

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi 590018

"RESEARCH POLICY"

1. Aim

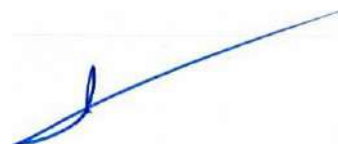
Visvesvaraya Technological University (VTU), Belagavi aims to encourage and sustain excellence in Research and Innovation by cultivating and promoting a research culture among its teachers, staff and students. This would be leveraged for inspiring and enhancing the professional competence of the faculty members; for developing and promoting scientific temperament and research aptitudes among the students; for realizing the vision and mission of the University and for contributing to national development by establishing an institutional fund and a plan for facilitating participation of faculty and students in research and related activities and encouraging innovation in science and technology as per the terms of implementation of the national initiatives in this regard in the university.

2. Scope

This policy shall apply to all the faculty, staff and students of the University and also implementable in all the affiliated/autonomous engineering institutions of the University in the state of Karnataka.

3. Objectives

- To strengthen the institutional capacity for strategic, technical and operational planning, budgeting and control of all research activities of the University.
- To create and administer a research fund for supporting and facilitating research initiatives and projects amongst faculty members and students.
- To guide faculty members in the effective integration of research projects with the regular curriculum implementation and curriculum enrichment activities of the University.
- To identify and establish linkages including MOUs for long term relationships with national & international research organizations and industry bodies and individual companies for widening the scope of research opportunities, research activities and adding to the funding options available to the teachers and students of the University.
- To encourage and facilitate the publication of the research work/projects in the form of





Intellectual Property/Journal Papers/Book Chapters etc.

- To encourage and facilitate the presentation/communication of the research work/projects as well as their findings and recommendations through academic events such as workshops/seminars/Conferences/guest lecturers or through the media.
- To encourage innovation and incubation of new ideas with encouragement for Transfer of Technology (TOT) or setting up of startup by the faculty and students as per the Gal's NISP implementation in the University.

4. Research Policy Implementation Mechanism

- Facilitate the faculty in undertaking research and will work with the University management to set up a research fund for providing seed money.
- Provide research facilities in terms of laboratory equipment, research journals and research incentives etc. required by the faculty.
- Encourage and promote a research and innovation culture (eg. teaching work load remission, opportunities for attending conferences etc.).
- Encourage the faculty to undertake research by collaborating with other research organizations/ industry.
- Create suitable procedures for giving due recognition for guiding research.
- Facilitate the establishment of specific research units/ centers by funding agencies / university.
- Organize workshops/ training programmes/ sensitization programmes to promote a research and innovation culture on campus.
- Invite industry to agree to mutually use the research facilities and research programmes of each other, sponsor research projects to the University and use the results/technologies developed through TOT to industry.
- Approach National and international organizations such as UGC, ICSSR, ICHR, ICPR, DST, DBT, UNESCO, UNICEF to fund major and minor research projects undertaken by the faculty /students.

5. Policy

s.1 Requirement to Undertake Research

Each faculty will carry out independent, innovative Research and/ or creative S&T activities that are appropriate to their discipline. In doing so they will, individually or in collaboration with colleagues :

- Supervise Research students.
- Focus on innovations in the research.
- Broadly disseminate Research results (i.e. through more than one medium or one Audience) including through their teaching practices and, where appropriate, protect the results of their Research.



- Be active within appropriate professional and discipline communities and with external Stakeholders.
- Contribute to the Research environment and culture of VTU through activities such as mentoring, engagement in new Research initiatives and strengthening the Research infrastructure.
- Participate in initiatives designed to secure financial support for Research activities from external sources (including for example, government funding, industry partnerships and contracts, philanthropic gifts, Research translation and commercialization opportunities).

The requirement to undertake Research is a career expectation and will be balanced with the other obligations of academic staff including teaching and administrative responsibilities.

Obligations

Research effort will be considered as one of the criteria for faculty's yearly increment/ promotion along with their other academic responsibilities.

Research at UG and PG Level

5.3.1 Teaching and research are equally important in any University. To cultivate a research culture and promote creativity among the undergraduate and post-graduate students, some research component in the curricula, especially in the final or pre-final year of the bachelors programme and final year in the master's programme, is necessary and taking industry or research internship is made mandatory. Similarly, in the postgraduate programme, research should be emphasized emphatically and students must be trained for robust research skills.

5.3.2 To encourage innovation among students University may provide funding to the innovative students projects from each branch of Engineering through "Financial Assistance for Innovative Project of Final Year Students" Scheme.

5.4 Establishment of Research Centers

5.4.1 The VTU encourages the establishment of Research Centers at its Affiliated/Autonomous Engineering Institutions in the State of Karnataka to enhance and facilitate disciplinary and interdisciplinary research collaboration, knowledge transfer and training.

5.4.2 The University's Regional Research Centers will be equipped with facilities and expertise to carry out research in priority areas identified by the University

The VTU encourages to have inter or multi disciplinary faculty in the Centres.

Aspirants of Ph.D. or M.S. (Research) can join for the programs through VTU recognized Research Centers.

Ph.D./M.S. in Research Programs

To provide opportunities to each individual with exceptional academic background, strong motivation and discipline, and potential to become excellent researchers at national/international level and to engage themselves in Research and Development, VTU offers Ph.D. doctoral and MS in Research Programs on Part Time/ Full Time basis in a number of disciplines like Basic/Applied Sciences, Engineering Sciences and Management Sciences etc.

Doctoral Fellowships are awarded to selected scholars, who will register for Full Time Ph.D. Programme under the supervision of Faculty members of VTU.

Major & Minor Research Projects

VTU has a Research Grants Scheme" to harness and nurture the research talents available in the affiliated institutions in the state of Karnataka. Under this scheme, grants are offered for research in Basic Sciences, Engineering Sciences and Management Sciences.

The Major& Minor Research Projects help young faculty to think about research and innovation prepare the proposal, conduct research and write a research report. The University shall take necessary steps to encourage young faculty to apply for these research projects and shall earmark appropriate support for this purpose.

5.7 Collaborative Research Projects (Industry and Inter-disciplinary)

The University-Industry Interaction is the demand of the day to fill the gap between industry, academia and research.

University promotes its faculty to interact with the industries and different organizations to bring in recent developments in the curriculum of UG, PG and Research.

University will promote and undertake (i) Industry Sponsored Research Project and (ii) Interdisciplinary Research of industrial interest to address the problems of industries.



Training for Research and Publications

The University shall organize rigorous training programmes for researchers on research methodology and in specially identified areas and shall also encourage participating in the conferences/workshops/symposia.

Publication of Research Work

Publication of Research Work is a measure of the research potential and efficacy of any University. Therefore, the University encourages the publication of research work in reputed peer reviewed journals or in the form of generation of Intellectual Property (IP) by the faculty and students.

Research Publications and generation of IP by the faculty would be considered as an Academic Performance Indicator (API) for his/her annual increment/promotion.

5.9.3 University encourages publication of Research Work and generation of IP by providing financial assistance for the same.

5.10 Research Misconduct

5.10.1 University is committed to ensuring that investigations are carried out as expeditiously as possible, at the same time ensuring the utmost degree of thoroughness and ethical standards.

5.10.2 "Research misconduct" is defined as fabrication (making up data or results, and recording or reporting them), falsification (manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented), or plagiarism (appropriation of another person's ideas, processes, results, or words without giving appropriate credit) in proposing, performing, or reviewing research, or in reporting research results.

5.10.3 It is the sole responsibility of faculty or administrator or research staff, or technical personnel and students of the University, to foster an academic environment conducive to free and fair research activities.

5.10.4 If University receives any complaints/applications about 'Research Misconduct', a proper inquiry would be held based on preliminary information gathered and preliminary fact-



finding to ascertain the merit of the case under the supervision of Special Committee to be setup to look in to such allegations.

Employees accused of Research Misconduct {"Respondents"} will be provided with a copy of this procedure and will be informed in writing of the detail of the allegation

Proven misconduct in research is considered as a serious or gross misconduct and normally merits dismissal after due process from the University.

he University will take disciplinary action against any individual who attempts to influence, victimize or intimidate the individual making the allegation of Scientific Misconduct {the "Complainant"} or witnesses.

The University is committed to protecting its employees from malicious accusations and will take action against any individual(s) responsible for such allegations.

5.10.91f University receives any complaints regarding sexual harassment, in the process of conducting research/ projects, it will forward the same to Women's Cell of the University for further investigation.

A handwritten signature in blue ink, consisting of a long horizontal line with a loop and a tail, positioned above the printed name of the Registrar.

REGISTRAR
Visvesvaraya Technological University
BELAGAVI.



