journal papers, 2 book chapters, and 8 Indian patents provisionally published and waiting for examinations. 2 Indian Copyrights have been granted. 4 Australian patents have been filed and all have been granted. Recently March 2021 her paper has owned the best paper award in the Springer Conference on Snake Classification Using Deep Learning Models: A life-Saving App* Currently, her research work has been submitted to two journal papers and two book series which are under review. She has vast experience in attending more than 100 workshops, conferences, and seminars related to her field of interest. She is also keen in continuous learning and completed a few online certification courses. She has completed *more than 100 certification workshops/programmes* both online and offline.

It is her firm belief that given the opportunity to work in any institution, she shall find the right avenues to express her true capabilities to not only extend her own frontiers but also to transcend the institution to a different progressive dimension. She had served in various academic institutions in various capacities and roles. She had been involved in developing several software(s) for academic usefulness as well as instructional interventions. She had built a software model based on 'bio-psychological potential' grounded on cognitive features such as Brain Dominance, Learning Style Preferences, Multiple Intelligence, and Personality. This software is named KYC (*Know Your Calibre*).

With the passion to mentor students with the holistic approach, she has gained an adequate amount of exposure towards secondary specialization such as life sciences, food and nutrition, cognitive science, yoga and meditation, educational psychology, and educational technology.

On a personal level, she has consistently excelled at both academia and extra-curricular activities, such as her interest in natural medicine, reading, and spirituality. She is also actively involved in co-curricular activities, such as seminars and conferences, doing educational research, discharging her familial and social responsibilities, as well as devoting time to other interests such as natural medicine, gardening, extensive reading on diverse subjects, and spiritual travel. She can speak all the south Indian languages. She is a blogger as well.

**YouTube Channel:**

<https://www.youtube.com/c/DrLakshmiD/videos>

*H. Anjan Kumar*

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**Areas of expertise:** Educational research methodologies, IQAC, Curriculum Planning, Learning Assessment, improving learning using Cognitive Psychology-based Assessment, Accreditation (NBA/NAAC), expertise in interactive video material creation as well in video editing.

**Technical Domain:** Computer Science and Engineering - Data Structures, Theory of Computation, Compiler Design, Education Technologies, Data Analytics, Machine Learning, Internet of Things, Deep Learning, and Big Data Analytics.

I trust that you will find my profile synchronous with your requirements.

Thanking you,

Sincerely yours.



**Dr D. LAKSHMI**



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## TITLE: Multi Criteria Decision Making

Multi-criteria decision making (MCDM) also referred to as multiple criteria decision analysis (MCDA), is a research area that involves the analysis of various available choices in a situation or research area which spans daily life, social sciences, engineering, medicine, and many other areas. MCDM is one of the most popular decision-making tools utilized in various fields

MCDM analyses the criteria to determine whether each criterion is a favorable or unfavorable choice for a particular application. It also attempts to compare this criterion, based on the selected criteria, against every other available option in an attempt to assist the decision maker in selecting an option with the minimal compromise and maximum advantages. The criteria used in the analyses of these criteria can be either qualitative or quantitative criteria.

Division of MCDM can be made into two categories based on the method used to determine the weight of each alternative.

**1. Compensatory decision making:** Involves the evaluation of the criteria, of the criteria including the weak points and strong points of the criteria and allows the strong points of each criteria to compensate for the weak points, thereby putting all the criteria of the criteria into consideration. An example of a compensatory decision-making tool is the analytical hierarchy process (AHP)—a technique used mostly when the environment for the analysis is complex. It is used in the comparison of criteria that are difficult to quantify.

**2. Outranking decision making:** This method compares the criteria of the criteria in couples in order to determine which criteria ranks higher than the others based on the comparisons. A popular example of an outranking decision-making method is elimination and choice expressing reality (ELECTRE), a method that is used to choose, rank, and sort alternatives to solve a problem.

Application of multi-criteria decision-making (MCDM) theory is the use of computational methods that incorporate several criteria and order of preference in evaluating and selecting the best option among many alternatives based on the desired outcome. It is applied to different fields to obtain an optimum solution to a problem where there are many parameters to consider that cannot be decided by the users' experiences. The application gives a ranking result based on the selected criteria, their corresponding values, and assigned weights. The application of MCDM theory in biomedical engineering (MCDM) theory is the use of computational methods that incorporate several criteria and order of preference in evaluating and selecting the best option among many alternatives based on the desired outcome. It is applied to different fields to obtain an optimum solution to a problem where there are many parameters to consider that cannot be decided by the users' experiences. The application gives a ranking result based on the selected criteria, their corresponding values, and assigned weights. The application of MCDM theory in biomedical engineering and healthcare is a new approach that can be enormously helpful for patients, doctors, hospital managers, engineers, etc. Whether it is improving healthcare delivery or making a sound and safe decision for the benefit of the patient, healthcare

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professionals and other decision makers are always entangled with decision-making dilemmas. In real-life problems, there are many critical parameters (criteria) that can directly or indirectly affect the consequences of different decisions. Stakes are always high whenever human life is in danger, so it is always important to make the right decisions. When deciding whether to use a particular medication, treatment, or medical equipment, not only are the problems with multiple criteria very complex, but multiple parties are also deeply affected by the effects.

There are many methods available for solving MCDM problems. However, the MCDM methods discussed in this textbook are the Analytic Hierarchy Process (AHP), Technique for Order of Preference by Similarities to Ideal Solution (TOPSIS), Elimination Et Choix Traduisant la Réalité (ELECTRE), Preference Ranking Organization Method for Enrichment of Evaluations (PROMETHEE), ViseKriterijumska Optimizacija i Kaompromisno Resenje (VIKOR), and Data Envelopment Analysis (DEA). AHP is based on mathematics and psychology. Rather than recommending the best alternative, AHP encourages decision makers to find a solution that better suits their goal and perception of the problem. It offers a comprehensive and rationally oriented context in which the decision problem can be organized, quantified, and evaluated. TOPSIS is a very useful MCDM method. This is an alternative approach that measures weights for each parameter, normalizes scores for each criterion, and determines the numerical difference for each alternative and the optimal alternative, which is the best score for every criteria. ELECTRE is another popular MCDM method used to eliminate any unacceptable alternatives. PROMETHEE is suitable when groups of people are working on complex issues, particularly those with various parameters that require several views and viewpoints that have long-term consequences in their decisions. This provides unique advantages when it is difficult to quantify or compare important elements in the decision, or when cooperation between departments or team members is limited by their different requirements or expectations. Other multicriteria decision-making MCDM methods that will be discussed include VIKOR, fuzzy logic-based MCDM methods, and DEA.

There are many thousands, if not millions, of possible applications for Multi-Criteria Decision Analysis (MCDA), also known as Multiple Criteria Decision Making and Multi-Criteria Decision-Making (MCDM). Most decisions made by individuals and groups that involve ranking or choosing between alternatives (including people) are amenable to MCDA / MCDM.

