NATIONAL ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to Anna University, Chennai)
K.R.NAGAR, KOVILPATTI-628 503

Research and Development Policy

National Engineering College (NEC) was established in 1984 with a vision, "Transforming lives through quality education and research with human values". The Institute has developed excellent facilities, both in terms of infrastructure and scholastics. NEC encourages faculty members and students to undertake sponsored research projects with a commitment to serve the society. Research and development is carried in several areas like Computation, Energy, Environment, Image Processing, Materials, Manufacturing, Nanotechnology, Telecommunication, and Sensor Networks and simulation studies. Six departments of NEC have been recognized as research centers by Anna University, Chennai.

Regulations relating to the Degree of Doctor of Philosophy (Ph.D) and MS (By Research) in the related Faculties of Engineering and in Science and Humanities of NEC are as per the Regulations for Ph.D and MS (By Research) prescribed by the Anna University, Chennai.

1. Research and Development (R&D) Centre:

To achieve high quality research ambience in the Institute, a Research & Development Centre is set up with the objective of developing the strategic plan for scientific and
technology research and ensuring the implementation of such plans. The R&D Centre provides specialized administrative and managerial support for the operation of academic research, sponsored research, consultancy and other R&D related activities of the Institute.

2. Academic Research

2.1. Doctor of Philosophy (Ph.D) and Master of Science(M.S) by research
  i. A candidate should register at NEC research centre on getting provisional registration letter from Anna University, Chennao.
  ii. Ph.D/M.S candidates should present their research progress before the review committee constituted by the concerned department once in six months.
  iii. Faculty members with Ph.D must get supervisorship from Anna University, Chennai.
  iv. Maximum of 8 Scholars are permitted to do research under a supervisor.

v. The Research scholars are encouraged to publish their research works in reputed SCI indexed journals after getting the approval from their supervisors.

vi. Research Supervisors are advised to submit the research articles to the journal only after checking the Plagiarism.

2.2. Institution Fellowship:

The enrollment of full-time research scholars plays a vital role in enhancing the quality of research in the institute. In support of our vision and to strengthen the quality ofresearch and development in all our research centers,Institution Fellowship Scheme is implemented exclusively for full-time Ph.D. Scholars. The institutional research fellowship of Rs.10,000/- per month is given to the Ph.D. Scholars. The institutional fellow has to abide by the Research policies of NEC.

2.3. Incentives for Publications:

In order to motivate the faculty members towards research and publishing their research findings in reputedjournals with impact factor, incentives are given to faculty members.

- **SCI Journal**

Publications with Impact Factor (Clarivate Analytics)	Incentive Amount (Rs.)
1.5 and above	10,000
0.5 and above and less than 1.5	5,000
Less than 0.5 but more than 0.1	2,000

- **Patents**
  For granted patent, Rs, 10,000/- (Equivalent to one high-impact factor journal publication incentive) may be given as an incentive to the inventor (faculty).

- **Scopus Publication**
  Faculty members with Scopus indexed publications may be given an incentive of Rs. 3000/- per publication.

3. Sponsored Research

3.1. Recruitment of a project staff:

i. All the appointments related to projects (Junior research fellow/Senior research fellow/Research Assistants/Institutional Fellow) will be contractual and on the basis of consolidated monthly emoluments prescribed by the Sponsoring Agency or the institute.

ii. The tenure of appointment of a project staff will be for the duration of the project.

iii. The Project staff shall execute a contract agreementon non-judicial stamp paper

of value at least Rs. 100/-at the time of joining. The contract may beterminated by either side (Staff or R&D Unit) by giving three months' notice or three monthsconsolidated emoluments in lieu of the notice.

iv. The selection of project staff shall normally be made as per the guidelines provided by the sponsoring agency and with the approval of Principal through the Dean (R&D).

v. The project staff may be allowed to register for Full- time MS (By Research)/Ph.D programme, if he/she fulfills all the requirements prescribed by the Institute.

