K.S.RANGASAMY COLLEGE OF TECHNOLOGY

(Autonomous)

Tiruchengode – 637 215, Namakkal, Tamil Nadu

IMPLEMENTATION OF CODE OF ETHICS IN RESEARCH

AUGUST 2021

K.S.Rangasamy college of Technology pays more attention towards research and development, which motivates all aspirants of research, members of faculty and students all over to carry out the research. KSRCT has become hub for real aspirants of research. Implementation of certain code of ethics is mandatory, so as to bring out the quality in research, which in turn is a fruitful research. In this aspect, KSRCT has included the Research Methodology – Engineering Management study as one of programme elective in PG   curriculum. Researchers, while doing Post Doctoral degree have to opt this paper as a course work one among the other course work subjects. Apart from this, we have an audit courses in UG& PG level. KSRCT, R&D has framed a research ethics assessment pattern for periodical monitoring of the problem statement, tools/data used for the research project, work plan objectives and methodology to be followed at the time of research.

The researcher has to adhere to the guidelines of Anna University, where a doctoral committee has to be formed and the committee will guide the Candidates in the progress of their research. He should present his/her progress of research in the review meeting once in six months and submit the Half Yearly Progress Report in the prescribed format to the department in which they have registered. The schedule for the review meeting would be prepared and announced by the concerned department. Under the esteemed guidance of Head of Department and Research supervisor candidate's progress will be checked and monitored periodically.

Along with the above said information a separate research advisory committee for monitoring and coordinating the research activities in the institution and separate   Project evaluation committee to evaluate the progress and outcomes of the project like publications, patent, copy right, feasibility of the product to society.

- Currently, institution has 61 research supervisors recognized by Anna University. Everyone have a separate login ID for online access to Urkund Plagiarism check software by Centre for Research, Anna University, Chennai.

- Research Scholar should submit the copy of Urkund plagiarism check report to the concern supervisor for a paper before submitting to the journal/Conference.

- The research scholar Synopsis/ Thesis should accompany Urkund plagiarism report while submitting same to Center for Research, Anna University.

- All Post Graduate projects, dissertation, thesis should include the copy of Plagiarism check report.

Apart from the recommended software Plagiarism on thesis, research paper, and assignments can be checked online at free of cost. The important top 10 free Plagiarism Checkers are DupliChecker.com, Plagiarismsoftware.net, Plagiarism CheckerX, PlagScan.com Plagramme.com, Smallseotools.com, Plagiarisma.net, Quetext.com, Easybib.com and Noplag.com.

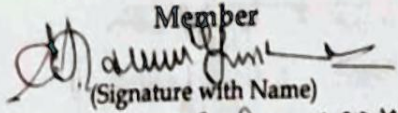## MINUTES OF THE FIRST DOCTORAL COMMITTEE MEETING

The Doctoral Committee Meeting of the Ph.D. Scholar, Mr. M.Moorthi (Reg.No. 18142697173) was held on 07.07.2018 at 10.00AM in the Department of Mechanical Engineering, K. S. Rangasamy College of Technology, Tiruchengode. The following members were present
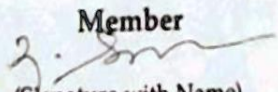
1. Dr. A. Murugesan (Supervisor & Convener)

2. Dr. D. Senthilkumar (Member)
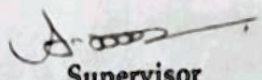
3. Dr. E. James Gunasekaran (Member)

Mr. M.Moorthi (Reg.No. 18142697173) has presented the overview of the proposed research work. The Doctoral Committee has approved the research topic as "EXPERIMETAL INVESTIGATION OF DI-CI LHR ENGINE CHARACTERISTICS OPERATED WITH OXYGENATED FUELS". The Committee has recommended the scholar to undertake the following course works
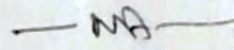
Course Code	Course Title	Credits	Core Course / Elective / Special Elective
50 PED E15	Research methodology-Engineering and management studies	3	Elective
50 PED E24	Instrumentation for Thermal Engineering	3	Elective
50 PED E44	Alternative fuels for I.C engines	3	Elective
50 PED E34	Engine Pollution and Control	3	Elective

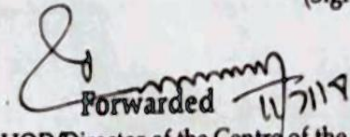Number of course works as applicable to the scholars

Member
(Signature with Name)
(E. JAMES GUNASEKARAN)