Here are some mainstream examples of applications from the worlds of business, nonprofits, government, health, education and personal decision-making:

- Short-listing job applicants
- Selecting projects or investments for funding
- Picking microfinance or aid programs for support
- Prioritizing local or central government spending
- Prioritizing patients for access to health care (e.g. NZ health system success story)
- Ranking researchers or students for research grants or scholarships
- Choosing a new home, car or smartphone, etc

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Common to these examples and all MCDA applications in general is that they involve alternatives (including people) being ranked or chosen based on considering multiple criteria together. Some applications also include the allocation of budgets or other scarce resources across alternatives, with the objective of maximizing 'value for money'.

### **Traditional intuitive decision-making compared to MCDA**

Of course, considering multiple criteria when ranking or choosing between alternatives is a natural approach for making decisions that is as old and fundamental as human history (see famous quotes). However, 'traditional' intuitive decision-making – how most people make their everyday decisions – typically involves evaluating the criteria and the trade-offs between them in an intuitive or holistic fashion.

In contrast, MCDA / MCDM, a sub-discipline of operations research with foundations in economics, psychology and mathematics, is concerned with formally structuring and solving decision problems. Most MCDA methods, which are increasingly supported by specialized software (e.g. 1000minds), involve the explicit weighting of criteria and the trade-offs between them.

Overall, MCDA is intended to reduce biases from decision-makers relying on their 'gut feeling', and also group decision-making failures (e.g. 'groupthink'), that almost inevitably afflict intuitive approaches. By making the weights and associated trade-offs between the criteria explicit in a structured way, MCDA results in better decision-making.

### **How does Multi-Criteria Decision Analysis work?**

MCDA / MCDM, in essence, involves these four key components:

- **Alternatives** (or individuals) to be ranked or chosen from

Any number of alternatives may be included in the MCDM – depending on the application, ranging from a minimum of two (otherwise there wouldn't be a choice to make) up to 10s, 100s, 1000s or even millions of alternatives.

- **Criteria** by which the alternatives are evaluated and compared

For most applications, fewer than a dozen criteria is usually sufficient, with 5-8 fairly typical, which may be quantitative or qualitative in nature.

- **Weights** representing the relative importance of the criteria

As explained later in the article, there is a variety of methods available for determining the weights on the criteria, representing their relative importance.

- **Decision-makers** and potentially other stakeholders, whose preferences are to be represented

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Again, depending on the application, any number of decision-makers and potentially other stakeholders may be involved, ranging from just one (e.g. you!) up to many 1000s of people.

MCDA is about getting these four things right! Do so and you'll be more likely to make the 'right' decision (though, of course, there are no guarantees, as things can change or the unexpected happen).

### **One-off versus repeated applications**

MCDA / MCDM tools can be used for one-off (e.g. ranking applicants applying for a job or prioritizing new business projects) or repeated applications (e.g. prioritizing patients as they present for treatment).

One-off applications involve ranking particular alternatives (or individuals) that are already known to, or under consideration by, the decision-maker. In these applications, the number of alternatives is usually in at most the 10s or 100s – e.g. 250 people applying for a job, or 80 business projects to be prioritized.

In contrast, repeated applications involve ranking alternatives in a pool that is continually changing over time, involving potentially many 1000s of alternatives. For example, in health and education applications, new patients or students ('alternatives') may need to be prioritized – e.g. for treatment or scholarships – on an ongoing basis (e.g. hourly or daily), including potentially in 'real time'.

The dynamism of repeated applications means that the MCDA process needs to be capable of including potentially all hypothetically possible alternatives (including people, e.g. patients or students) that might ever occur. Accordingly, MCDA outputs are increasingly incorporated into information systems (e.g. as used by New Zealand's Ministry of Health).

### **Overview of the MCDA / MCDM process**

Most MCDA applications are based, at least implicitly, on the process represented in Figure 1 below reproduced from Belton & Stewart (2002). The "Model building" and "Challenging thinking" stages in particular are often supported by specialized MCDA software, as discussed later below.

As represented in the diagram, the iterative nature of the process, with multiple possible feedbacks and cycles, serves to emphasize that MCDA is intended to function as a *tool to help people*, individually or in groups, to reach a decision – i.e. their decision (made by humans), not the tool's decision.

As well as more transparent and consistent decision-making, MCDA can also be used to facilitate the participation of a wide range of stakeholders, systematically taking their preferences into account. MCDA results can also be used to communicate and justify the final decision to stakeholders.

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**Dr. U.RANGA RAJU,**  
M.E., Ph.D., MIGS, MIE, MISTE, MIRC.  
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
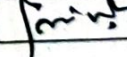

## CIRCULAR

All the faculty members are hereby informed that Dr. R. Rajeswarrao will be giving presentation for one day workshop on "Thesis Writing and Plagiarism Verification" organizing by Department of Basic Sciences & Humanities at DNR CET Seminar Hall dated on 4<sup>th</sup> March 2020. All are requested to attend the same.

  
**PRINCIPAL**

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Copy to: Secretary & Correspondent

BRANCH	CIVIL	EEE	MECH	ECE	CSE	BS&H
HOD's Signature						

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## REPORT ABOUT THE PROGRAMME

Dt: 05-03-2020

**Title Of The Programme:** A One Day Workshop on Thesis Writing and Plagiarism Verification

**Inauguration Date & Venue:** 4<sup>th</sup> Mar 2020 & DNR CET Seminar Hall

**Organized By:** Department of Basic Sciences & Humanities, DNR CET

**Resource Person:** Dr. R. Rajeswararao, Professor & Vice Principal, UCE- Vijayanagaram.

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)

Secretary & Correspondent, DNR College Association

**Inauguration:** Dr. U. Ranga Raju

Prinicipal, D.N.R College of Engineering & Technology

**Number of Faculty Attended:** 24

### **Concept:**

Plagiarism is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition. Plagiarism constitutes a breach of academic integrity and represents substandard scholarship. Plagiarism can have lasting impact on the future career, regardless of whether it was intentional or not. The responsibility to avoid plagiarism belongs with the student or researcher. The main purpose of plagiarism

- 1) To steal and pass off (the ideas or words of another) as one's own
- 2) To use (another's production) without crediting the source
- 3) To commit literary theft
- 4) To present as new and original an idea or product derived from an existing source. In other words, plagiarism is an act of fraud.