RESEARCH CELL

About the Research Cell

The Research Cell was established in 2018 to promote, monitor and address research activities at DSATM, Bengaluru. Objective of the Cell is to monitor and administer Research programs for faculty and encourage them to have rational approach in their academic activities. In order to provide every faculty member with the latest skills and expertise in their area of interest, DSATM has formed its Research Cell where in all our diverse teachers can share their expertise would in return enrich, enhance and help every faculty member to grow to the optimum. It also motivates staff members to undertake sponsored research projects, publish their work in leading journals and to present papers at national and international conferences.

Committee Members

- 1) Dr M RaviShankar, Principal, Chairman
- 2) Dr Nandini C, Vice Principal
- 3) Dr Sumithra Devi K A, Dean Academics
- 4) All Heads of the Department

Vision

To be espied as one of the leading organization in applied research for the furtherance of society.

Mission

To enable excellence in research and innovation by

- Collaborate with academic and research institute, to strengthen the education and research ecosystem.
- Providing infrastructure and training to promote creativity and entrepreneurship.
- Promote the ethical conduct of research & compliance.
- Fostering a diverse and inclusive work environment

Research Policy

- Provide optimum facilities to researchers
- Encouraging collaborative research with International/National reputed institutes
- Perform interdisciplinary and unconventional research.
- Organize workshops, seminars, conferences at National or International level
- Encourage to write and forward research proposals for financial support to different funding agencies and announce incentives with the project sanctioned.

Research ethics

Researcher to follow the below while pursuing the research

- Honesty
- Integrity
- Respect for Intellectual Property
- Confidentiality
- Social Responsibility
- Competence
- Legality

Publication Policy

- Research publication leading to Patent/Patenting Research activities
- Develop and implement an official Code of Ethics to check malpractices and plagiarism in research
- Researchers to have ethics in quoting the reference cited.

Dayananda Sagar Academy of Technology & Management Quality Initiation to promote Research among Faculty/ Research Scholars in the Institution

1. The Research Scholars are encouraged to publish work in the Quality publications and the Management will reimburse 50% of the registration amount for the quality publication to the research scholars.
2. On-Duty leaves and study leaves are given to research scholars for research related works viz to collect necessary data, to complete course work, to meet domain experts, for the expert's discussion, to attend conference and workshops.
3. NPTEL, MOOC Certifications on niche technologies leading to Research oriented courses to upskill is being reimbursed from the management.
4. National Cyber Defence Research Centre is established in the

institute to promote research scholars to actively carryout the research.

5. Seed amount for the research project being implemented by the supervisor and the research scholar is funded by the management to initiate research projects that have the potential to gain extramural funding.
6. Internet facility among research scholars and faculties is provided to the research scholars.
7. Resources and Infrastructures with high end PCs are being provided to the research scholars.
8. Research Faculty load deliverables are also considered in the department wise.
9. Facility with incubation centre for start-up activities are also been provided.
10. Travelling Allowance (TA) and Dearness Allowance (DA) and Fee reimbursement for hackathon are been given by the management

Measurable outcomes:

• **Funded Projects under DSATM Research Cell**

| Name of the Project/ Endowments, Chairs | Name of the Principal Investigator/Co- investigator | Department of Principal Investigator | Year of Award | Amount Sanctioned | Duratio n of the project | Name of the Funding Agency | Type (Governmen t t/non- Government) |
|--|--|--|------------------|----------------------|--------------------------------|--|---|
| Outcome based Accreditation and NBA Accreditation | Dr.Sumithra Devi K A | Information Science and Engineering | 2019- 2020 | 3,00,000 | 1 year | Visvesvaraya Technologic al University TEQIP CELL, Bangalore | Government |
| Entrepreneurship Awareness Camp(EAC) | Dr.Sumithra Devi K A | Information Science and Engineering | 2019- 2020 | 60,000 | 1 year | Entrepreneur ship Development Institute of India, Department of Science and Technology | Government |
| Entrepreneurship Awareness Camp(EAC) | Dr.Sumithra Devi K A | Information Science and Engineering | 2018 - 2019 | 60,000 | 1 year | Entrepreneur ship Development Institute of India, Department of Science and Technology | Government |
| Advanced Image Processing Lab to Develop signal / Image processing algorithms, SAR image change detection algorithms to monitor critical changes | Dr. Sumaiya MN | Electronics and Communicati o n Engineering | 2018 | 20 Lakhs | 2 years | Vision Group on Science and Technology | Government |
| Detection of intrusion through Big data analysis for Wireless Sensor Networks. | Dr.Anitha J | Computer Science & Engineering | 2017- 18 | 20 Lakhs | 2 years | VGST (Vision Group on science and Technology, Karnataka Govt.) | Government |
| Empowering Socio economic Status of SC/Tribe women in Agrahara Village, KanakapuraTaluk, Bangalore Rural District through Mulberry sericulture | Dr.Anitha J | Computer Science & Engineering | 2017- 18 | 5 Lakhs | 1 years | VGST- SMSYR | Government |

| | | | | | | | |
|---|--------------------|---|------|-------------|---------|---|------------|
| CPLD based green house monitoring system for agriculture. | Dr.Madhumathy P | Electronics and Communication Engineering | 2017 | 5 Lakhs | 1 year | Vision Group on Science and Technology | Government |
| “Photocatalytic hydrogen generation and Photocatalytic degradation of toxic dyes using nano metal oxides and doped metal oxides synthesized by novel and eco-friendly methods | Dr Ramakrishappa T | Chemistry | 2015 | 20lakhs | 3 years | Vision Group of Science And technology ,Govt Of Karnataka | Government |
| Voltammetric detection of toxic metal ions using surface modified nano carbon based composite electrodes: Applications to environmental analysis | Dr Ramakrishappa T | Chemistry | 2015 | 22.68 lakhs | 3 years | Science and Engineering Research Board, SERB, Govt of India | Government |

Quality Academic Research Publications

| Year of Publication | No. of Publication |
|---------------------|--------------------|
| 2017-2018 | 58 |
| 2018-2019 | 62 |
| 2019-2020 | 92 |

University Recognized Research Centers

- Electronics & Communication Engineering
- Computer Science Engineering
- Mechanical Engineering
- Civil Engineering
- MBA
- Physics, Chemistry and Mathematics

Faculty Research Reviews

Research reviews for all the faculties of the college is conducted every year. This is to monitor the research progress of the faculty members and to encourage registering for PhD for faculty's who have not registered. The committee includes Principal, Dean Academics and HoD's of concerned departments. The reviews were conducted during the following dates:

2019-2020: 04/09/2019 to 06/09/2019

2020-2021: 08/10/2020 to 09/10/2020



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EVENTS UNDER RESEARCH CELL

Academic year 2020-2021

| S.N | Date | Event | Resource Person |
|-----|------------|---|--|
| 1 | 30-09-2021 | Research Quality Enhancement In Engineering Applications | Dr.Tousif Khan HOD,EEE SRM Univeristy |
| 2 | 28-08-2021 | A Webinar On Research Article Writing And Publication | Dr Raviraj M Kulkarni Professor GIT, Belagavi |
| 3 | 24-07-2021 | A Webinar On Research Literature Review And Identifying Research Gap | Dr M Mathirajan Chief Research Scientist Department Of Management Studies Iisc, Bengaluru. |
| 4 | 30/06/2021 | Research: Initiation, Propagation & Conversion- From Writing To Funding | Dr. K N Vishwanath Professor & Head, Department Of Civil DSATM, Bangalore |
| 5 | 29/05/2021 | Webinar On Research Methodology | Dr. Vijay Bhandi Senior Project Manager, Infosys Limited, San Francisco, USA |
| 6 | 10/04/2021 | Research Conclave 2021 | Dr.M S Dinesh Senor Scientist II Philips India Research Mr. Arvindh Kalidasan Microsoft India Dr.Kumudini Ravindra IEEE Bangalore Dr.Segal GE Power South Asia Bangalore Dr.Kavithaa S Scientist,CMTI ,Bangalore Dr.B S Dayasagar Professor, Indian Statistical Institute |



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**RESEARCH CELL,
Institution's Innovation Council-IIC
&
Internal Quality Assurance Cell-IQAC**



**Report of Webinar on
Research Quality Enhancement in Engineering Applications**

Organized by Department of EEE, DSATM

| | |
|-------------------|---|
| Event Name | Research Quality Enhancement in Engineering Applications |
| Theme | To focus on challenges and steps involved in Research Quality Enhancement in Engineering Applications |
| Date | 30/09/2021 |
| Tools Used | Zoom Cloud Meeting platform. https://zoom.us/j/95419256479?pwd=UnJpRG0xU1ZycnVOQnppYjRoam5Ddz09 |

Vision: To provide a forum for sharing and discuss the key points involved in overall research quality enhancement in engineering applications among the speaker and participants.

Objectives of the Program/ Event:

- To address the basic definition of research based on theoretical and applied research methods.
- To highlight the specific benefits of quality research w.r.t students, faculty and intuition.
- To focus and understand the challenges and steps involved in carrying out quality research.