3.2. Salary and Allowances:

i. A separate book of accounts shall be maintained for each project.

ii. Overhead charge of the project will be transferred to the 'Funded Project' account.

iii. Accounts for sponsored projects shall be maintained under five broad budget heads. They are: Salary, Equipment, Contingency & Consumables, Travel and Institutional Charges (Overhead). Minor adjustment in approved budget heads may be permitted by the Principal without violating the norms of funding agency.

iv. Principal Investigators (PIs) shall arrange to maintain Procurement-cum-purchase Registers and Stock/AssetRegister.

v. Cash advance shall be drawn in the name of PI/Co-PI of the project.

vi. All expenditures shall normally be made within the proposed date of completion of the project. Exception may be permitted with the consent of the sponsor.

3.3. TA and DA Rules:

The Government of Tamilnadu TA & DA rules will be applicable to the PIs and project employees for all sponsored research/consultancy projects related travelling and boarding expenses.

3.4. Accounting and Financial SupportsBenefits to PI/CoI:

i. Within the framework of a sponsored project, PIs shall be permitted to have consultancy fee/honorarium, if the sponsor so approves.

ii. Depending on availability of funds under Travel head and with the approval of the Principal, expenses (TA, DA, Registration Fee, etc.) for presenting papers in National Conferences in fields relevant to the project shall be given to PIs/CoIs from the project fund.

iii. On recommendations of PIs and with the approval of Principal, project staff and students in the projects may be permitted to present papers in conferences. If funds are available under Travel head, then TA, DA and Registration Fee support may be provided.

3.5.   Incentives for Projects Funded by Sponsoring Agency:
In order to promote research environment and activity of the Institute and motivating the researchers, incentives are given to the faculty members, who have Projects sponsoredby sponsoring agencies. 50% of the Overhead charge defined by the Agency is given as Incentive to the PI and Co-PI of the project. If no overhead is specified in the Project Fund, 2% ofthe amount received is given as Incentive to the PI and Co-PI ofthe project.

4.   Consultancy and related Services:
To promote research oriented consultancy works, to effectively utilize the equipment's, to impart practical knowledge and to generate revenue, each and every department is encouraged by the Institute to actively take up consultancy woks with Industries. The revenue generate for such consultancy works are shared as per the following details.

Category	Activity	Institutes Share as a % of consultancy cost	Faculty Share as a % of consultancy cost
I	Projects requiring use of Laboratory and other facilities of the Institute	60 Percent	40 Percent
II	Projects that do not use Institutes Facilities	40 Percent	60 Percent

On completion of the work, the honorarium on approval of the Principal may be distributed on a case by case basis or periodically.

5.   Faculty Development & Research Interactions:
To get expertise in specific domain and promote the research interest, NEC is providing full financial help (Registration/course Fee and TA/DA) to faculty members attending International Conference/Seminar in abroad and in India, GIAN Courses and Research Workshop/IndustryKnow How. A faculty can avail these benefits once in an academic year. TA/DA and Honorarium is allowed for the experts coming to NEC for Research Interactions and Collaborative Research works.

6.   Code of Conduct:
The following are the codes of conduct which express the ethical values to be practiced by all staff members engaged in academic and/or sponsored research activities at NEC.
- To abide by all the appointment related terms and conditions as approved by Principal.
- To maintain secrecy of the research findings/technical information and to avoid communication of any official document or information to others without permission.
- To commit no form of plagiarism during art-of-work and preparation and

dissemination of reports and research articles.
- To practice and promote fairness in research.
- To uphold the values of freedom, democracy, equalityand respect for diversity.

In case of any breach of code of conduct by any project employees, the Principal may constitute an enquiry committee to initiate disciplinary proceedings against those employees.

POLICY AND PROCEDURE FOR SEED MONEY SCHEME

Introduction:

A robust research component provides an excellent opportunity for teachers to keep abreast of developments in their respective research areas of interest.
Seed Money Scheme (SMS) has been initiated at NEC to provide research grants to motivate faculty members to stimulate competitive research in their areas of interest. SMS will develop the faculty members to apply major research proposals for funding from National and International agencies.

Objectives:

- To facilitate faculty members in starting a research program that has the potential toattract funds from external agencies.
- To promote inter-faculty collaboration in emerging research areas.
- To increase the number of publications in peer-review journals.
- To promote the culture of product development.
- To attract the young talented people.