Member
2.
(Signature with Name)
D. SENTHILKUMAR

Supervisor
(Signature with Name and seal)

Joint Supervisor
(Signature with Name and seal)
(if applicable)

Dr. A.MURUGESAN, M.E.,Ph.D.,
PROFESSOR
Dept. of Mechanical Engineering
K.S.Rangasamy College of Technology
Tiruchengode - 637215. Namakkal District

Forwarded
Signature of the HOD/Director of the Centre of the Supervisor
(Name and Seal)
Dr. A. KUMARAVEL
Professor and Head
Department of Mechanical Engineering
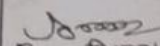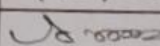K.S Rangasamy College of Technology
TIRUCHENGODE - 637

COURSE WORK REGISTRATION FORM
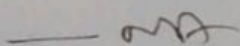### July 2018 - January 2019

I. DETAILS OF THE SCHOLAR

1. Name of the Scholar : Moorthi M
2. Registration No : 18142697173
3. Address of the scholar with E-mail ID : 10/143,Ayyan ThottamBrammadesamBrammadesam(Po)
   and Mobile Number
   ERODE TAMILNADU 638315
   moorthi.moorthi100@gmail.com and 9578906514

4. Department and College in which the scholar is doing research : Mechanical and K.S.Rangasamy College of Techno
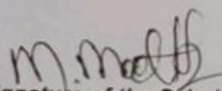5. Category of registration : Part-Time
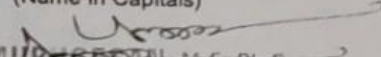
II. COURSE WORK REGISTERED IN THE CURRENT SEMESTER

SI.No	Course code	Title of the course work	No of Credits	Core Course / Elective/ Special Elective	Signature, Name, Designation and Address of the Course Instructor
1	50 PED E15	Research Methodology - Engineering and Management studies	3	Elective	Dr. A.murugesan Prof /meen / ksect
2	50 PED E24	Instrumentation for Thermal Engineering	3	Elective	Dr. A. murugesan Prof /meen / ksect
3					
4					
5					
6					
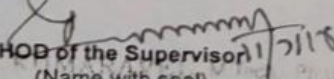
Recommended and Forwarded

[M.MOORTHI]
Signature of the Scholar
(Name in Capitals)

Signature of the Joint Supervisor
(Name with Seal) (if applicable)

Dr. A.MURUGESAN, M.E.,Ph.D.,
Signature of the Supervisor
(Name with Seal)
Dept. of Mechanical Engineering
K.S.Rangasamy College of Technology
Tiruchengode - 637215, Namakkal District

Specify remarks if any:

Approved / Not Approved

HOD of the Supervisor
(Name with seal)

Note:

1. Research scholars should take PG Level course works only. Refer Clause 13.1 of Ph.D. Regulation carefully
2. Special Elective:
(i) If its already approved course work,Supervisor should furnish the course code number and copy of the minutes of the Board of Studies and Academic Council.
(ii) If it is a new course work the Supervisor should make arrangment to get the approval of the syllabus in the concerned Board of Studies and Academic Council.

MINUTES OF THE FIRST DOCTORAL COMMITTEE MEETING

The Doctoral Committee Meeting of the Ph.D. Scholar, Mr. PRAKASH R. (Reg. No. 19142691131) was held on 25.01.2019 at 02:00 P.M. in the Department of Mechanical Engineering, K.S.Rangasamy College of Technology, Tiruchengode – 637 215. The following members were present
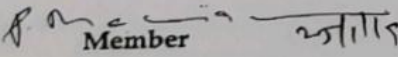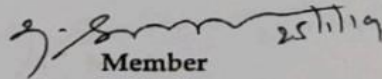
1. Dr. A. MURUGESAN   (Supervisor & Convener)
2. Dr. P. MATHIAZHAGAN   (Member)
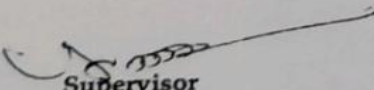3. Dr. D. SENTHILKUMAR   (Member)

Mr. Ramesh C. has presented the overview of the proposed research work. The Doctoral Committee has approved the research topic as "EXPERIMENTAL INVESTIGATION ON DI-CI LHR DIESEL ENGINE OPERATED WITH ELECTRONICALLY CONTROLLED HOT AND COLD EGR INTEGRATED WITH PORT FUEL INJECTION SYSTEM". The Committee has recommended the scholar to undertake the following course works