About the Webinar: The webinar provides an opportunity for the participants to understand the difference between basic research and quality research. The webinar also provides the opportunity for the participants to initiate research work in the direction of enhancing quality research.

Resource person:

Dr. Tousif Khan N, Ph.D(IIT-Gauhati)

Head of the Department, EEE,

SRM University, AP



"Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands"

Glimpses of Webinar:

Recording...

 **SRM**
UNIVERSITY AP
Amaravati

Research Quality Enhancement in Engineering Applications

Dr. Tousif Khan N
Head of the Department
Electrical and Electronics Engineering
SRM University AP
Pradesh, India

Shanmukha Sundar K | Tousif Khan | Dr. B R Lakshmi... | Ramya Rajan

Recording...

Specific Benefits

From students' perspective

Increase in knowledge

Practical know-how

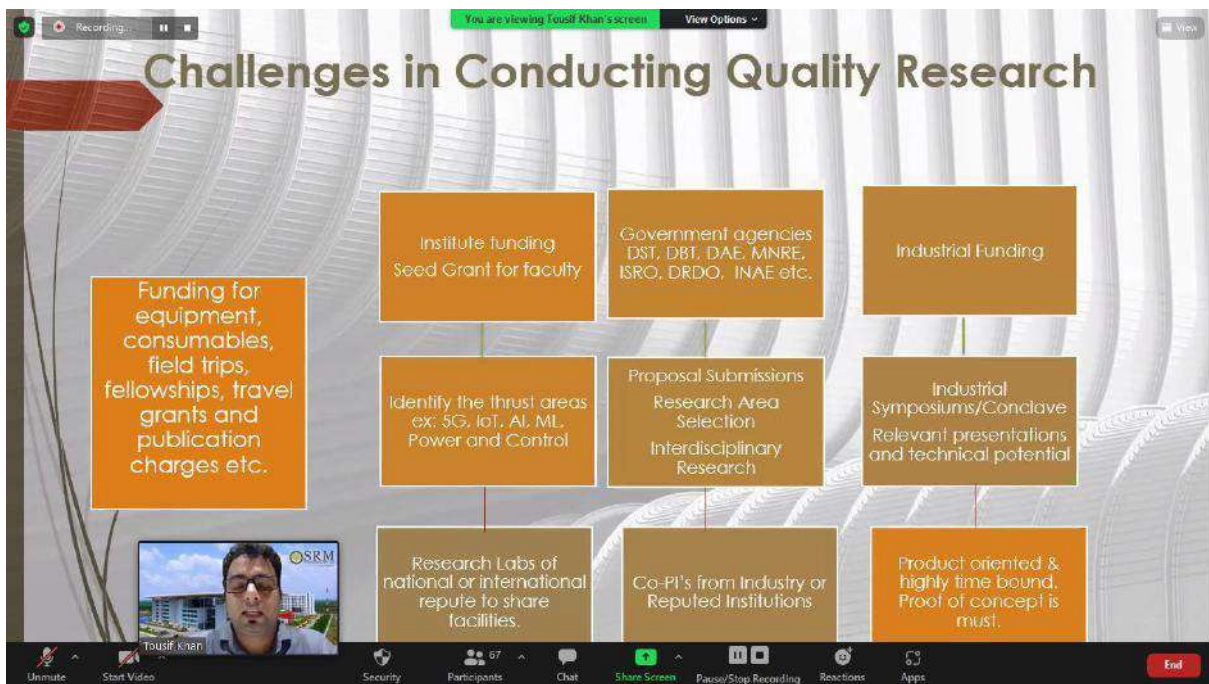
Confidence & Satisfaction

Employment & Higher Education

Tousif Khan



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Number of participants: 67

Identification and addressing the GAP:

The gap identification is the key element in enhancing the quality of research. The gaps in terms of resources, time management and abilities of an individual have been identified and have been discussed during the talk. Adopting the current technologies and modern tools to attain their research goals with quality.



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&
Internal Quality Assurance Cell-IQAC



**Report on the Webinar on Research Article Writing And
Publication**

Organized by Department of ECE, DSATM

| | |
|-------------------|---|
| Event Name | Webinar on Research Article Writing And Publication |
| Theme | Learn to critically evaluate and understand the concepts of citing and indexing of the research paper. Learn to publish in high impact factor journals. |
| Date | 28/08/2021 |
| Tools Used | Webinar Link: https://meet.google.com/rdx-hzgo-sdk . |

Vision: To discuss the topics related to issues and challenges in Research Methodology, Research Methods, Research Paperswriting , Research paper publication, etc. and exchange research ideas between the expert and participants from various technical and management fields.

Objectives of the Program/ Event:

1. To address the purpose of the investigation and types of knowledge to be generated out of one's investigation.
2. To anticipate what and how research aim will be achieved by the study.
3. To gain familiarity with a phenomenon of formulative, descriptive and diagnostic research studies in writing and publishing.
4. To familiarize with hypothesis-testing studies.

About the Webinar: The webinar aims to discuss the specific procedures or techniques used to identify, select, process, and analyze information about a chosen research topic and how to publish it.

Resource person:

Dr. Dr. RAVIRAJ M KULKARNI
Professor, GIT, Belagavi



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The image displays two screenshots of a Google Meet session. The top screenshot shows a presentation slide titled "Skeleton of a Manuscript" with the following content:

Skeleton of a Manuscript
IMRaD structure- Writing a draft

Introduction--- Why you have taken up this?
 Methods/experimental procedures/Theory--
 What you have done?
 Results-- What are your findings?
 and
 Discussion-- What does it mean?

Below the slide, a notification states "vinayak hosur has left the meeting". The meeting details panel on the right shows the joining info: <https://meet.google.com/rdx-hzgo-sdk>. The bottom screenshot shows a slide titled "Research article writing and publications" with the presenter's information:

Research article writing and publications

Dr.Raviraj M. Kulkarni
 M.Sc., Ph.D., Postdoc (Canada & Belgium)
 Professor of Chemistry,
 Coordinator, Centre for Nanoscience and Nanotechnology, KLS
 Gogte Institute of Technology, Belagavi-590008

The meeting details panel on the right of the bottom screenshot lists participants: Karibasappa Kwadiki, Dr. Raviraj Kulkarni, MANJUNATHA PRASA..., Dean Academics, Deepak GB, Gururaja MN, and 39 others. The time shown in both screenshots is 2:59 PM and 2:36 PM respectively, on 8/28/2021.



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The screenshot displays a Google Meet window with a presentation slide titled "Skeleton of a Manuscript". The slide content is as follows:

Skeleton of a Manuscript

IMRaD structure- Writing a draft

Introduction--- **Why you have taken up this?**
 Methods/experimental procedures/Theory---
What you have done?
 Results-- **What are your findings?**
 and
 Discussion-- **What does it mean?**

Meeting details panel on the right shows:

Meeting details

Joining info
<https://meet.google.com/rdx-hzgo-sdk>
[Copy joining info](#)

Google Calendar attachments show up here

Participant list shows "You" and "48 others".

Number of participants: 55

Identification and addressing the GAP: Adopting the current technologies and modern tools to attain their research goals.

Measurable outcomes: The webinar aims at providing an opportunity to researchers with various research ideas and backgrounds to critically evaluate the validity and reliability of the undertaken researchwork.



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Institution's Innovation Council-IIC & Internal Quality Assurance Cell-IQAC

Report of Webinar on Literature Survey

Organized by Department of Basic Science, DSATM.

| | |
|-------------------|---|
| Event Name | Webinar on literature Survey |
| Theme | Research Literature Review and Identifying Research Gap |
| Date | 24/07/2021 |
| Tools Used | Due to the pandemic situation and Karnataka Government guide lines the webinar was conducted online through Zoom Meeting platform |

Vision: To discuss the topics related to issues and challenges in Research Methodology, Research Methods, Research Papers, Research Proposals, etc. and exchange research ideas between the expert and participants from various technical and management fields.