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**Photos:**



A One Day Work Shop on "Thesis Writing and Plagiarism"

*H. Arunkumar*

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# D.N.R.COLLEGE OF ENGINEERING & TECHNOLOGY

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(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)

(Accredited with B<sup>++</sup> Grade by NAAC)

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## A One day work shop on "THESIS WRITING AND PLAGIARISM" <sup>March</sup> ~~April~~ Apr 2020

Sl. NO	NAME OF THE FACULTY	DEPARTMENT	Date	
			FN	AN
1	Dr. A.P. Lakshmi	ECE	AM	AM
2	L. Sujji Babu	BSB	B	B
3	V. Bhavani Durga	ECB	VBD	VBD
4	Dr. H. HARESH	ME	H	H
5	B. Sreedevi	ECB	BS	BS
6	S. Chandu prasad	ME	SCP	SCP
7	K. Raja Rajeswar	CSE	K	K
8	N.S.V. Sowjanya	ECB	N	N
9	G. Rama Lakshmi	CSE	G	G
10	M.A. Anurag Kumar	BSH	M	M
11	G. Koteshwara Rao	ECE	G	G
12	K. Lakshmi	EEE	K	K
13	Dr. G.G. Reddanna	SEH	G	G
14	Susmitha. U	CSE	S	S
15	M. Soumya	EEE	M	M
16	KS Satish Kumar	ECB	K	K
17	K.S.H.P. Kumar	CSE	K	K
18	Dr. Md. Anwar	ME	A	A
19	V. Praveen	SEH	V	V
20	G. Vanisi Krishna	ME	G	G
21	G. Madhu	SEH	G	G
22	D.Y. Manoj	ME	D	D
23	Y. Sujilax	ECB	Y	Y
24	D. Mahesh Rao	SEH	D	D

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## PROFILE

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### Personal Information

Father Name : Sri. R. Subba Rao  
Date of Birth : November 13, 1976  
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State level committee member for Curriculum Development for the state of Andhra Pradesh appointed by AP-State Council for Higher Education ( APSCHE) for Computer Science & Engineering

Confidential Team Member EAMCET-2014, EAMCET-2017

Confidential Team Member AP-POLICE RECRUITMENT BOARD 2016, 2017

Academic advisor to National Cyber Safety and Security Standards (NCSSS),Newdelhi

Expert Visit Committee ( EVC ) Member -AICTE

Resource Person on Out Come Based Education ( OBE)

Resource Person on-IOT Security & Frame Work organized by Collectorate of Vizianagaram.

Resource Person on- Emerging Fiber Net organized by Collectorate of Vizianagaram.

Resource Person to UGC-Academic Staff College, JNTU-Hyderabad.

APJ Abdul Kalam award for teaching excellence ,2019, Marina Labs,Chennai.

Best Researcher Award from JNUK, Kakinada on 28<sup>th</sup> December , 2018.

Received VIDYA RATAN award from T.E.H.E.G, New Delhi, for the year 2011.

Achieved 2nd rank in non-gate examination conducted by JNTU Hyderabad for M.Tech

Admissions

Appointed as a JNTUK-UCEV Nodal Officer for Human Capital Management (HCM) from 24.08.2020 to till

date.

Post Doc. University of Missouri-Columbia (May2019 to August 2019)

  
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Ph.D. Oct, 2010, Department of Computer Science & Engineering,  
JNTUH, Hyderabad, Andhra Pradesh, India.

Advisor: Prof. V. Kamaskhi Prasad

**Area of Study: Speech Processing**

M.Tech., Computer Science & Engineering, 2003.

JNT University, Hyderabad, Andhra Pradesh, India.

Division: Distinction (79%)

B.Tech., Computer Science & Engineering, 1999.

Acharaya Nagarjuna University (Siddhartha Engineering College, Vijayawada), Andhra Pradesh,  
India.

Division: Distinction (71%)

EAMCET :1284 State Rank in 1995.

INTERMEDIATE: K S R & M Arts & Science College, Nellore (Dt) with 86.6% in 1994.

S.S.C: Govt. Junior College, Sullurupeta, Nellore (Dt) with 75% in 1992.

**Experiace**

19+ Years of teaching experience.

12 + Years of Research Experience.

Presently Supervising Four Students at JNTU-Hyderabad and JNUK-Kakinada

Acted as examiner for setting question papers of B.Tech , M.Tech and Ph. D.

Officer In-Charge of Hostel, from June, 2013 to Jan, 2017

Head of the Department, 18<sup>th</sup> Jan 2016 to 16<sup>th</sup> Dec 2018

IQAC Coordinator from, 14th March 2019 to 17th Jan 2020

NBA Coordinator from, 7th March 2019 to till date.

**Reseach Area Interested**

Speech Processing

Pattern Recognition

Artificial Intelligence

Cloud Computing

Books Edited

**Professional Body Membership**

Member-IEEE, MCSI

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Member, Editorial Board of International Journal of Soft Computing and Engineering (IJSCE).

Member, Editorial Board of Seventh Sense Research Group

Member, Board of Studies-JNTUK University College of Engineering, Vizianagaram

Member, Faculty Selections for Private Colleges, JNTUK, Kakinada

### **Publications**

2020:

Rajeswara Rao, et.al Using Expert based Preference Elicitation for Collaborative Filtering Recommender Systems, International Journal of Control and Automation, Vol. 13, No. 2, (2020), pp. 592 – 598, ISSN: 2005-4297, <http://sersec.org/journals/index.php/IJCA/article/view/11201> Scopus Indexed.

Rajeswara Rao, et.al Efficient Mechanism for Optimizing Execution Speed of RSA-AES in the Cloud using Whale Optimization Algorithm, International Journal of Advanced Science and Technology, Vol. 29, No. 7, (2020), pp. 2263-2274, ISSN:2005-4238, <http://sersec.org/journals/index.php/IJAST/article/view/17964> Scopus Indexed.

Rajeswara Rao et.al A Framework for Multi-Objective and Comprehensive Analysis of Web User Behavioural Patterns International Journal of Advanced Science and Technology (IJAST), Vol. 29, No. 3, (2020), pp. 1003-1015, ISSN: 2207-6360 <http://sersec.org/journals/index.php/IJAST/article/view/4180> Scopus Indexed.

Rajeswara Rao et.al An Integrated Frame work for SLA-Aware Multi Objective Task Scheduling in Cloud Computing 2020

Rajeswara Rao et.al Brain Image Classification Using Dual-Tree M-Band Wavelet Transform and Naïve Bayes Classifier. In: Solanki V., Hoang M., Lu Z., Pattnaik P. (eds) Intelligent Computing in Engineering, Advances in Intelligent Systems and Computing, vol 1125. Springer, Singapore, ISBN 978-981-15-2780-7, [https://doi.org/10.1007/978-981-15-2780-7\\_69](https://doi.org/10.1007/978-981-15-2780-7_69), Springer

Rajeswara Rao et.al Brain Image Classification Using Dual Tree M-Band Wavelet Transform and Naive Bayes Classifier. Advances in Intelligent Systems and Computing, 3rd & 4th April 2019 pp.635-642, ISBN 978-981-15-2780-7, DOI: 10.1007/978-981-15-2780-7\_69, Springer 2019:

Rajeswara Rao, R , Ashlin Deepa, R.N. A novel Nearest Interest Point classifier for offline Tamil Handwritten character recognition, Pattern Analysis and Applications, Springer

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(2019). <https://doi.org/10.1007/s10044-018-00776-x>.

Rajeswara Rao , J. Naga Padmaja, ,Telugu Based Emotion Recognition System using Hybrid Features, International Journal of Computer Applications, (IJCA)0975 – 8887, Volume 182 – No. 37, January 2019 .

Radha Krishna, R. Rajeswara Rao, Robust Spectral Features for Emotion Recognition using GMM and SVM with PCA, free Scopus Indexed Journal, Journal of Recent Technology and Engineering, IJRTE, 2019

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## INTRODUCTION

Thesis is a kind of obligatory academic writing for the students in higher education level. In most universities in Indonesia, the students from undergraduates, masters, and doctorates, have a requirement to conduct a research and report it in a form of thesis or dissertation. Surely, that assignment must be completed properly, considering that the critical issue in academic writing is the originality and honesty.