Awards:

- Seed money grant of a maximum of 10 lakhs.
- The maximum duration of funding is 2 years.

National Engineering College, K.R.Nagar, Kovilpatti – 628 503.
(An Autonomous Institution affiliated to Anna University Chennai)
Research and Development
Guidelines for the award of Institutional fellowship
Notification [2017-2018]

Date: 20.12.2017

It is notified for information of all concerned that the institutional fellowship at the rate of Rs.5,000/- per month is instituted to the full-time Ph.D. scholars of National Engineering College (Autonomous) as stated below:

Eligibility criteria for selection of students for award of institutional fellowship:

- First Class in qualifying UG, PG degree

- Age must be between 21-30 years

- 3 years of age relaxation if any one of the following is satisfied:

  o Industrial Experience
  o Qualified in NET/SET or GATE [OR] Rank holder in UG/PG
  o Published WoS/SCI research articles during/after PG

- A full-time PhD scholar connected with project as JRF / SRF are not eligible to apply.

Terms and Conditions for Institutional Fellowship:

- The selection of the full-time PhD scholars for Institutional Fellowship is based on the eligibility criteria, recommendation letter from the supervisor, and research attitude of the candidate ranked by the assessment committee.

- The fellowship is tenable only after Full-time Ph.D registration and also for a maximum period of 3 years.

- The research scholar will be reviewed on every semester by the committee constituted by the Principal.

- The extension of fellowship for subsequent semesters is subject to satisfactory progress of the research work carried out.

- Semester wise progress report of the fellow has to be submitted.

- There is no NEC-PhD fee to be paid by the scholar during the tenure of fellowship.

- The NEC-PhD regulations have to be abided by the scholar.

Expected Research Outcomes from the beneficiary:

- Submitting project proposals once per year along with supervisor. So that they can join as JRF / SRF upon approval of the project.

- Atleast one WoS Journal Publication in the First year of the Fellowship tenure.

- Atleast two WoS Journal Publications in the Second year and Third year of the Fellowship tenure.

- Atleast one participation in GIAN/Workshops/Conferences in India at IITs, IISc, NITs per year along with supervisor.

Dean (R&D)   **PRINCIPAL**   **DIRECTOR**

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NATIONAL ENGINEERING COLLEGE, K.R.Nagar, Kovilpatti – 628 503.

(An Autonomous Institution – Affiliated to Anna University Chennai)
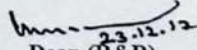
Research and Development

Date : 21.12.2017

Submitted to Chairman

In our College, 7 research centers are recognized by Anna University Chennai. So far, 34 R&D projects are supported by various funding agencies. Presently, 13 full-time PhD scholars are pursuing their PhD under the guidance of our faculty members. The enrollment of full-time scholars play vital role in enhancing the quality of research and also has great impact in NIRF ranking.
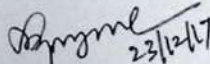
In support of our Institution's vision and to strengthen the quality of R&D activities in all our research centres, from the academic year 2017-2018 onwards, it is proposed to install an "**Institutional Fellowship Scheme**" exclusively for full-time PhD scholars. As per the scheme, **the eligible, selected Full-time scholars will be supported with a Fellowship amount of Rs.10,000/- per month**. The extension of fellowship for the scholar is purely semester-wise tenure basis with specific criteria on their research improvements and for the maximum period of 3 years.

S.No.	Estimated Expenditure for Institutional Fellowship	Rs.10,000/- per fellow
1.	Commitment for Institutional Fellowship during 1st Year	12,00,000
2.	Commitment for Institutional Fellowship during 2nd Year	24,00,000
3.	Commitment for Institutional Fellowship from 3rd Year onwards	36,00,000

In this regard, permission may please be granted to implement this scheme for extending the benefit to a maximum of 10 full-time PhD scholars per academic year.

23.12.12

Dean (R&D)

(Dr.M.A.Neelakantan)

Forwarded.

23/12/17

PRINCIPAL

Recommended.