Objectives of the Program/ Event:

1. To address the purpose of the literature review , identification Research Gaps and development of L-R Chapter
2. To anticipate what and how research gaps will be identified to choose the research topic.
3. To make clear understanding of literature gaps are only subjective and not objective.
4. To familiarize with structured way of writing LR chapter
5. To hypothesis-studies based on the current scenario

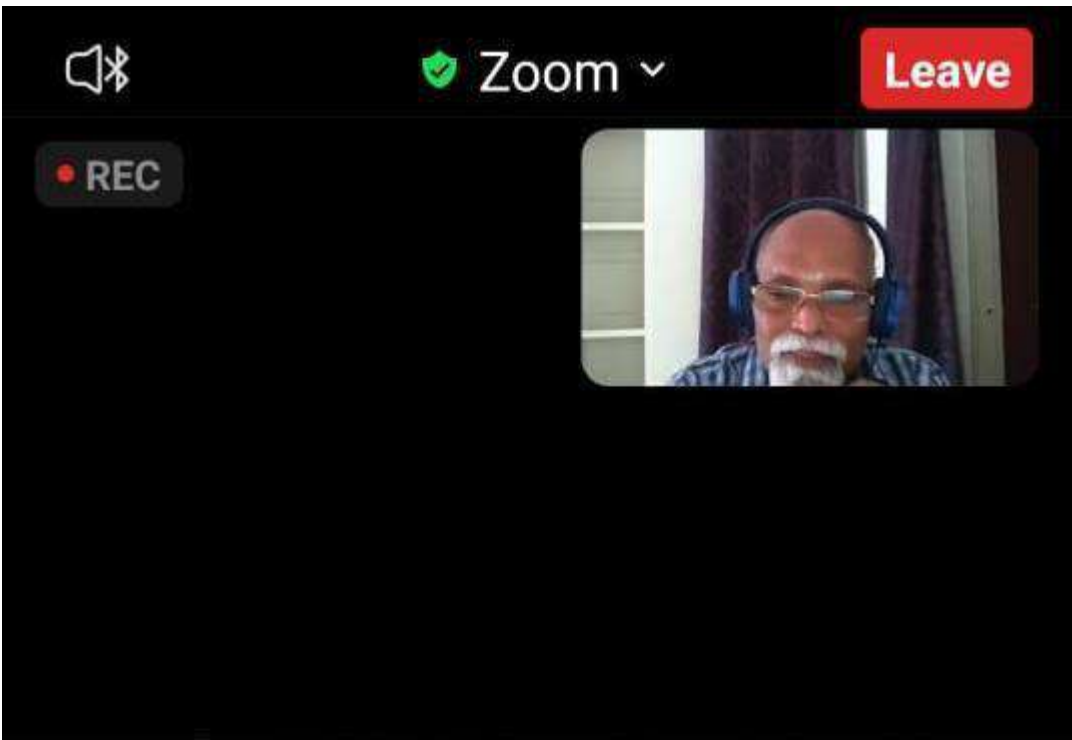
About the Webinar: The webinar aims to design the structural way of identifying research gap discuss the specific procedures used to identify, selection of research papers for chosen research topic.

Resource person

Dr M Mathirajan
Chief Research Scientist
Department of Management studies
IISc, Bengaluru.



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Dr. M. MATHIRAJAN
Chief Research Scientist
Dept. of Management Studies
Faculty of Engineering
Indian Institute of Science
Bangalore 560 012, INDIA
msdmathi@iisc.ac.in

Key Issues in LR Process

Number of Theses Examined - 51

| Category | Percentage |
|--------------|------------|
| Not Examined | 33% |
| Not Examined | 17% |
| Examined | 18% |
| Examined | 32% |

KEY ISSUES : Literature Review (LR), Identification of Research Gaps and Development of LR Chapter

- Unfocussed / Semi-structured Manner
- Literature Gaps are given Subjectively and not Objectively



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Closely Related Literature Review-Deterministic and Dynamic Scheduling of Diffusion Furnace(s) deals with Various Due-date based Scheduling Objectives

Zoom

Leave

| Author | Diffusion Furnace as | | | | Dynamic Scheduling | | | | Release Time & Due-date | | Solution Methodologies | | | Due-date Scheduling Objectives | |
|----------------------------------|----------------------|----------------------------|--|--------------------------------|--------------------|-----------------------------|------------|------------|-------------------------|-----------|------------------------|--------------------------|------------------|--------------------------------|-------------------------------|
| | Single Machine | Identical Parallel Machine | | Non-identical Parallel Machine | | With Future Arrival of Jobs | With J-RTE | With R-RTE | With JR-RTE | Agreeable | Non-agreeable | Mathematical Programming | Greedy Heuristic | | Meta Heuristic |
| Uzsoy (1995) | ✓ | | | | | ✓ | | | | ✓ | | | | | Lmax |
| Monch et al. (2005) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Dirk and Monch (2006) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Monch et al. (2006) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Malve and Uzsoy (2007) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | Lmax |
| Cheng et al. (2008) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Kurz and Mason (2008) | ✓ | | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| Li and Qiao (2008) | ✓ | | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Li et al. (2009) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Chiang et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Kim et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | ✓ | | TT |
| Li et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Mathirajan and Vimalarani (2012) | ✓ | | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| Bilyk et al. (2014) | | ✓ | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| This Research Study | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | TWT, NT, OTD rate, TE/L, Lmax |

Literature Gaps

To the best of our knowledge, it appears that there is

- ❖ No reported study considering either **job related real time events** and/or **resource related real time events** for **dynamic scheduling of single/parallel diffusion furnace(s)**.
- ❖ No reported study consider the **important real-life information** related to release time and due-date of every job, that is the **non-agreeable release time and due-date**.
- ❖ No reported study addresses **machine eligibility restriction**.
- ❖ No reported study, which focuses **all the due-date based scheduling objectives: TWT, NT, OTD rate, TE/L, and Lmax** as either the **single objective or multi objective**.
- ❖ No reported study proposed **mathematical model(s)** for dynamic scheduling of (i) **non-identical parallel diffusion furnaces** with respect to **any of the due-date based scheduling objectives** and (ii) **single diffusion furnace/identical parallel diffusion furnaces** with respect to various **due-date based scheduling objectives (NT, OTD rate, TE/L, and Lmax)** except TWT.
- ❖ No study which **explicitly compares all possible due-date based dispatching rules** such as EDD, FDD, ODD, MOD, CR, MS, COVER, ATC and/or BATC.
- ❖ No study focuses **meta heuristics** for dynamic scheduling with **real time events** of diffusion furnace.

Uzsoy (1995)

Monch et al. (2005)

Dirk and Monch (2006)

Monch et al. (2006)

Malve and Uzsoy (2007)

Cheng et al. (2008)

Kurz and Mason (2008)

Li and Qiao (2008)

Li et al. (2009)

Chiang et al. (2010)

Kim et al. (2010)

Li et al. (2010)

Mathirajan and Vimalarani (2012)

Bilyk et al. (2014)

This Research Study

Closely Related Literature Review-Deterministic and Dynamic Scheduling of Diffusion Furnace(s) deals with Various Due-date based Scheduling Objectives

| Author | Diffusion Furnace as | | | | Dynamic Scheduling | | | | Release Time & Due-date | | Solution Methodologies | | | Due-date Scheduling Objectives | |
|----------------------------------|----------------------|----------------------------|--|--------------------------------|--------------------|-----------------------------|------------|------------|-------------------------|-----------|------------------------|--------------------------|------------------|--------------------------------|-------------------------------|
| | Single Machine | Identical Parallel Machine | | Non-identical Parallel Machine | | With Future Arrival of Jobs | With J-RTE | With R-RTE | With JR-RTE | Agreeable | Non-agreeable | Mathematical Programming | Greedy Heuristic | | Meta Heuristic |
| Uzsoy (1995) | ✓ | | | | | ✓ | | | | ✓ | | | | | Lmax |
| Monch et al. (2005) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Dirk and Monch (2006) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Monch et al. (2006) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Malve and Uzsoy (2007) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | Lmax |
| Cheng et al. (2008) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Kurz and Mason (2008) | ✓ | | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| Li and Qiao (2008) | ✓ | | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Li et al. (2009) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Chiang et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Kim et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | ✓ | | TT |
| Li et al. (2010) | | ✓ | | | | ✓ | | | | ✓ | | | | ✓ | TWT |
| Mathirajan and Vimalarani (2012) | ✓ | | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| Bilyk et al. (2014) | | ✓ | | | | ✓ | | | | ✓ | | | ✓ | | TWT |
| This Research Study | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | TWT, NT, OTD rate, TE/L, Lmax |



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Statistics on the number of articles and number of contributed authors on D-SDF

| Year | No. of Articles | No. of Distinct Researchers Contributed | No. of Researchers Contributed |
|------|-----------------|---|--------------------------------|
| 1991 | 0 | 0 | 0 |
| 1992 | 1 | 4 | 4 |
| 1993 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 |
| 1995 | 1 | 1 | 1 |
| 1996 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 |
| 1998 | 1 | 2 | 2 |
| 1999 | 0 | 0 | 0 |
| 2000 | 3 | 9 | 9 |
| 2001 | 2 | 6 | 6 |
| 2002 | 4 | 14 | 15 |
| 2003 | 3 | 4 | 4 |
| 2004 | 1 | 4 | 4 |
| 2005 | 2 | 7 | 8 |
| 2006 | 3 | 9 | 10 |
| 2007 | 1 | 2 | 2 |
| 2008 | 6 | 13 | 16 |
| 2009 | 4 | 14 | 14 |
| 2010 | 4 | 14 | 14 |
| 2011 | 1 | 2 | 2 |
| 2012 | 4 | 13 | 13 |
| 2013 | 5 | 12 | 15 |
| 2014 | 4 | 13 | 13 |
| 2015 | 2 | 4 | 4 |
| 2016 | 6 | 7 | 13 |
| 2017 | 3 | 6 | 6 |
| 2018 | 2 | 4 | 5 |
| 2019 | 1 | 5 | 5 |
| 2020 | 4 | 9 | 11 |