Academic dishonesty became a great concern in education, particularly in the higher level. Sadly, cheating and plagiarism are still committed by many scholars. For that matter, the scholars have taken many efforts to reduce plagiarism in their community. Nonetheless, Dahl (2007) claimed that the effort would be challenging since there is an ambiguity in defining the clear concept of plagiarism. Supporting the statement, Razera (2011) explained that the concept of plagiarism might be straightforward in theory, but it will be harder to be determined practically.

Furthermore, some students still have lack of understanding about the boundaries in plagiarism, in terms of the limit of direct quotation allowed in their papers (Goddard & Rudzki, 2005). Therefore, there must be a common understanding among the academics including the students about the definition or plagiarism in their paper writing. Goddard & Rudzki (2005) believed that having prior knowledge of the sources used by the students was the initial way the lecturer did in detecting plagiarism.

These days, the internet provides countless sources the students can take. They can easily just copy and paste the texts or images from the internet with or without making citations. Regarding to the issue, the essential way to avoid plagiarism is by using proper citations and paraphrasing or quotations. In using the idea of other's work, it should be well paraphrased and included a citation of the author's name and the year. The materials taken from other sources are initially to support the writer's idea. Minor role of the writer's idea in a paper even contain well-paraphrased sources and proper citation may still be considered as plagiarism (Turnitin, 2012).

Conversely, a common way to prevent plagiarism in this digital era is by implementing plagiarism detection software. *Turnitin*, as one of many online services in detecting similarity index of students' writing, is very helpful for the tutors/lecturers in spotting suspected plagiarism in the students' paper and using the result to keep them revise their writings (Dahl, 2007). Parkhurst & Moore (2006) noted that *Turnitin* is very reliable in detecting similarity since its algorithm can find matching text even if some words or phrases in the text have been replaced. Many studies proved that the access to such websites is effective in reducing plagiarism among students (e.g. Baker, Thornton, & Adams, 2008; Batane, 2010; Sutherland-Smith & Carr, 2005).

The software analysed and then highlighted the sentences, which were found as similar to the other publications – in their huge database. By using the software, the students can directly

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notice the bad paraphrased sentence or paragraph, the highlighted ones, and then they may re-paraphrase them appropriately.

In general, many studies concluded that the students have a good perception about plagiarism-prevention software (e.g. Ali, 2013; Dahl, 2007; Davis, 2007; Graham-Matheson & Starr, 2013). Thus, it can be assumed that reducing plagiarism will depend on the use of such software. On their study, Graham-Matheson & Starr (2013) and Dahl (2007) concluded that the students seem tend to support the implementation of *Turnitin*. Moreover, some studies pointed out that the software is effective in detecting and reducing plagiarism practices among the students (e.g. Ali, 2013; Biggam & McCann, 2010; Kiriakidis, 2012). Nevertheless, Davis (2007) had a doubt that the students, who used the software without intention to learn, will likely commit a 'well-organised plagiarism' since the website only display the similarity index of the text.

Davis (2007) recommended that in order to get a valuable learning opportunities, the scholars should use the software to submit the draft of their papers before assessment. Furthermore, to avoid the students misinterpreting of the originality reports from the website, the supervisor should assist them through the process. On the other hand, the students must understand clearly the concept of plagiarism.

Nonetheless, plagiarism is a complex problem that requires many kinds of efforts to reduce it. The implementation of *Turnitin* is simply a tool to educate the importance of originality and novelty in writing to the students (Sutherland-Smith & Carr, 2005). For that reason, the decision to determine whether a paper contains plagiarism will depend on the tutors/lecturers.

The implementation of plagiarism prevention software will be a challenge to all of the students to prove the originality of their theses and dissertations. On the other hand, this will also be a chance for the students to improve the quality of their academic writings. Therefore, related to those issues, this paper elaborates the advantages of plagiarism prevention software and the students' attitudes towards the use of such software in checking their theses.

## METHODS

The participants in this study were the students of Master's Degree in English Language Education. In selecting the participants, the researcher employed purposive sampling technique. Seven students, who already completed writing their theses and were in the final stage of their study, were selected for interview.

The researcher applied in-depth interview to gain the information on the advantages and the students' attitudes towards plagiarism prevention software in checking their theses writing. The data of the interview was examined and reduced into specific information needed from the interview transcripts. Afterwards, the researcher displayed the data and provided description and analysis related to the purpose of this study.

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## FINDINGS AND DISCUSSION

### The Advantages of Plagiarism Prevention Software

This part elaborates the advantages that the students got from plagiarism prevention software. The students believed that there were several advantages of the implementation of the software, such as:

1. Encouraging the students to be more aware of learning the skills of quoting other people's ideas, paraphrasing sentences, and citing the source properly;
2. Encouraging the students to improve the quality of their academic writings; and
3. Encouraging the students to be more creative and confident in formulating their own ideas, rather than 'stealing' other people's ideas

The following excerpt was taken from the interview of the students' statements about the advantages.

#### *Excerpt 1. Advantages of plagiarism prevention software*

"Firstly, from the perspective of introduction and development of science and technology, it was quite well-intentioned. Secondly, for the students themselves, when their theses had been submitted and detected the similarity, they would learn on what steps they should do about it." – (S01)

"...by the national level, it would contribute to our country in terms of our scientific abilities and our writings, because the writings were originally generated from our own ideas. Secondly, we could certainly promote our campus, as the use of the software would decrease the similarity (of our writings) compared to the others, there would be many journals published by our campus. The third, it would be a challenge for me myself in order to make my writings better and meet the international standard. It would be a pride to be able to create original writings." – (S02)

"...to prevent from committing plagiarism. This would reduce the number of plagiarism made by the students, not because of awareness, but because of fear. Besides, it would improve our creativities to be not only rely on other people's works, but also the students' original ideas." – (S04)

"Surely, it would decrease and preventing plagiarism. For me, it would help me keeping the quality and originality of my thesis." – (S05)

"It was useful because it made me more aware of the importance of knowing the source and citing the quotations in writing. Plagiarism detector would indirectly demand us to read, to dig (information), to formulate (ideas), and how to process the information, how to formulate our ideas, how to develop ideas in order not to commit plagiarism. So, the advantage would lead us to develop writing skill, to be a learning material, and to raise awareness (of plagiarism free)." – (S06)

"The true benefit of this software is helping us as a writer to be more careful in producing our work by quoting and using other people's ideas or arguments. In the past, we might just quote (people's ideas) and considered that it was our own ideas. This software will detect such actions. By the concern of being detected, we would be aware to learn that we must be honest in telling things in our writing." – (S07)

The students agreed that the use of plagiarism prevention software would benefit them in terms of their writing skill. Specifically, the software would help the students to learn about how to prevent and avoid plagiarism. Moreover, it would help them to be more creative and be aware of the importance of developing original writings.