Course Code	Course Title	Credits	Core Course / Elective / Special Elective
50 PED E14	Fuels and Combustion	3	Elective
50 PED E15	Research Methodology – Engineering and Management Studies	3	Elective
50 PED E25	Advanced Internal Combustion Engines	3	Elective
50 PED E34	Engine Pollution and Control	3	Elective
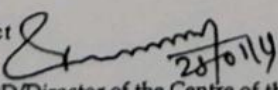
Number of course works as applicable to the scholars (Course Work examinations will be taken at 7377-K.S.Rangasamy College of Technology (Autonomous), Tiruchengode-637 215)

Member   Member
25/1/19   25/1/19
(Dr. P. MATHIAZHAGAN)   (Dr. D. SENTHILKUMAR)

Supervisor   -NA-
                                        Joint Supervisor
(Dr. A. MURUGESAN)
Dr. A.MURUGESAN, M.E.,Ph.D.,   (Signature with Name and seal)
PROFESSOR   (if applicable)
Dept. of Mechanical Engineering
K.S.Rangasamy College of Technology   **Forwarded**
Tiruchengode - 637215. Namakkal District

                                    28/01/19
Signature of the HOD/Director of the Centre of the Supervisor
(Name and Seal)

A. KUMARAVEL, M.Tech., Ph.D.
Professor and Head,
Department of Mechanical Engineering
K.S. Rangasamy College of Technology,
TIRUCHENGODE 637 215

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K.S.RANGASAMY COLLEGE OF TECHNOLOGY
(Autonomous)
TIRUCHENGODE – 637 215

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Ph.D COURSE WORK DETAILS FOR AUTONOMOUS EXAMINATION – APRIL · MAY 2019

S. No.	Name of the candidate and college address with Mobile No.	Date of Birth	Register No.	Department	Name of the Supervisor and college Address with Mobile No.	Course work planned (Course code & Title)	
						Current semester	Next semester
01.	PRAKASH R. ASSISTANT PROFESSOR MECHANICAL K·S·RANGASAMY COLLEGE OF TECHNOLOGY PH: 9788309406	06·10·1989	1914 2691131	MECHANICAL ENGINEERING	DY·A·MURUGESAN PROFESSOR MECHANICAL K·S·RANGASAMY COLLEGE OF TECHNOLOGY PH. 9443090331	1. 5DPED E15 RESEARCH METHODOLOGY ENGINEERING AND MANAGE MENT STUDIES 2. 5DPED E25 ADVANCED INTERNAL COMBUSTION ENGINES	1. 5DPED E34 ENGINE POLLUTION & CONTROL 2. 5DPED E14 FUELS AND COMBUSTION

HoD/Director 31/1/19

Supervisor

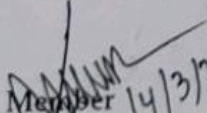## MINUTES OF THE FIRST DOCTORAL COMMITTEE MEETING

The Doctoral Committee Meeting of the Ph.D. Scholar, Mr. A.Avinash (Reg.No. 1614269284) was held on 14.03.2016 at 3.00P.M. in the Department of Mechanical Engineering, K. S. Rangasamy College of Technology, Tiruchengode. The following members were present
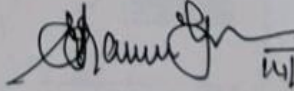
1. Dr. A. Murugesan (Supervisor & Convener)

2. Dr. N. Nedunchezhian (Member)

3. Dr. E. James Gunasekaran (Member)
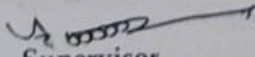
Mr. A. Avinash (Reg.No. 1614269284) has presented the overview of the proposed research work. The Doctoral Committee has approved the research topic as "EXPERIMENTAL INVESTIGATION ON DUAL-FUEL PREMIXED CHARGE COMPRESSION IGNITION ENGINE". The Committee has recommended the scholar to undertake the following course works

Course Code	Course Title	Credits	Core Course/ Elective/ Special Elective
40 PED E35	Advanced internal combustion engines	3	Elective
40 PED E14	Research methodology-Engineering and management studies	3	Elective
40PED E36	Fuels and combustion	3	Elective
40 PED E41	Computational fluid dynamics	3	Elective
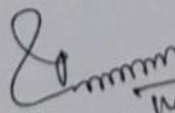
Number of course works as applicable to the scholars

Member 14/3/2016
(Signature with Name)
[Dr. N. Nedunchezhian]

Member 14/3/2016
(Signature with Name)
(E.JAMES GUNASEKARAN)