Top 10 Rank of D-SDF articles based on number of citations

| S.No | Reference | Number of Citation | Rank |
|------|--------------------------------|--------------------|------|
| 1 | Ahmadi et al., (1992) | 299 | 1 |
| 2 | Uzsoy (1995) | 246 | 2 |
| 3 | Mason et al., (2002) | 242 | 3 |
| 4 | Monch et al., (2005) | 233 | 4 |
| 5 | Mehra and Uzsoy (1998) | 216 | 5 |
| 6 | Dobson and Nambimadom (2001) | 195 | 6 |
| 7 | Mahve and Uzsoy (2007) | 173 | 7 |
| 8 | Balaiahramanian et al., (2004) | 156 | 8 |

Mathirajan, IISc Bangalore's screen

Trend on Deterministic Scheduling of Diffusion Furnaces (D-SDF) Research

Distribution of D-SDF articles based on journals/ proceedings

| S.No | Publication Outlet | No. of Articles | Discipline Code | Discipline wise Total & Percentage |
|------|---|-----------------|-----------------|------------------------------------|
| 1 | IEEE Transactions on Algorithms | 1 | 706 | 4 (9.2%) |
| 2 | Applied Soft Computing | 3 | 126 | |
| 3 | Engineering Applications of Artificial Intelligence | 1 | 124 | |
| 4 | Electronic and Network Engineering | 1 | 80 | |
| 5 | IEEE Transactions | 1 | 80 | 4 (9.2%) |
| 6 | International Journal of Industrial and Systems Engineering | 1 | 80 | |
| 7 | Journal of Intelligent and Intelligent Information | 1 | 80 | |
| 8 | IEEE Transactions on Robotics and Automation | 1 | 80 | |
| 9 | IEEE Transactions on Systems, Man, and Cybernetics | 1 | 80 | 4 (9.2%) |
| 10 | IEEE Transactions on Systems, Man, and Cybernetics | 1 | 80 | |
| 11 | Journal of Engineering Management | 1 | 80 | |
| 12 | International Journal of Operations and Quantitative Management | 1 | 80 | |
| 13 | International Journal of Production Research | 4 | 100 | 4 (9.2%) |
| 14 | Production Planning and Control | 1 | 100 | |
| 15 | Applied Mathematical Modelling | 1 | 100 | |
| 16 | Computer and Operations Research | 4 | 100 | |
| 17 | European Journal of Operational Research | 4 | 100 | 10 (10.9%) |
| 18 | International Journal of Operational Research | 1 | 100 | |
| 19 | Journal of Optimization & Operational Sciences | 1 | 100 | |
| 20 | Production Planning and Control | 1 | 100 | |
| 21 | Production Research | 1 | 100 | 1 (1.1%) |
| 22 | IEEE Access | 1 | 100 | |
| 23 | Production Research | 1 | 100 | |
| 24 | Journal of Intelligent Information | 1 | 100 | |
| 25 | Production Research | 1 | 100 | 1 (1.1%) |
| 26 | Production Research | 1 | 100 | |
| 27 | Production Research | 1 | 100 | |
| 28 | Production Research | 1 | 100 | |

Number of participants: 79

Identification and addressing the GAP: To design the structural way of identifying research gap discuss the specific procedures used to find it and also addressed about the selection of research papers for chosen research topic.

Measurable outcomes: The webinar aims at providing an opportunity to researchers with various ideas to identifying research gaps in subjective ways to critically and finalize the research topics .



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RESEARCH CELL,
Institution's Innovation Council-
IIC &
Internal Quality Assurance Cell-IQAC



Webinar Report on
Research: Initiation, Propagation & Conversion- From Writing To Funding
 Organized by Department of CIVIL ENGINEERING, DSATM

| | |
|-------------------|---|
| Event Name | RESEARCH: INITIATION, PROPOGATION & CONVERSION- FROM WRITING TO FUNDING |
| Theme | Guidelines for Proposal writing & Submission. Learnt to critically evaluate the validity and reliability of the undertaken research work. |
| Date | Wednesday 30/06/2021 |
| Tools Used | Conducted online through Google Meet platform. https://meet.google.com/nhm-wmde-cke |

Vision: To discuss the topics related to issues and challenges in Research: Initiation, Propagation & Conversion- From Writing To Funding and exchange research ideas between the expert and participants from various technical and management fields.

Objectives of the Program/ Event:

1. To address the purpose of the investigation / Research and types of knowledge to be generated to carry out with such work.
2. To anticipate what and how research aim will be achieved by the study.
3. To gain familiarity with a phenomenon of formulate, descriptive and diagnostic research studies.
4. Getting acquainted with proposal writing & Technical paper writing

About the Webinar: The webinar aims to discuss the specific procedures or techniques used to identify, select, process, and analyze information about a chosen research topic.

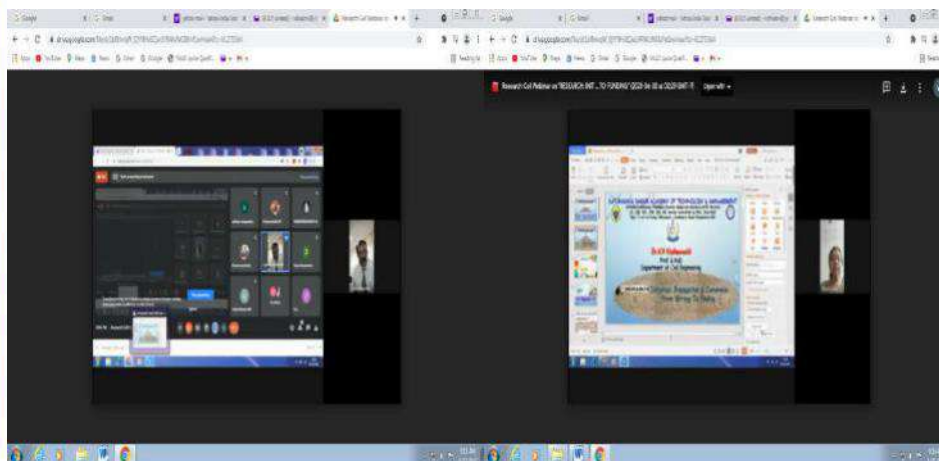
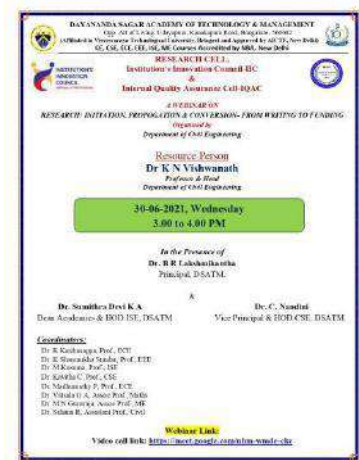
Resource person:

Dr. K N Vishwanath
 Professor & Head Department of Civil
 DSATM, Bangalore.



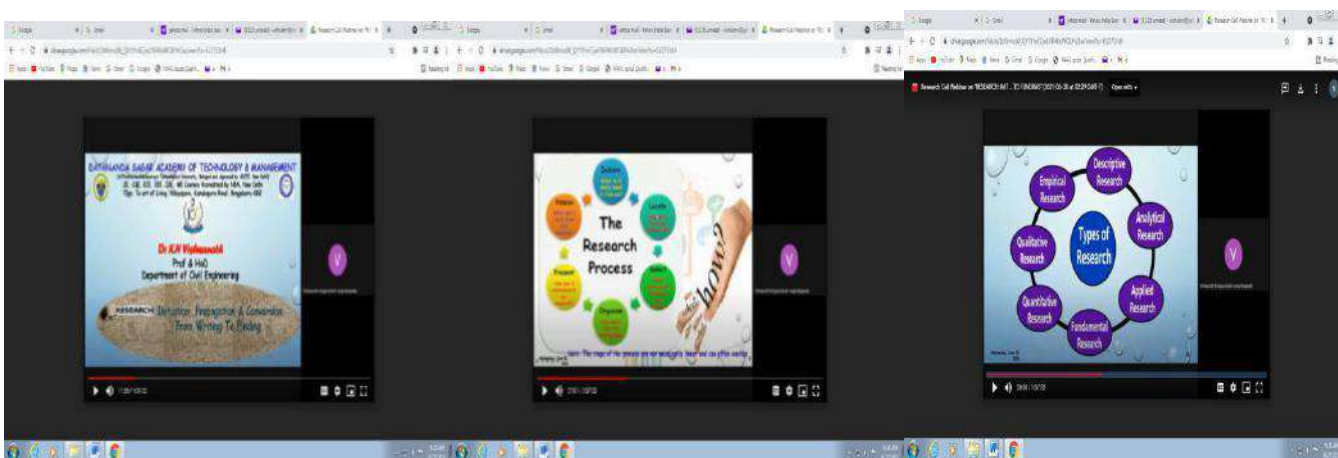
“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”