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Another important issue that should be considered is the benefit of plagiarism prevention software in order to keep the academic integrity or ethics among the students. The students' responses on that issue are displayed in the following excerpt taken from the interview.

*Excerpt 2. Plagiarism prevention software in raising the academic integrity*

"Personally, Turnitin was one of many things that raise my awareness to not plagiarise other people's writings. Actually, I had such awareness before, but I did not know that we have to paraphrase (the words) in order to be not similar. Generally, Turnitin should have an impact to the academic awareness of the students. It might not be significant, but it should have (impact)." – (S02)

"Without the standard or regulation of using the software, such awareness had actually existed in every student who is writing their theses. I mean, the students should feel guilty when they use other people's idea without citing the author. Some students felt indifferent and some others felt guilty. Those who felt guilty should have the intention to admit that they actually did (plagiarism). Those who felt indifferent might only be degree-oriented. The use of such software should affect the students negatively; they should be worry of being accused for stealing." – (S03)

"Yes, I am sure. In the beginning, the students would be introduced to the software and then they would reach the stage of asking how to avoid plagiarism. I am sure that they would know the importance of citing properly, as the ideas belong to other people. An idea is the attribute of professionalism; therefore, we should not take it directly (without giving credit)." – (S06)

"As they learned that the software exists, even though not implemented entirely, it would have impacts. Inevitably, the students will be afraid, worried, and careful in writing or in quoting other people's statements." – (S07)

Some students were optimist that the implementation of plagiarism prevention software could help in keeping the academic integrity or ethics among the students. However, some others showed a different perspective. They doubt that the implementation of the software would only make the students to be trickier in avoiding the high similarity report of the software. The following are the excerpts of those students' statements.

"I think it would be difficult for the students to raise awareness themselves. Self-awareness is very difficult because it might be a tradition for the students. (The implantation of such software) could only make them to be more creative, trickier, on cheating and plagiarising. It could make them to be trickier even more, not making new things, but being shiftier, trickier." – (S04)

"The main purpose of plagiarism checking would definitely be keeping ethics in writing, to keep the quality and ethics in academic writing. I am not sure about that because there would always be students who cheat. Sometimes there would always be deviations, but it should definitely be prevented as much as possible. It always depends on the individual." – (S05)

Although some students doubt on the role of plagiarism prevention software in raising the academic integrity among the students, most of the students generally agreed that the integrity or ethics would always depend on the students themselves. The implementation of plagiarism prevention software might help the students in building or keeping their integrity. Nevertheless, the action of either ignoring or embracing it would always depend on each student's personality.

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### Utilizing the Software's Advantages

The implementation of plagiarism prevention software should have advantages into two terms: developing the students' individual skills and maintaining the integrity or ethics in academic environment. Based on the findings of this study, the students agreed that the software should benefit them in several things. Firstly, the software could encourage the students to be more aware of learning the skills of quoting other people's ideas, paraphrasing sentences, and citing or crediting the source properly. Secondly, the software could encourage the students to improve the quality of their academic writings. Thirdly, the software could encourage the students to be more creative and confident in formulating their own ideas, rather than stealing other people's ideas (see Excerpt 1: S01, S02, S04, S05, S06, S07). Furthermore, the academic integrity or ethics among the students should be maintained when the students become aware and skilful enough to avoid plagiarism (see Excerpt 2: S02, S03, S06, S07).

Nevertheless, there is also a hesitation of the possibility for some students to be trickier in committing intentional plagiarism (see Excerpt 2: S04, S05). That issue was also raised in previous study (Davis, 2007). The students who would like to do such thing must be those who have no intention to learn and develop themselves. By this fact, it surely would be better if the students develop their skills in writing and improve the quality of their writings rather than attempt to manipulate the software's detection.

Therefore, there will be two stages regarding the benefit of plagiarism prevention software in building up the academic integrity. The first will be the stage of plagiarism reduction. As it was explained previously, the first time checking will display the current quality of the students' theses, in terms of similarity. After the theses was properly revised and then rechecked through the software, the similarity should be decreased. Many studies proved that the use of plagiarism prevention software effectively reduced plagiarism among the students (e.g. Ali, 2013; Baker, Thornton, & Adams, 2008; Batane, 2010; Biggam & McCann, 2010; Kiriakidis, 2012; Sutherland-Smith & Carr, 2005).

The second will be the stage of prevention. As the students get used to the software, they will be aware of properly paraphrasing other people's sentences, and making proper quotations and citations in every time they write. As a result, the students will always try to avoid plagiarism in their academic writings. Likewise, if the university issue a regulation to require all students to check their theses through plagiarism prevention software, it would build the atmosphere of preparedness and awareness among the students to try their best in order to avoid plagiarism.

These findings are quite related to Twomey's (2009) study that there should be two highly beneficial purposes of plagiarism detection software. In the short term, it can enable the lecturers to check out every concern, to distinguish accurately between students who have done the work

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correctly and those who have not. In the long term, the lecturers will be easier to assign and grade pedagogically valuable research papers and other written work.

### **The Students' Attitudes towards Plagiarism Prevention Software**

Regarding the regulation of implementing plagiarism prevention software, generally, there were two kinds of attitudes raised by the students:

1. Those who agreed and fully supported the implementation of plagiarism prevention software; and
2. Those who doubted and raised some concerns on the implementation of plagiarism prevention software.

The following excerpt displays the students' attitude toward the policy of implementing plagiarism prevention software.

#### *Excerpt 3. Attitudes toward the implementation of plagiarism prevention software*

"I certainly support this, in order to improve the quality of the alumni of this graduate program. If the (students') writings are good, they will be qualified to be published either nationally or internationally. Therefore, the grade of this campus will increase, although it will still be difficult. It might be difficult for the students as well. However, if they are willing to develop, I think they will be pleased to accept this. We should always pass the difficult things before something good come to happen." – (S02)

"If this is become a regulation in this institution, it will be great. It would teach the students not to steal. I mean, there are so many books in this world. You do not have to copy and paste. I think it is good. It would be even better in order to create creative people. Because, you can be creative without copy and paste other statements." – (S03)

Some students supported the idea of implementing plagiarism prevention software in checking the students' theses. Mostly they argued that such regulation could help the students develop their ability and skill in academic writing. In addition, they also believed that the use of the software could help the students to be more creative and honest. However, some students doubted the implementation of the software. They did not fully support the idea of such regulation.

The following are the excerpt of those students' opinions.

"...ideally, the authorities of the graduate program should not change their system, but review their purpose of using that software. Because, I think it is clear that the software is not for detecting plagiarism, but similarity. That (matter) must be understood firstly. Therefore, they would not directly issue their judgments." – (S01)

"I am sure that the students will certainly be shocked, because unconsciously plagiarism has become a tradition. I guess that is very common. When they are introduced with plagiarism detector and they are introduced with the concept of plagiarism, they would firstly be shocked. The same thing happened to me. Their first question would be: Why should be like that? However, as the drafting progress, I am sure that they would reach the next stage by asking, how to avoid plagiarism." – (S06)

"I agree if the regulation intended to prevent plagiarism in scientific writing. However, in my opinion, the regulation was not implemented maximally. I mean, it was only said that there is a tool for detecting plagiarism and such, but in reality, it was not entirely applied. I think it would be ineffective if the regulation is not followed up by the authorities of this campus." – (S07)

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The students who doubted the policy of implementing the software argued that the authorities should reconsider their purpose of the policy. They mostly worried of being accused of plagiarism when the judgement made solely based on the report of the plagiarism prevention software. Moreover, as S06 stated, the students would likely be shocked if the use of such software directly implemented before they are ready and aware of the concept of plagiarism. On the other hand, S07 argued that the regulation of using plagiarism prevention software would be ineffective if it is not implemented entirely for all students.

