



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:21-12-2020

Department	MECHANICAL ENGINEERING	Application No.	202020158
Area of Research	THERMAL/CFD	Research Mode	PART TIME

Name :RAFI A
Date of Birth / Age :30-05-1979 / 41 Years
Gender :MALE
Category :OBC
e-Mail ID :rafikollam@gmail.com
Mobile :9447676038



Father's/Husband's Name	ABDUL SALAM	Father's/Husband's Occupation	RETIRED KERALA STATE GOVERNMENT SERVANT
Family Income	6 LAKHS	Residential Type	RURAL
Birth Place	NJARAKKAL	Mother Tongue	MALAYALAM
Religion	MUSLIM	Martial Status	MARRIED
Aadhaar No.	342834216139	PAN No.	AFKPA7481G
Physically Challenged	NO	Type of Disability	-
Address for Communication: RR NIVAS, NJARAKKAL THRIKKARUVA, PERINAD PO KOLLAM KOLLAM DISTRICT KERALA INDIA Pin-691601		Permenant Address: RR NIVAS, NJARAKKAL THRIKKARUVA, PERINAD PO KOLLAM KOLLAM DISTRICT KERALA INDIA Pin-691601	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
B. TECH	MECHANICAL ENGINEERING	KERALA UNIVERSITY/TKM COLLEGE OF ENGINEERING, KOLLAM	2000	75	FIRST CLASS WITH DISTINCTION	REGULAR
M. TECH	HEAT POWER ENGINEERING	NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL	2007	8	FIRST CLASS	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature
MES COLLEGE OF ENGINEERING, KUTTIPPURAM, MALAPPURAM	LECTURER	2001-08-13	2007-09-30	FACULTY
MES COLLEGE OF ENGINEERING, KUTTIPPURAM, MALAPPURAM	ASSISTANT PROFESSOR	2007-10-01	2009-08-19	FACULTY

MES INSTITUTE OF TECHNOLOGY AND MANAGEMENT, CHATHANNOOR, KOLLAM	ASSISTANT PROFESSOR	2009-08-20	2011-11-30	FACULTY
MES INSTITUTE OF TECHNOLOGY AND MANAGEMENT, CHATHANNOOR, KOLLAM	ASSOCIATE PROFESSOR	2011-12-01	2020-12-21	FACULTY

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
202020158_201224224848	VHD49592057330	24-12-2020	600	SUCCESS

RESEARCH PROPOSAL

SIMULATION OF FLUID FLOW IN THE CASTING PROCESS OF SOLID PROPELLANT

My effort in the present research is to develop a physically meaningful numerical model for the solid propellant casting. The casting of the solid propellant slurry is typical of an unsteady non-Newtonian flow with free surface. The free surface is the interface between the almost incompressible propellant slurry and the low-pressure air (600 Pa to 1000Pa). Numerical simulation of this flow should be able to capture the pressure and velocities in both the fluids as well as the movement of the interface with time. Already an earlier attempt has been made in this direction from my part. The main difficulty involved was highly disparate acoustic speed in the propellant slurry and low density air (vacuum) surrounding it. One is a highly incompressible medium and the other is compressible. Hence a compressible formulation with Tait's law for both fluids was selected. A preconditioning technique was adopted to overcome this difficulty. The Non-Newtonian (Power Law) fluid properties were also incorporated. An accurate AUSM+_UP scheme were used for flux evaluation. The interface was reasonably sharp.

The resulting code turned out to be extremely restrictive in the allowable time step. Due to this reason with the computing facility available we were able to do the simulation up to few milliseconds only and no sensitivity studies were undertaken in the present configuration. My current effort is to improve upon time step so that sensitivity study can be carried out.

Rafi A

Associate Professor

Dept.of Mechanical Engg

MES Institute of Technology and Management, Chathannoor

Kollam, Kerala, India

Mobile: 09447676038

e-mail: rafikollam@gmail.com

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

(A Deemed University)

P.O. SRINIVASNAGAR, MANGALORE-575025, KARNATAKA, INDIA.

Grade Card

M.TECH. (HEAT POWER ENGINEERING)

Sl. No. 0501112

NAME: RAFI A

REGISTRATION NO.: 05071505HP08F

COURSE CODE	COURSE CATEGORY	COURSE TITLE	CREDITS	ATTENDANCE %	GRADE
(AUG-DEC 2005)					
TH700	Pc	ADVANCED FLUID MECHANICS	3	100	AB
TH701	Pc	HEAT & MASS TRANSFER	3	92	AB
TH702	Pc	REFRIGERATION & CRYOGENICS	3	100	BC
TH703	Pc	COMBUSTION	3	95	AB
TH704	Pc	THERMAL ENGINEERING LAB	1	92	AB
MA704	Ele	NUMERICAL ANALYSIS	3	98	AA
TH816	Ele	ADVANCED THERMODYNAMICS	3	100	AB
Semester Earned Credits: 19			SGPA: 8.84		
Cumulative Earned Credits: 19			CGPA: 8.84		
(JAN-MAY 2006)					
TH705	Pc	DESIGN OF RENEWABLE ENERGY SYSTEMS	3	86	BB
TH706	Pc	MEASUREMENT IN THERMAL SYSTEMS	3	96	BC
TH707	Pc	THERMAL COMPUTATION LAB	2	98	BB
TH817	Ele	THEORY & DESIGN OF I.C. ENGINES	3	98	BB
TH819	Ele	DESIGN OF AIR CONDITIONING SYSTEMS	3	83	BC
TH820	Ele	COMPUTATIONAL FLUID DYNAMICS	3	94	AB
TH890	MLC	SEMINAR	2	--	S
Semester Earned Credits: 19			SGPA: 7.82		
Cumulative Earned Credits: 38			CGPA: 8.36		
(AUG-DEC 2006)					
TH891	MLC	PRACTICAL TRAINING/MINOR PROJECT	2	--	S
Semester Earned Credits: 2			CGPA: 8.36		
Cumulative Earned Credits: 40			CGPA: 8.36		
(AUG 2006-MAY 2007)					
TH899	MP	MAJOR PROJECT (Title: NUMERICAL SIMULATION OF SOLID PROPELLANT CASTING USING UNSTRUCTURED FINITE VOLUME METHOD)	20	--	AB
Semester Earned Credits: 20			CGPA: 8.36		
Cumulative Earned Credits: 60			CGPA: 8.36		