PHOTO Gallery:



Invitation for the Event

Principal Dr. B R Lakshmi Kantha & Dean Dr Sumithra Devi KA addressing the participants & initiating the webinar with briefing about Objectives of such event



Stages as Webinar progress



Stages as Webinar progress



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Number of participants: 53

Identification and addressing the GAP: Adopting the current technologies and modern tools to attain their research goals. Creating awareness among young Research scholars at the institution & External Scholars registered under RC of different departments, about the meaning, Purpose, process of carrying out Real time research

Measurable Out Come :

- Faculty understood the basic essential of research & Requisites to be fulfilled before start
- Types of Research, Differentiation among them, Identifying the right one based on the background of the scholar was made clear to participants
- Technical paper writing & writing for proposal submission is deliberated upon



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RESEARCH CELL,
Institution's Innovation Council-IIC
&
Internal Quality Assurance Cell-IQAC



Report on the Webinar on Research Methodology

Organized by Department of ISE, DSATM

| | |
|-------------------|---|
| Event Name | Webinar on Research Methodology (Online) |
| Theme | To discuss the specific procedures or techniques used to identify, select, process, and analyze information about a topic. Learn to critically evaluate the validity and reliability of the undertaken research work. |
| Date | 29/05/2021 |
| Tools Used | Due to the pandemic situation and lockdown announced by the Karnataka Government the webinar was conducted online through Zoom Cloud Meeting platform. |

Vision: To discuss the topics related to issues and challenges in Research Methodology, Research Methods, Research Papers, Research Proposals, etc. and exchange research ideas between the expert and participants from various technical and management fields.

Objectives of the Program/ Event:

1. To address the purpose of the investigation and types of knowledge to be generated out of one's investigation.
2. To anticipate what and how research aim will be achieved by the study.
3. To gain familiarity with a phenomenon of formulative, descriptive and diagnostic research studies.
4. To familiarize with hypothesis-testing studies.

About the Webinar: The webinar aims to discuss the specific procedures or techniques used to identify, select, process, and analyze information about a chosen research topic.

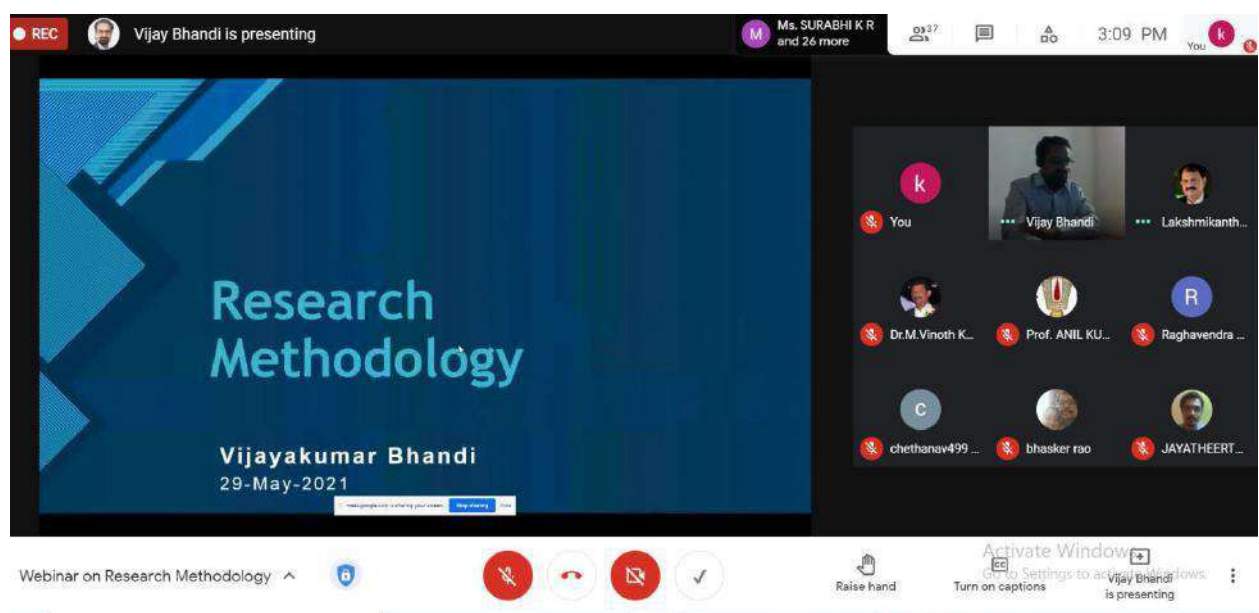
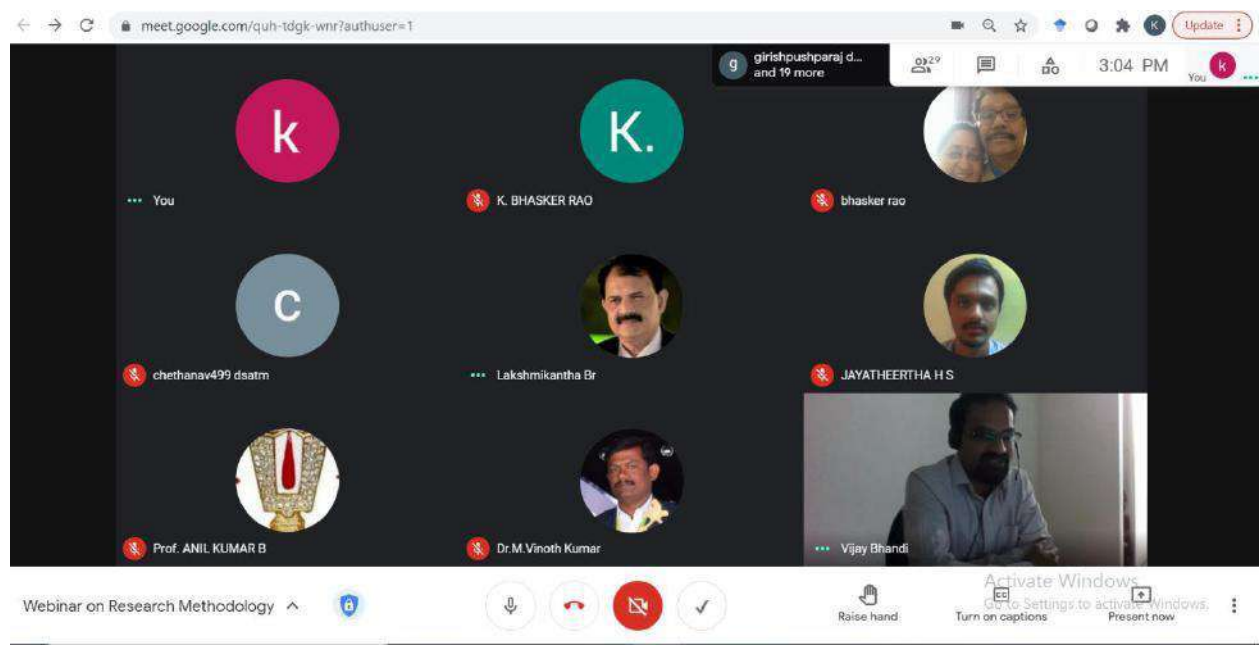
Resource person:

Dr. Vijay Bhandi

Senior Project Manager, Infosys Limited, San Francisco, USA



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“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”

Webinar on Research Methodology (2021-05-29 at 02_35 GM1-7).mp4 - VLC media player

Media Playback Audio Video Subtitle Tools View Help

What is Research??

Vijay Bhandi

04:47

6:25 PM 6/1/2021

Activate Windows
Go to Settings to activate Windows

Type here to search

REC Vijay Bhandi is presenting Mahesh V and 32 more 43 3:11 PM You

What is Research?

Conceptually ✓ Research is defined as the orderly search for truth.

Operationally

Research is:

- ✓ An orderly investigation of a defined problem,
- ✓ Using an appropriate scientific method or methods,
- ✓ To gather adequate and representative evidence,
- ✓ Producing conclusions drawn from logical reasoning without bias,
- ✓ That can be validated,
- ✓ Yield general principles or laws that may be applied in similar conditions.

Dr.M.Vinoth K... Prof. ANIL KU... Raghavendra ... Dean Academi... bhasker rao chethanav499 ...