### **The Students' Reactions towards the Software's Similarity Reports**

Different attitudes showed by the students towards the idea of the regulation. On the other hand, it would be interesting to find out how the students would react after their theses had been checked through the software. The researcher then interviewed the students about their reactions. Generally, they were willing to change the detected similar words in their theses. The following are the excerpt of the students' reactions.

#### *Excerpt 4. Reaction towards the similarity report*

"...reconstruct (the sentence), change the words, paraphrase, but remain putting the name of the author. That would reduce the percentage of similarity. So, that is what I would do, paraphrasing." – (S02)

"I will change it automatically to be more valid and original of my writing." – (S03)

"I will change it. I will replace (the words) immediately." – (S05)


"I will take the print out, and then look on which parts are detected as similar. The first step I would do is to find out if the script had existed or had been written before, and where is the source. The software would have provide the source of each similarity. Then, I would see the structure of the sentence. Is the context of that sentence similar with the context I intent? If I could not get that, I would not change it. On the contrary, if I could get that, and it is truly similar or had been written before, then I would take the second step. I would paraphrase that." – (S01)

"The first thing to do is introspection, making improvements. What else to do (?). It would be very high indeed in chapter two, because we quote words there. We could not paraphrase everything. Those contain sets of information that is related to our concentration. Therefore, the parts that would not be detected are our arguments in responding those ideas." – (S06)

The students seemed to show positive attitudes towards the report. Mostly they were willing to change or replace the similar words, which are displayed in the reports. They tend to criticise the reports by assessing the context meant by the source text compared to their own writings. Overall, they were all agreed to review the report of the software before making any changes of which sentences should and should not be replaced.

### **The Students' Attitudes: Trusts vs. Doubts**

The implementation of plagiarism prevention software in academic institutions aimed to control the quality and the originality of the students' academic writings. As the software exists, the students were encouraged to be more careful in quoting other people's sentences. Surely, each student would have particular attitude toward the university's regulation in implementing

  
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plagiarism prevention software. Previous studies indicated that the students tend to support the implementation of plagiarism prevention software (Dahl, 2007; Graham-Matheson & Starr, 2013). Similar to that, this study found that some students agreed and supported if such regulation remains implemented in this university (see Excerpt 3: S02, S03). Those students argued that with the implementation of plagiarism prevention software, it could improve the quality of the students' writings to be more qualified to be published in the reliable academic journals. Moreover, they also assumed that the regulation might encourage the students to be more creative in writing.

On the other hand, some other students still doubted the regulation (see Excerpt 3: S01, S06, S07). In general, they tend to support the regulation, but still concerning on some issues. They mostly doubted if the university only consider the result of similarity detection in issuing the judgment on plagiarism in students' theses. For this argument, the researcher assumed that it might be an unnecessary, but reasonable worry, since the university should have not implement such plagiarism prevention software without knowing the whole concepts of the software. Another argument, it seems that the university did not implement plagiarism prevention software for the entire study programs. Therefore, some students doubted the effectiveness of the software to this university.

Since the use of plagiarism prevention software considered as new things for most universities, there will be some concerns that the regulation of implementing such software will likely surprise most students. All these past years of ignoring the importance of proper paraphrasing, quoting, and citing sources will be drawn to an end. Subsequently, the new era of maintaining the academic integrity will arrive. Therefore, the students who are unprepared and unwilling to change will likely be shocked. However, it is only a matter of time until the students will get used to the regulation. Undeniably, changing a habit is not an easy thing to do. Therefore, it is crucial not to put an early judgement to the students' theses along with the initial implementation of the software.

The findings of this study supported that argument. This study found out that the students would likely display positive reactions if their theses detected by plagiarism prevention software (see Excerpt 4: S01, S02, S03, S05, S06). Those students were willing to improve their theses by replacing the detected similar words necessarily. They were all agreed to review the detected similar words before constructing newly well-paraphrased sentences. It might be many additional works left to do, but it is noteworthy if the students are willing to develop their skills in writing and correct their mistakes.

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### **The Act of Prevention**

Many studies refer the service of *Turnitin* and other similar services as 'plagiarism detection software.' However, the researcher does not totally approve such term. There are some reasons to be considered:

1. The software did not actually detect plagiarism on the checked texts. Instead, it would only detect word-by-word similarity patterns of the submitted texts with the previously published texts;
2. The similarity of the detected texts is not always mean plagiarism. It might be caused of poor paraphrasing skill or unintentionally suspected plagiarism. Referring to Introna & Hayes' (2008) term, 'to copy is not always to plagiarise' and 'to plagiarise is not always to copy.' Besides, the software could not detect well paraphrased ideas or translated ideas which failed to put credits to the original sources; and
3. The software should be used as a learning tool in developing writing skill, not only used as a detector that judge the students' papers.

The term 'plagiarism detection software' is not entirely unacceptable. Nonetheless, the use of the word 'detection' indicated that the main purpose of the software is to identify plagiarism made by the students in their theses. In this case, it sounds like the software would put judgement on whether the students committed plagiarism or not. In fact, the authorities or the students' research supervisors should make such decision. The report of software's detection should only become a consideration for the judgement.

Therefore, the researcher proposed the term 'plagiarism prevention software.' The word 'prevention' is used to describe the decent purpose of the software to help the students improving their writing skills. The software's similarity detection on the students' theses should not become the primary objective. Instead, the most important things are how to interpret the detection reports and how to react to the detections. In this case, the students should examine the software's detection reports, and then revise the detected similar words in their theses. This way, the students will learn and improve their academic writing skills, in terms of proper quoting, paraphrasing, and citing the reference in their theses. Zimitat (2008) argued that academic writing is a developmental skill, which needs more practices to be mastered. Unintentional 'suspected plagiarism' or patchwork writing might be a part of learning process. As those steps of learning, including the implementation of plagiarism prevention software, were conducted before the theses is submitted to the university or published, that way the software already played an important role in preventing the students from committing plagiarism.

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## CONCLUSIONS AND SUGGESTIONS

Plagiarism prevention software could benefit the students in encouraging them to be more aware of academic integrity and to develop their own skills in academic writing. Therefore, it would be unwise if the result of software's detection on the students' theses directly used in making judgement of plagiarism to the students. As a learning tool, the software should be used to prevent plagiarism by using it to make sure that the students' theses will be free of poorly paraphrased sentences. In other words, the students need to check their theses through the software, and then revise the detected similar words appropriately. The steps might be repeated until the similarity rates reach 20% or lower.