Supervisor
(Signature with Name and seal)

Dr. A. MURUGESAN, M.E., Ph.D.,
PROFESSOR,
Dept. of Mechanical Engineering,
K.S.Rangasamy College of Technology,
Tiruchengode - 637215, Namakkal District

Joint Supervisor
(Signature with Name and seal)
(if Applicable)

Forwarded 14/3/2016
Dr. A. KUMARAVEL, M.Tech., Ph.D.,
Professor and Head,
Department of Mechanical Engineering,
K.S. Rangasamy College of Technology,
TIRUCHENGODE - 637 215.
Signature of the HOD/Director of the Centre and the Supervisor
(Name and Seal)

K.S.Rangasamy College of Technology - Autonomous Regulation							R 2014
Department	Mechanical Engineering	Programme Code & Name		PED : M.E. Engineering Design			

		Elective I						

Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
40PEDE14	Research Methodology - Engineering and Management Studies	3	0	0	3	50	50	100

Research Methodology

Research methodology – definition, mathematical tools for analysis, Types of research; exploratory research, conclusive research, modeling research, algorithmic research, Research process- steps. Data collection methods- Primary data – observation method, personal interview, telephonic interview, mail survey, questionnaire design. Secondary data- internal sources of data, external sources of data.

Scales and Measurements

Scales – measurement, Types of scale – Thurstone's Case V scale model, Osgood's Semantic Differential scale, Likert scale, Q- sort scale. Sampling methods- Probability sampling methods – simple random sampling with replacement, simple random sampling without replacement, stratified sampling, cluster sampling. Non-probability sampling method – convenience sampling, judgment sampling, quota sampling.

Hypotheses Testing

Hypotheses testing – Testing of hypotheses concerning means (one mean and difference between two means -one tailed and two tailed tests), Concerning variance – one tailed Chi-square test.

Sample Tests

Nonparametric tests- One sample tests – one sample sign test, Kolmogorov-Smirnov test, run test for randomness, Two sample tests – Two sample sign test, Mann-Whitney U test, K-sample test – Kruskal Wallis test (H-Test)

Analysis and Report

Introduction to Disciminant analysis, Factor analysis, cluster analysis, multidimensional scaling, conjoint analysis. Report writing- Types of report, guidelines to review report, typing instructions, oral presentation

Total Hrs.45

Reference(s):

1.	Kothari, C.R., "Research Methodology –Methods and techniques", 3rd Edition, New Age Publications, New Delhi,2014
2.	Panneerselvam, R., "Research Methodology", 2nd revised edition, Prentice-Hall of India, New Delhi, 2014.
3.	Bhattacharyya D K,"Research Methodology", Excel Books, New Delhi 2006
4.	Gupta M, "Research Methodology", Prentice-Hall of India, New Delhi, 2012.

K.S.Rangasamy College of Technology – Autonomous R2018
50 PED E15- Research Methodology -Engineering and Management Studies
PED : M.E. Engineering Design

Semester	Hours / Week			Total hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	3	0	0	45	3	50	50	100

Objective(s)	• To understand the basic framework of research process and techniques. • To understand the measurement and sampling techniques for research work. • To develop the hypothesis for carryout research problem. • To develop a sample test for efficient research work. • To prepare the report and presentation techniques for the research work.
Course Outcomes	At the end of the course students will be able to 1. Explain the basic framework of research process and techniques. 2. Describe to conduct research (advanced project) in a more appropriate manner with different methods. 3. Discuss the ethical dimensions of conducting applied research. 4. Explain the basic sampling tests for research process. 5. Discuss the various sources of information for literature review and data collection.

Research Methodology

Research methodology – definition, mathematical tools for analysis, Types of research, exploratory research, conclusive research, modelling research, algorithmic research, Research process- steps. Data collection methods- Primary data – observation method, personal interview, telephonic interview, mail survey, questionnaire design. Secondary data- internal sources of data, external sources of data. [9]

Scales and Measurements

Scales – measurement, Types of scale – Thurstone's Case V scale model, Osgood's Semantic Differential scale, Likert scale, Q- sort scale. Sampling methods- Probability sampling methods – simple random sampling with replacement, simple random sampling without replacement, stratified sampling, cluster sampling. Non-probability sampling method – convenience sampling, judgment sampling, quota sampling. [9]

Hypotheses Testing

Hypotheses testing – Testing of hypotheses concerning means (one mean and difference between two means - one tailed and two tailed tests), concerning variance – one tailed Chi-square test. [9]