Webinar on Research Methodology

Raise hand Turn on captions Vijay Bhandi is presenting



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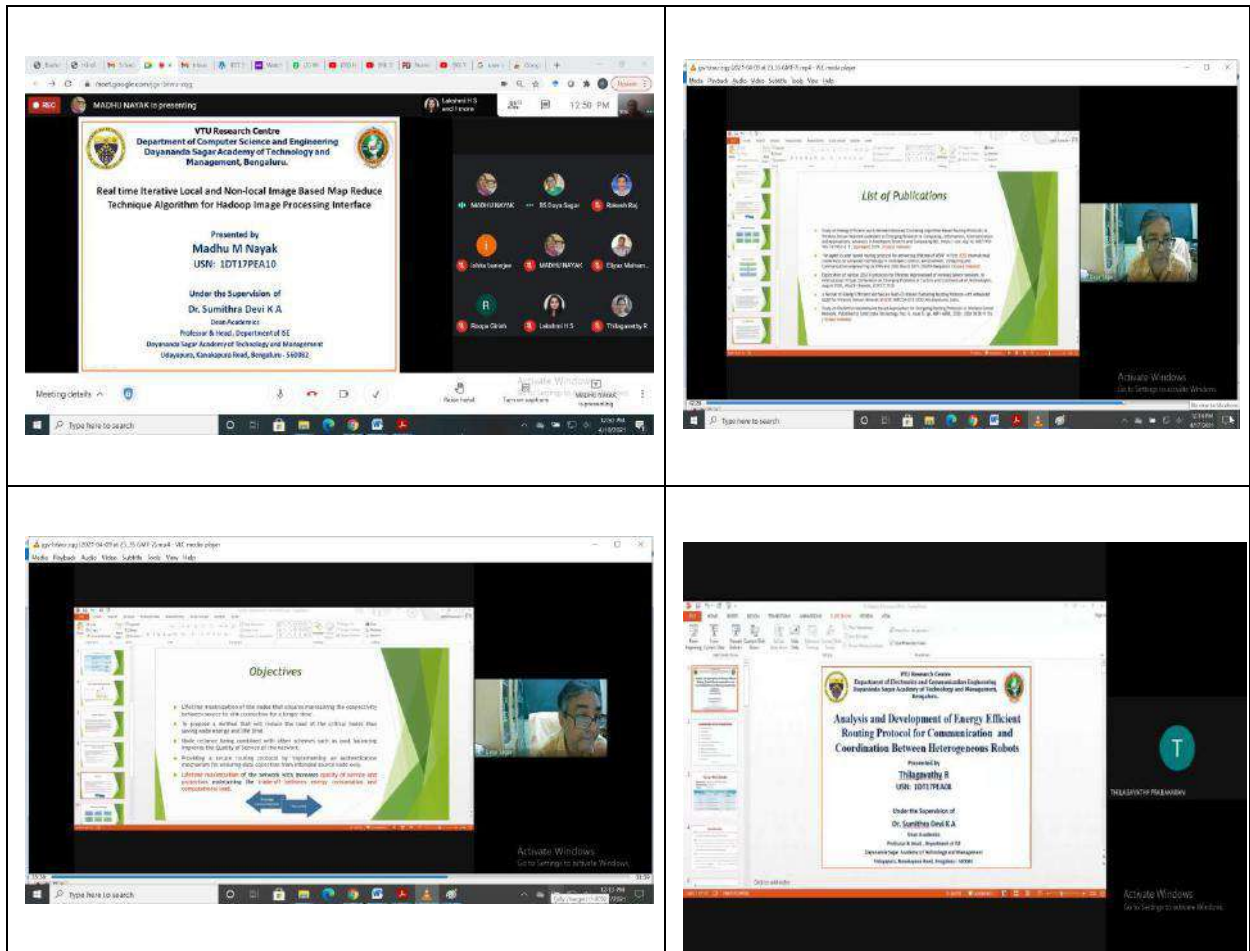


| | |
|-------------------|--|
| Event Name | Research Conclave 2021 |
| Theme | To create and provide a forum for sharing and exchanging research ideas between the participants and experts from various technical and management fields. |
| Date | 10/04/2021 |
| Tools Used | Class room: track 1-5 Track-6 was conducted online through Zoom Cloud Meeting platform. |

Vision: To provide a forum for sharing and exchanging research ideas between the participants and experts from various technical and management fields.

Objectives of the Program/ Event:

- To provide networking opportunity with researchers/industries for the development of collaborative research environment.
- To provide a platform for learning and interacting with eminent speakers from research organizations, industry and academia.



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About the Research Conclave: The conclave aims at providing an opportunity to researchers with various research ideas and backgrounds to get together and promote the development of collaborative research environment by connecting with eminent experts from research organizations, industry and academia.

Resource person: Doctorates from Government and Industrial sector

Number of participants: 70

Identification and addressing the GAP: Adopting the current technologies and modern tools to attain their research goals.

Measurable outcomes: Exhibiting their current research work encourages the researchers to exchange their ideas and seek advice from experts of different organizations, institutions and R&D Centers.



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EVENTS UNDER RESEARCH CELL - 2020

| S.N | Date | Event | Resource Person |
|-----|------------|---|---|
| 1 | 12-12-2020 | Research Methodology | Mr. V K Srirama Assistant Professor Department Of MBA DSATM, Bangalore |
| 2 | 11-11-2020 | A Webinar On Quality research paper presentation and publications | Dr. V Krishna Murthy Research Professor, Dayananda Sagar University |
| 3 | 08-10-2020 | 10 day FDP on Research Orientation | Pravin Chandra KR Professor in community medicine SDM Medical College, Dharwad Dr. V Krishna Murthy Research Professor, Dayananda Sagar University Dr. VanishreeRupanagudi Professional science educator Dr.Seematharannum Associate Professor at PES University Bengaluru, Karnataka, India Dr. Vijay Bhandi Senior Project Manager, Infosys Limited, San Francisco, USA Dr. Vanishree Rupanagudi Freelancer, Bengaluru |



Research Cell, IQAC -DSATM (VTU)

| | |
|------------|---------------------------------------|
| Event Name | Refresher Program on Research Methods |
| Theme | Research Methods |
| Date | 12-12-2020 |
| Venue | Online Platform - Zoom |

Objectives of the Program/ Event

- Providing a preparatory guidance for PhD aspirants across Universities
- To introduce the fundamental concepts of research methodology to all the participants
- To introduce various application avenues of research to the participants

| | |
|---|---|
| | <p>Types of Research</p> <ul style="list-style-type: none"> • Qualitative Research • Quantitative Research • Mixed Methods Research • Exploratory Research • Descriptive Research • Experimental Research |
| <p>Data Collection</p> <ul style="list-style-type: none"> • Types of data - primary vs. secondary • Direct collection - Concept • Secondary data collection • Primary data collection • Collection instruments | <p>Concept/Hypothesis - Statistical Test</p> <ul style="list-style-type: none"> • Parametric • Non-Parametric • Inferential Statistics |

Details about the event:

- Number of participating Institutions = 15
- No. of Participants = 30 +
- Participants were from across 10 streams including various branches of Engineering, Management, Higher Education, Computer Applications
- Fundamental concepts and applications related to research methodology were discussed with illustrations .
- Relevant questions formats were discussed and clarifications were provided to all the queries.



Research Cell, IQAC- DSATM (VTU)

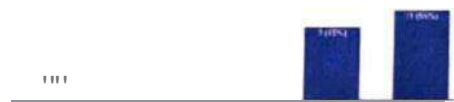
Measurable outcomes:

- Trainer Competence was rated as very high by 55% of participants, high by 45% of participants
- Conceptual clarity was rated as very high by 55% of participants, high by 45% of participants
- Content quality was rated as very high by 50% of participants, high by 45% of participants , moderate as 5% of participants
- Overall effectiveness was rated as very high by 60% of participants, high by 40% of participants

Rate the competence of the trainer



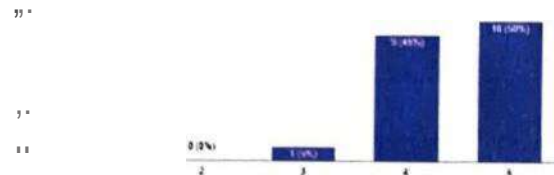
Relevance of training content to the theme



Clarity of concepts taught



Quality of Training Content used



Overall effectiveness of the seminar





| | |
|---------------|--|
| Event Name | Webinar On Quality Research Paper Preparation and Publications |
| Theme | Faculty Development Programme |
| Date and Time | 11-11-2020, 3.00 PM |
| Venue | A Block: 4th Floor, Seminar Hall Webinar Link: https://meet.google.com/dvm-bkyk-hys |

Objectives of the Program/Event:

- To enhance the outlook of the faculty members of DSATM for Quality article writing and publications in key domains of research, professionalism and to improve the academic performance of learners.
- To motivate the faculty members in taking for quality paper publications in peer reviewed Scopus index journals

Photos:



Purpose:

To motivate the faculty of DSATM to prepare and publish Quality research paper in good impact factor journals.