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Date: 11-04-2020


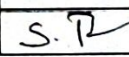

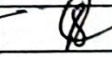

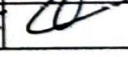
## CIRCULAR

All the faculty members are hereby informed that Dr. S. Suresh Kumar will be giving presentation for one day workshop on "Intellectual Property Right" organizing by Mechanical Engineering department at DNR CET Seminar Hall dated on 14<sup>th</sup> April 2020. All are requested to attend the same.


  
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Balusumudi, Bhimavaram – 2

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Ph: 08816-221238 Email: [dncet@gmail.com](mailto:dncet@gmail.com) website: <https://dncet.org>

## REPORT ABOUT THE PROGRAMME

Dt: 15-04-2020

**Title of the Programme:** One day Workshop on Intellectual Property Right

**Inauguration Date & Venue:** 14<sup>th</sup> Apr 2020 & DNBCET Seminar Hall

**Organized By:** Department of Mechanical Engineering, DNBCET

**Resource Person:** Dr. S. Suresh Kumar, Asst. Prof & Head ISTE, ACM Information Technology.

**Chief Guest:** Sri G. Satyanarayana Raju (Babu)

Secretary & Correspondent, DNR College Association


**Inauguration:** Dr. Ranga Raju


Prinicipal, D.N.R College of Engineering & Technology

**Number of Faculty Attended:** 29

### **Concept:**

Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. Intellectual property rights are legal rights that provide creators protection for original works, inventions, or the appearance of products, artistic works, scientific developments, and so on. Basically speaking, intellectual property rights are a common type of legal IP protection for those who invent. In India, there are 7 types of intellectual property rights, namely – copyright, trademarks, patents, geographical indications, plant varieties, industrial designs and semiconductor integrated circuit layout designs.

  
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Photos:



One Day Workshop on Intellectual Property Right

*M. Arunkumar*

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## One day Workshop on Intellectual Property Right 14<sup>th</sup> Apr 2020

Sl. NO	NAME OF THE FACULTY	DEPARTMENT	Date 14-04-2020	
			FN	AN
1	KUS SIRISHA	BSH		
2	MRS. U. Sushmitha	CSE		
3	DR. G. V RAJU	MECH		
4	D. Praveen	CSE		
5	DR. K. Rajesh	MECH		
6	MOSHE GEDELA	BSH		
7	N.K.V.S. Shirisha	BSH		
8	T.S. Chakravarthi	BSH		
9	DR. M. Vasantha	BSH		
10	DR. A. Ranganathan	CE		
11	S. Rajesh	EEE		
12	DR. N. Venkat Rao	ECE		
13	CH. Renuka devi	BSH		
14	E. Rama Lakshmi	CSE		
15	B. Nandan Kumar	CSE		
16	DR. A. Padmabham	BSH		
17	V. Sridevi	ECE		
18	K.V. Chandran	CSE		



19	M. Nagarajaxmi	CSE	<del>Nagaraj</del>	<del>Naga</del>
20	DDP VARMA	BSH	Varma	Varma
21	K. Rajarajeswari	CSE	<del>Raja</del>	<del>Raja</del>
22	CV Satyasairam	CSE	<del>Satya</del>	<del>Satya</del>
23	<del>B. V.</del> v. Bhavani durga	ECE	Bhavani	Bhavani
24	K.V.S. Satyanarayana	BSH	Satya	Satya
25	M. Venkata Krishna	CE	<del>Venka</del>	<del>Venka</del>
26	S. Swathi	ECE	Swa	Swa
27	M. Srinu	EEE	Srinu	Srinu
28	J. Keerthana.	CE	<del>Keerth</del>	<del>Keerth</del>
29	A. Vamsi Krishna	BSH	Vamsi	Vamsi

  
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## PROFILE

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Information Technology

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Natural Language processing  
Machine Learning  
Deep Learning  
Information Extraction  
Data Analytics

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2. M.Tech in Computer Science Engineering, SASTRA University with First Class With Distinction (2003-2005)
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2. HOD , JNTUH College o Engineering Jagtial, 2016 - Present
3. Computer maintenance Officer , J.N.T.U.H.C.E.J, 2015 - 2017

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## INTRODUCTION TO INTELLECTUAL PROPERTY RIGHTS

**Introduction to Intellectual Property Rights, types of intellectual property, Importance of intellectual property rights, Evolution of IP acts and treaties, Agencies responsible for IPR registrations, Role and value of IP in international commerce, Issues affecting IP internationally.**

Intellectual property Right (IPR) is a term used for various legal entitlements which attach to certain types of information, ideas, or other intangibles in their expressed form. The holder of this legal entitlement is generally entitled to exercise various exclusive rights in relation to the subject matter of the Intellectual Property. The term intellectual property reflects the idea that this subject matter is the product of the mind or the intellect, and that Intellectual Property rights may be protected at law in the same way as any other form of property. Intellectual property laws vary from jurisdiction to jurisdiction, such that the acquisition, registration or enforcement of IP rights must be pursued or obtained separately in each territory of interest. Intellectual property rights (IPR) can be defined as the rights given to people over the creation of their minds. They usually give the creator an exclusive right over the use of his/her creations for a certain period of time.

### **Intellectual Property**

Intellectual property is an intangible creation of the human mind, usually expressed or translated into a tangible form that is assigned certain rights of property. Examples of intellectual property include an author's copyright on a book or article, a distinctive logo design representing a soft drink company and its products, unique design elements of a web site, or a patent on the process to manufacture chewing gum.

### **Intellectual Property Rights**

Intellectual property rights (IPR) can be defined as the rights given to people over the creation of their minds. They usually give the creator an exclusive right over the use of his/her creations for a certain period of time. Intellectual property (IP) refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.

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## Categories of Intellectual Property

One can broadly classify the various forms of IPRs into two categories:

- IPRs that stimulate inventive and creative activities (patents, utility models, industrial designs, copyright, plant breeders' rights and layout designs for integrated circuits) and
- IPRs that offer information to consumers (trademarks and geographical indications)

IPRs in both categories seek to address certain failures of private markets to provide for an efficient allocation of resources

IP is divided into two categories for ease of understanding:

1. **Industrial Property**
2. **Copyright**

**Industrial property**, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and

**Copyright**, which includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and those of broadcasters in their radio and television programs

Intellectual property shall include the right relating to:

- Literary, artistic and scientific works;
- Performance of performing artists;
- Inventions in all fields of human endeavour;
- Scientific discoveries;
- Industrial designs;
- Trademarks, service marks and etc;
- Protection against unfair competition.

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## What is a property?

Property designates those things that are commonly recognized as being the possessions of an individual or a group. A right of ownership is associated with property that establishes the good as being "one's own thing" in relation to other individuals or groups, assuring the owner the right to dispense with the property in a manner he or she deems fit, whether to use or not use, exclude others from using, or to transfer ownership.

Properties are of two types - tangible property and intangible property i.e. one that is physically present and the other which is not in any physical form. Building, land, house, cash, jewellery are few examples of tangible properties which can be seen and felt physically. On the other hand there is a kind of valuable property that cannot be felt physically as it does not have a physical form. Intellectual property is one of the forms of intangible property which commands a material value which can also be higher than the value of a tangible asset or property.