2 6.12.17

DIRECTOR

Approved/Sanctioned

CHAIRMAN/CORRESPONDENT

RESEARCH ADVISORY BOARD

Ref:- NEC/ Dean R&D / 2021-2022 / 1   **06/10/2021**

Circular

The Research Advisory Board (RAB) has been constituted to strengthen National Engineering College's research ambience, enhance the quality of scholarly endeavours, and develop research programs' growth. The following members constitute the Research Advisory Board

S.No	Name	Address	Particulars
Internal Members			
1	Dr. K,Kalidasa Murugavel, Ph.D.,	Principal National Engineering College K.R.Nagar, Kovilpatti	Chairman
2	Dr. S.Shanmugavel, Ph.D.,	Director National Engineering College K.R.Nagar, Kovilpatti	Management
3	Dr. M.A. Neelakantan, Ph.D.,	Dean R&D National Engineering College, K.R.Nagar, Kovilpatti	Member
4.	Dr. V. Gomathi, Ph.D.,	Professor & Head, Dept of CSE National Engineering College, K.R.Nagar, Kovilpatti	Member
5.	Dr. T. S. Arun Samuel	Associate Professor, Dept of ECE National Engineering College, K.R.Nagar, Kovilpatti	Member
6.	Dr. R. Harichandran	Associate Professor, Dept of MECH National Engineering College, K.R.Nagar, Kovilpatti	Member
External members			
7.	Dr. R Brakaspathy	R&D Advisor Indian Institute of Technology – Madras Chennai	Member
8.	Dr. Debasis Samanta	Associate Professor Dept of Computer Science & Engineering Indian Institute of Technology, Kharagpur.	Member
9.	Dr. J Klutto Milleth	Chief Technologist Center of Excellence in Wireless Technology (CEWiT) Indian Institute of Technology – Madras Chennai	Member
10.	Dr. Murugan Karuppiah	Scientist "E" International Advanced Research Centre for Powder Metallurgy and New Materials, Balapur P.O., Hyderabad: 500 005	Member

Roles & Responsibilities

- The primary role of the Research Advisory Board (RAB) is to guide in establishing research ambience with adequate state-of-art infrastructures at recognized research centers of theInstitution.
- The RAB comprises the Director, Principal as Chairperson, Dean, Research and Development, Three internal members, and Four external members from scientific R&D Labs, Industries, and academic leadership with research competency in emerging research fields related to the specializations of each research centre with three years term.
- The RAB shall meet once per semester or as needed.
- The RAB will review R&D proposals and collaborative outreach projects yearly, including half-year meetings.
- The RAB will provide recommendations on extending Institutional Seed Money support for R&D project ideas based on their scientific merits, such as objectives, the feasibility of the study, the principal investigator's previous track record, and expected outcomes in alignment with the Institution's short-term strategic plan.
- The RAB members will provide critical and constructive feedback for the research supervisors based on the research scholar's progress and accomplishments.

Dean R&D   Principal

Copy to:-
1. The Chairman
2. HODs of all Department
3. Individual Members

Ref: - NEC/Dean R&D/2021-2022/13   **08.03.2022**

Circular

All supervisors must follow the research regulation for their scholars doing Doctor of Philosophy (PhD) and Master of Science (MS) by research. Kind cooperation is solicited.

Research Regulation

1. All supervisors must get permission from the Head of the Department before their candidates apply for PhD admission under Anna University, Chennai.
2. After receiving the provisional registration from Anna University, the research scholars shall enroll and register at National Engineering College with a requisition letter forwarded by the supervisor to the Principal through the Head of the Department and Dean (R&D).
3. After enrolling at NEC, the Doctoral Committee (DC) meeting shall be conducted after paying the research fee of Rs.5000/- per year.
4. The full-time scholars must sign the attendance register/biometrics maintained at the department office daily.
5. The Scholars can avail leave as per the college norms.
6. For writing the Course work, Anna University regulations/NEC regulation 2019 shall be followed for attendance.
7. The Supervisors have to confirm whether the scholars have paid the college research fee before forwarding the progress report of the Scholar to the University.
8. It is mandatory to send the DC meeting schedule to the Dean(R&D) office.
9. Full-time scholars should present their research progress in the review meeting once in six months. The progress review meeting schedule will be announced by the R&D Office in consultation with the concerned department.
10. It is mandatory to get Anna University No Dues certificate and NEC No Dues certificate from the Dean(R&D) office before submitting the Thesis.
11. After completing the Viva-Voce, the research scholar should submit a copy of the Ph.D./MS Thesis to the College Library.
12. All research communications by the supervisor to the principal shall be through the Head of the Department and Dean (R&D).