Resource Persons:

1. Dr. K.N. Balasubramanya Murthy, Vice Chancellor, DSU, Bengaluru
2. Dr. V. Krishna Murthy, Research Professor, DSU, Bengaluru

Preferably Measurable Outcome:

- Quality paper publications

Convener:

Dr. K. Karibasappa, ECE Dept.

Coordinators:

Dr. M. Kusuma, ISE Dept.
Dr. Madhumathi P, ECE Dept.
Dr. Vatsala G A, Maths Dept.
Dr. Sahana R, Civil Dept.



| | |
|------------------------------|---|
| Event Name | TEN DAYS FACULTY DEVELOPMENT PROGRAM ON RESEARCH ORIENTATION |
| Theme | Faculty Development Programme |
| Date | 08-9-2020 to 18-9-2020 |
| Venue | A Block: 4 th Floor, Seminar Hall Online Using Link to Register: https://forms.gle/zmmfp9HPPGYav1r5A Event Link: Google meet https://meet.google.com/yhc-zfji-azt |
| Convenor: Dr. K. Karibasappa | |

Objectives of the Program/Event:

- Enhance the quality and skill of researchers with their researches.
- To emphasize on broad range of techniques available in research methods, sampling and data analytics for academicians and researchers.
- To write and submit quality Project Proposals for Grant Agencies
- To sensitize the researchers regarding the Patent Application Procedure
- To motivate the faculty members in taking up Interdisciplinary Research work

Photos:



Purpose:

The Research orientation is a learning program that revolves around critical thinking, creative working and practical application in research. The main purpose of research is to contribute for developing knowledge in a field or study. This program in higher educational institutions motivates the faculty members and students to involve in research activities.

About the topic: The Resource persons covered the following topics

| Date | Topics | Resource Person |
|---|---|---|
| 08-9-2020 (Tuesday) 10:30 AM | How to do research: A practical Approach with an example | Dr. Gurunath Gurralla Department of Electrical Engineering Indian Institute of Science Bengaluru |
| 08-9-2020 (Tuesday) 2.30 to 4.00 PM | Research – Meaning: Why? What? Problem Statement | Dr. V. Krishna Murthy Research Professor Dayananda Sagar University (DSU) Bengaluru |
| 09-9-2020 (Wednesday) 2.30 to 4.00 PM | Literature Survey Hypothesis & Objectives | Dr. V. Krishna Murthy(DSU) |
| 10-9-2020 (Thursday) 2.30 to 4.00 PM | Material & Methods Sample, Sampling & Data Analysis | Dr. V. Krishna Murthy (DSU) Dr. Vanishree Rupanagudi Freelancer, Bengaluru |
| 11-9-2020 (Friday) 2.30 to 4.00 PM | Results & Discussion Summary & Conclusions | Dr. V. Krishna Murthy(DSU) |
| 12-9-2020 (Saturday) 2.30 to 4.00 PM | Hypothesis Testing, Chi-Square test, ANOVA | Dr. K. R. Pravin Chandra Professor, Dept. of Community Medicine SDM Medical College, Dharwad |
| 14-9-2020 (Monday) 2.30 to 4.00 PM | Misconduct in Research | Dr. Seema Tharannum Associate Professor, PES University, Bengaluru |
| 15-9-2020 (Tuesday) 2.30 to 4.00 PM | References, Citation Styles Articles: Title Abstract, Keywords & Introduction | Dr. V. Krishna Murthy(DSU) |
| 16-9-2020 (Wednesday) 2.30 to 4.00 PM | Project Proposal Writing & Submission Grant Agencies | Dr. V. Krishna Murthy(DSU) |
| 17-9-2020 (Thursday) 2.30 to 4.00 PM | Patents, Copyrights, Trademark | Dr. Seema Tharannum (PES) |
| 18-9-2020 (Friday) 2.30 to 4.00 PM | Profession and Professionalism Values, Ethics & Morals; | Dr. V. Krishna Murthy(DSU) |
| Sessions are with interactive and participative in nature with Questioner and Quiz. | | |

Address of the Gap:

Adopting the latest research methods using **Hypothesis Testing, Chi-Square test, ANOVA.**

Preferably Measurable Outcome:

- Project Proposal Writing and submission to grant agencies



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EVENTS UNDER RESEARCH CELL - 2019

| S.N | Date | Event | Resource Person |
|-----|------------|--|---|
| 1 | 27-04-2019 | Technical session on Space Communications- Telemetry, Tracking and Command | Mrs. Smitha K S Deputy Project Director, Integrated Vehicle Health Management ISRO, Thiruvananthapuram |
| 2 | 10-05-2019 | Funded Project Proposal Meeting | Dr. Ranjith Krishna Pai Principal Scientific Officer/Deputy Secretary Technology Mission Division, DST, New Delhi |



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RESEARCH CELL(EVENTS)

| | |
|------------|---|
| Event Name | Space Communications- Telemetry, Tracking and Command |
| Theme | Technical training |
| Date | 27/04/2019 from 10AM to 11AM |
| Venue | A Block, Seminar Hall DSATM |

Objectives of the Program/ Event:

The objective of the event is to let the faculty's and students know about design, construction, implementation and testing of a RF subsystem to be used on a digital communication link. The telemetry, tracking, and control (TT&C) subsystem of a satellite provides a connection between the satellite itself and the facilities on the ground. The purpose of the TT&C function is to ensure the satellite performs correctly.

Purpose: To create awareness about various opportunities in Space Communication. About the topic:

Trainer covered the following topics

- Basics of Space Communication
- Telemetry of a satellite
- Tracking of a satellite
- Control subsystem of a satellite
- Purpose of TT&C in control subsystem
- Controlling of spacecraft by the operator on Earth
- Receive the uplink commands, process and send them to other applications.
- Various opportunities for electronics in Space communication sector
- Integrated Vehicle Health Management System

Dr. B. S. Srinivas

Trainer of
Technology Management
Udayapura, Dayananda Sagar
Academy of Technology & Management

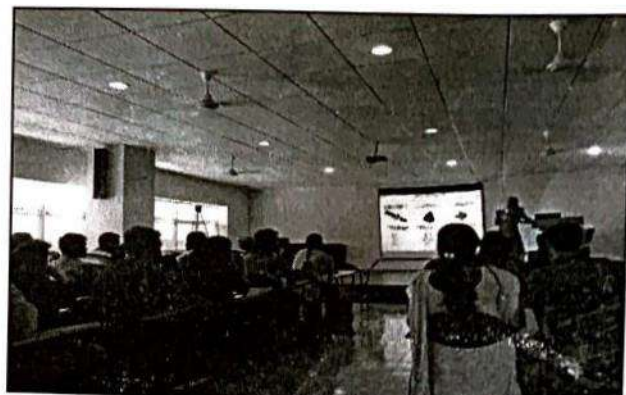
Resource Person: Mrs. Smitha KS

Deputy Project Director, Integrated Vehicle Health Management ISRO,
Thiruvananthapuram.

Expected Measurable outcomes: All participants gained knowledge on Space Communication regarding the following topics:

- Understand basics of Space Communication.
- Describe the Telemetry, Tracking and Control subsystem of a satellite.
- Solve various doubts regarding space communication

Photos:





Dayananda Sagar Academy of Technology & Management [CSE,ISE,ECE,EEE & ME branches accredited by NBA, New Delhi for 3 years] (Affiliated to VTU, Belgaum and Approved by AICTE, New Delhi)
Udayapura, Kanakapura Main Road, Opp. Art of Living, Bangalore- 560082



RESEARCH CELL (EVENTS)

| | |
|------------|---|
| Event Name | Funded Projects |
| Theme | The ability to successfully execute funded projects |
| Date | 10/05/2019 from 10.30AM to 11.30AM |
| Venue | A Block Seminar Hall, DSATM |

Objectives of the Program/ Event:

To provide a forum for transition of ongoing research and advanced techniques adapted in the field, to the budding engineers, research scholars and faculty members.

Purpose: To get the awareness among all students and faculty members about various funding opportunities in DST to build their research further.

About the topic:Funding projects

Resource Person: Dr.Ranjith Krishna

Pai

Principal Scientific Officer/Deputy Secretary Technology Mission Division,
DST, New Delhi

Preferably Measurable outcomes: Many faculty members who attended this event gathered information needed for applying for various DST funded projects.

Photos:



Dr. B. R. L. ...
Principal / Director
Dayananda Sagar Academy of
Technology & Management
Udayapura, Kanakapura Road
Opp. Art of Living, Bangalore - 560 082