## TYPES OF INTELLECTUAL PROPERTY

The different types of Intellectual Property Rights are:

- Patents
- Copyrights
- Trademarks
- Industrial designs
- Geographical indications of goods
- Trade Secrets

## Important Species of IPR

Out of the different types of Intellectual Property Rights the following are the most important species of IPR

### TRADEMARKS

According to section 2, sub-section (1) of the Trade Marks Act 1999, "Trade Mark" means a mark capable of being represented graphically and which is capable of distinguishing the goods or services of one person from those of others and may include shape of goods, their packaging and combination of colours.

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Trade mark registration is an effective and economic way of ensuring your brand is protected. Registration provides a safeguard against third party infringement and often acts as an effective deterrent against third parties considering or contemplating infringement. Failure to protect brand may reduce its value, and could damage your business' reputation. It is also important to be attentive to the activities of your competitors. If you suspect or witness your brand being infringed it is best to take action as soon as possible. The longer the infringing activity exists, the more difficult to maintain the registered trademark and chances of trademark becoming generic.

**Genericide** is the term used to describe the death of a trademark that results from the brand name becoming the name of the object itself.

### COPYRIGHTS

1847 is the First Copyright law Enactment in India during British Regime. The term of copyright was for the lifetime of the author and 60 years counted from the year following the death of the author

Copyright law is designed to protect interests and balance the rights of the following stake holders

- Authors/ Creators
- Publishers/ Entrepreneurs
- Users /Audiences

Indian Copyright Act is the one of the best Copyright enactment in the world.

The Copyright Act 1911, while repealing earlier statues on the subject, was also made applicable to all the British colonies including India. In 1914, the Indian Copyright Act was enacted which modified some of the provisions of Copyright Act 1911 and added some new provisions to it to make it applicable in India. Copyright Act, 1911 was in existence in India till the new Copyright Act, 1957 was introduced in India Post Independence. In India, the Copyright Act, 1957 (as amended in 1999), the Rules made there under and the International Copyright Order, 1999 govern Copyright and neighbouring rights. This Act has been amended five times i.e 1983,1984,1992,1999 and most recently in 2012.

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## **What can be protected under Copyright?**

Literary, Dramatic, Artistic, Musical, Cinematographic, Photographic and Sound Recording works.

Literary works such as novels, poems, plays, reference works, newspapers and computer programs; databases; films, musical compositions, and choreography; artistic works such as paintings, drawings, photographs and sculpture; architecture; and advertisements, maps and technical drawings.

## **PATENTS**

Patent is a grant for an invention by the Government to the inventor in exchange for full disclosure of the invention. A patent is an exclusive right granted by law to applicants / assignees to make use of and exploit their inventions for a limited period of time (generally 20 years from filing). The patent holder has the legal right to exclude others from commercially exploiting his invention for the duration of this period. In return for exclusive rights, the applicant is obliged to disclose the invention to the public in a manner that enables others, skilled in the art, to replicate the invention. The patent system is designed to balance the interests of applicants / assignees (exclusive rights) and the interests of society (disclosure of invention).

### **Meaning of 'Invention' under Patent**

Law Sec.2(1)(J) - "Invention" means a new product or process involving an inventive step and capable of industrial application

There are three types of patents:

**Utility patents** may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof;

**Design patents** may be granted to anyone who invents a new, original, and ornamental design for an article of manufacture; and

**Plant patents** may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant

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## TRADE SECRETS

A trade secret consists of any valuable business information. The business secrets are not to be known by the competitor. There is no limit to the type of information that can be protected as trade secrets: For Example: Recipes, Marketing plans, financial projections, and methods of conducting business can all constitute trade secrets. There is no requirement that a trade secret be unique or complex; thus, even something as simple and nontechnical as a list of customers can qualify as a trade secret as long as it affords its owner a competitive advantage and is not common knowledge. If trade secrets were not protectable, companies would no incentive to invest time, money and effort in research and development that ultimately benefits the public. Trade secret law thus promotes the development of new methods and processes for doing business in the marketplace.

**Protection of Trade Secrets:** Although trademarks, copyrights and patents are all subject to extensive statutory scheme for their protection, application and registration, there is no federal law relating to trade secrets and no formalities are required to obtain rights to trade secrets. Trade secrets are protectable under various state statutes and cases and by contractual agreements between parties. For Example: Employers often require employees to sign confidentiality agreements in which employees agree not to disclose proprietary information owned by the employer. If properly protected, trade secrets may last forever. On the other hand, if companies fail to take reasonable measures to maintain the secrecy of the information, trade secret protection may be lost. Thus, disclosure of the information should be limited to those with a “need to know” it so as to perform their duties, confidential information should be kept in secure or restricted areas, and employees with access to proprietary information should sign nondisclosure agreements. If such measures are taken, a trade secret can be protected in perpetuity. Another method by which companies protect valuable information is by requiring employee to sign agreements promising not to compete with the employer after leaving the job. Such covenants are strictly scrutinized by courts, but generally, if they are reasonable in regard to time, scope and subject matter, they are enforceable

## GEOGRAPHICAL INDICATIONS

GI is an indication, originating from a definite geographical territory. It is used to identify agricultural, natural or manufactured goods produced, processed or prepared in that particular territory due to which the product has special quality, reputation and/or other characteristics.

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## IMPORTANCE OF INTELLECTUAL PROPERTY RIGHTS

IPR is a significant tool in today's era. The risk of an innovation getting infringed without the knowledge of the inventor stands very high. With the increase in the importance of IP, instances of IP crimes have become the part and parcel of the digitized era sometimes even leading to failure of businesses. Companies rely on adequate protection of their patents, trademarks, and copyrights, while customers make use of IP to ensure that they purchase secure, assured goods. An IP asset is like any other physical property offering commercial benefits to businesses. In a web-based world, IP protection is much more relevant as it is comparatively simpler than ever to reproduce any specific template, logo, or functionality. Hence, strong IP laws give protection to IP and contribute to the economy of the respective state. IPR is one of the sources of security for intangible properties which are still open to the public and which can be quickly replicated by anyone.

Intellectual property rights are more important because today we are highly-connected to digital landscape. With all of the good the rise of the internet has done for the sharing of information and ideas, it has unfortunately become easier for ideas and works to be stolen, which can be damaging to both national economies and innovation.

Intellectual property protection varies from country to country, but countries that have strong IP laws recognize the important impact original works, designs, inventions, etc. have on the overall economy. Almost every country that has a dependence on international trade takes strong measures to protect their intellectual property rights.<sup>3</sup>

With the rise of intangible assets that are shared across the internet, it is easy for people to unlawfully copy and share books, music, movies, and more. Copyrights, patents, trademarks, and trade secrets and the laws around these protections are all intended to encourage innovation and creativity and are essential to the practice of IP law to help curb illegal activities.

Organizations like the World Intellectual Property Organization (WIPO) underscore the importance of fostering IP-driven innovation to incentivize and protect creativity. WIPO is a global forum for intellectual property services and is a self-funding agency of the United Nations, with 193 member states.

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