Dean R&D   Principal

NATIONAL ENGINEERING COLLEGE, K.R.NAGAR, KOVILPATTI – 628 503

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RESEARCH AND DEVELOPMENT

Research Advisory Board

National Engineering College (NEC), established in 1984, has made concerted efforts to establish state-of-art research ambiance, persuade sponsored and collaborative research, enhance industry interaction and consultancy, develop augmented research laboratories, and foster industrial need research works.

External Members

 Dr. R Brakaspathy R&D Advisor Indian Institute of Technology – Madras Chennai **https://in.linkedin.com/in/r-brakaspathy-34665518**	**Dr. R Brakaspathy** has close to 30 years of experience in R&D Project Management. He worked for the Department of Science and Technology (DST), Government of India and handled various programs, including the establishment of centres of excellence, identification of emerging areas, formulation of new schemes and development of human resources. He superannuated as Secretary, Science and Engineering Research Board (SERB), an autonomous research funding body of the DST. He is presently working as R&D Advisor at the Indian Institute of Technology-Madras, Chennai.
 Dr. Debasis Samanta Associate Professor Department of Computer Science & Engineering Indian Institute of Technology,	**Dr. Debasis Samanta** is currently involved in Research Areas like Human-Computer Interaction, Brain Computing, Biometric Security, Data Analytics, and Software Testing. He is the recipient of Best Article of the Year by Computer Society of India (1998), Best Paper award by 8th ADCOM Conference, IIT Guwahati (2006), and Microsoft Valued Professional award by Microsoft, USA (2007). He has published 71 refereed journals, four books, guiding 12+11(Ongoing) Ph. D scholars and 14+1(Ongoing) MS scholars. He has filed ten patents, completed Rs. 582.99 lakhs worth of

Kharagpur. https://cse.iitkgp.ac.in/~dsamanta/	projects, and currently, he has Rs. 193.64 lakhs worth of ongoing projects.
Dr. J Klutto Milleth Chief Technologist Center of Excellence in Wireless Technology (CEWiT) Indian Institute of Technology – Madras Chennai **https://cewit.org.in/management-team/**	**Dr. J Klutto Milleth** is a Chief Technologist at CEWiT, IIT Madras. His research focuses mainly on the L1, L2, and L3 layers of 4G and 5G Broadband Wireless Communication system technology. He has lead the collaborative research project in 5G with IISc Bangalore, IIT Madras, IIT Bombay, IIT Hyderabad, IIT Delhi, IIT Kanpur, and SAMEER Chennai. His research activity has led to 25 publications in leading national/international journals and conferences. He has 25+ US and 15+ Indian patents already granted and filed another 05+ US and 35+ Indian patents under examination. He has received the TSDSI FELLOW 2020, the Hall of Fame 2020 award by TSDSI for his contribution to 5Gi technology.
Dr. Murugan Karuppiah Scientist "E" International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Balapur P.O., Hyderabad: 500 005 **https://www.arci.res.in/people-pages/1558957770_K%20M%20CV%2016052019.pdf**	**Dr. Murugan Karuppiah** is involved in research areas like antireflective, anti-tarnishing, self-cleaning, metal-dielectric nano-composites thin film synthesis by sol-gel chemical methods for energy and environmental applications. His work includes thin films characterization using advanced material characterization techniques and ellipsometry data analysis. He received Platinum best group awards at the Asia Nanotech Camp 2011, Seoul, South Korea, for Sustainable Nanotechnology for saving water. He has published 29 refereed journals. He has been granted three patents and two more patents in process. He completed Rs. 166 lakhs worth projects, Rs. 27 lakhs worth consultancy. He is currently working to develop a pack and slurry aluminising process for high-temperature oxidisation and corrosion resistance and slurry coatings for various engineering and domestic applications (ongoing) projects.