Sample Tests

Nonparametric tests- One sample tests – one sample sign test, Kolmogorov-Smirnov test, run test for randomness, Two sample tests – Two sample sign test, Mann-Whitney U test, K-sample test – Kruskal Walls test (H-Test). [9]

Analysis and Report

Introduction to Discriminant analysis, Factor analysis, cluster analysis, multidimensional scaling, conjoint analysis. Report writing- Types of report, guidelines to review report, typing instructions, oral presentation.[9]

Total Hours: 45

Text book (s) :

1	Panneerselvam R., "Research Methodology", 2nd Revised edition, Prentice-Hall of India, New Delhi, 2014.
2	Larry B. Christensen, R. Burke Johnson and Lisa A. Turner, "Research Methods, Design and Analysis", 12th edition, Pearson Education, Inc., New Jersey, 2014.

Reference(s) :

1	Kothari, C.R., "Research Methodology –Methods and techniques", 3rd Edition, New Age Publications, New Delhi, 2014.
2	Bhattacharyya D K, "Research Methodology", Excel Books, New Delhi 2006
3	Gupta M, "Research Methodology", Prentice-Hall of India, New Delhi, 2012.
4	Ranjit Kumar, "Research Methodology: A Step by Step Guide for beginners", 2014.
5	Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science and engineering students", 1996.

BoS - Chairman
Mechanical Engineering (UG & PG)
K.S.Rangasamy College of Technology

PROFESSIONAL CORE (PC)

S. No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.	50 PED 101	Computer Aided Design	PC	3	3	0	0	3
2.	50 PED 102	Concepts of Engineering Design	PC	3	3	0	0	3
3.	50 PED 103	Finite Element Method	PC	3	3	0	0	3
4.	50 PED 1P1	CAD Laboratory	PC	4	0	0	4	2
5.	50 PED 1P2	Computer Aided Analysis Laboratory I	PC	4	0	0	4	2
6.	50 PED 201	Advanced Stress Analysis	PC	3	3	0	0	3
7.	50 PED 202	Advanced Vibrations and Acoustics	PC	3	3	0	0	3
8.	50 PED 203	Intellectual Property Rights	PC	2	2	0	0	2
9.	50 PED 2P1	Computer Aided Analysis Laboratory II	PC	4	0	0	4	2

PROGRAMME ELECTIVE (PE)

SEMESTER I, PROGRAMME ELECTIVE I

S. No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.	50 PED E11	Advanced Machine Design	PE	3	3	0	0	3
2.	50 PED E12	Design for Manufacturing and Assembly	PE	3	3	0	0	3
3.	50 PED E13	Mathematical Methods in Engineering	PE	3	3	0	0	3
4.	50 PED E14	Fuels and Combustion	PE	3	3	0	0	3
5.	50 PED E15	Research Methodology - Engineering and Management Studies	PE	3	3	0	0	3

SEMESTER I, PROGRAMME ELECTIVE II

S. No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.	50 PED E21	Advanced Engineering Materials	PE	3	3	0	0	3
2.	50 PED E22	Mechanics of Composite Materials	PE	3	3	0	0	3
3.	50 PED E23	Analysis and Synthesis of Mechanisms	PE	3	3	0	0	3
4.	50 PED E24	Instrumentation for Thermal Engineering	PE	3	3	0	0	3
5.	50 PED E25	Advanced Internal Combustion Engines	PE	3	3	0	0	3

SEMESTER II, PROGRAMME ELECTIVE III

S. No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.	50 PED E31	Tribology in Design	PE	3	3	0	0	3
2.	50 PED E32	Robotics	PE	3	3	0	0	3
3.	50 PED E33	Fracture Mechanics	PE	3	3	0	0	3
4.	50 PED E34	Engine Pollution and Control	PE	3	3	0	0	3
5.	50 PED E35	Computational Fluid Dynamics	PE	3	3	0	0	3

SEMESTER II, PROGRAMME ELECTIVE IV

S. No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.	50 PED E41	Multi-body Dynamics	PE	3	3	0	0	3
2.	50 PED E42	Condition Based Monitoring	PE	3	3	0	0	3
3.	50 PED E43	Optimization Techniques in Design	PE	3	3	0	0	3
4.	50 PED E44	Alternative Fuels for IC Engines	PE	3	3	0	0	3
5.	50 PED E45	Advanced Materials and Their Processing	PE	3	3	0	0	3

R2 w.e.f 13.08.21

Mechanical Engineering (UG & PG)
K.S.Rangasamy College of Technology