Note:

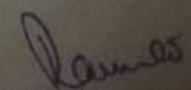
- Grade points : AA=10; AB=09; BB=08; BC=07; CC=06; CD=05; DD=04; FF=0 (Fail);
W=Withdrawal; U=Audited; S=Satisfactory; N=Unsatisfactory
- Grades AA to DD & S indicate the successful completion of course and are considered for earned credits.
- Grade FF is counted for computation of SGPA but not for CGPA.
- No class or division is awarded at this Institute.
- Minimum Credits to be earned for the award of 'M.Tech' degree in 'Heat Power Engineering' is 60, of which 4 credits of course work under S/N option and 20 credits of Major Project are not counted for computation of SGPA and CGPA.
- Pc=Program Core ; Ele=Elective ; MLC=Mandatory Learning Course ; MP=Major Project

Prepared by: 

Scrutinised by: 

Date: 12-Jul-2007




Deputy Registrar (Academic)



No. E. E. II



Thiruvananthapuram

Reg. No. 18249

20 JUL 2000

Dated 199

MEMORANDUM

The following marks were awarded to Shri / Smt. Rafi, A.
at the VIII Semester (Final) Bachelor of Technology Degree Examination of April 1999
Branch: — Mechanical

Subjects	Marks awarded	Minimum marks required for a pass		Maximum marks
		Complete Pass	Pass in individual Subjects	
A. Gas Dynamics	Written	94	40	100
	Sessional	50	—	50
	Total	144	—	150
B. Power Plant Engineering	Written	70	40	100
	Sessional	48	—	50
	Total	118	—	150
C. Metrology & Instrumentation	Written	55	40	100
	Sessional	46	—	50
	Total	101	—	150
D. { Elective III (Tool Engineering)	Written	66	40	100
	Sessional	47	—	50
	Total	113	—	150
E. { Elective IV (Propulsion Engineering)	Written	91	40	100
	Sessional	48	—	50
	Total	139	—	150
F. Automobile Engineering	Written	48	40	100
	Sessional	45	—	50
	Total	93	—	150
G. Project & Project Seminar	Sessional	90	—	100
H. General Viva Voce		60	40	100
Grand Total		858	550	1100
Carry over marks I to VII Semesters		5064	—	6700
Aggregate		5922	—	7800
In words		Five Nine Two Two		

Pass Minimum: Complete Pass - 40% of Written for each subject and 50% of overall aggregate.
Pass in individual Subject:- 40% of Written and 50% of the total of each subject.

Marks entered by SabithaMarks checked by [Signature]Section Officer [Signature]Asst. Registrar [Signature]

[Signature]
Controller of Examinations

Registration No.



05071505HPC08F



National Institute of Technology Karnataka, Surathkal
hereby confers the degree of

Master of Technology

in

Heat Power Engineering

on

Rafi A

Who completed all the degree requirements

in May 2007

Given under the seal of the Institute,

on 1st December 2007

H. Srinivas B.
Registrar

A. Srinivas
Director

C. Mahalingam
Chairman, Board of Studies

Sl. No. MT07075

Register No. 18249

263721



FACULTY OF ENGINEERING & TECHNOLOGY

The Senate of the University of Kerala hereby makes known that
Rafi . A. has been admitted to the
Degree of Bachelor of Technology under Mechanical
Engineering Branch, he/she having been
certified by duly appointed examiners to be qualified to receive the same
and having been by them placed in the first class with Distinction
at the examination held in April 2000

Given under the seal of the University.



University Buildings,
Thiruvananthapuram, April 04, 2002

12/04/02
Vice-Chancellor

National Institute of Technology Karnataka, Surathkal

P. O. SRINIVASNAGAR, MANGALORE - 575 025
KARNATAKA STATE, INDIA.



TC No 00451/20004

Reg. No. 05HP08F

Transfer Certificate

1. Name of the student in full (Capital Letters)) **RAFI A**
2. Date of birth as entered (in figure)) **30.05.1979 (Thirtieth May**
in the Admission Register (in words)) **Nineteen Seventy Nine)**
3. Name of the Father/Mother/Guardian F-) **A Abdul Salam**
M-) **M Muneera B**
4. Nationality) **Indian**
5. Religion) **Islam**
6. Does the Student belong to the Scheduled)
Caste or Scheduled Tribe) **NO**
7. Date of admission to the Institute) **28.07.2009**
8. Course to which admitted ;)
B.E./B.Tech./M.Tech./M.C.A. (Branch)) **M.Tech. (Heat Power Engg.)**
9. Whether qualified for promotion to higher)
class) **Yes**
10. Whether the student has paid the full fees)
to the Institute) **Yes**
11. Class in which the student was studying)
at the time of leaving) **M.Tech. (Heat Power Engg.)**
12. Date on which the student actually left the)
Institute) **May 2007**
13. Date on which application for transfer)
certificate was made) **09.08.2011**
14. Date of issue of transfer certificate) **09.08.2011**



By Registrar A. 9/8/11
Deputy Registrar (Academic)



MES INSTITUTE OF TECHNOLOGY & MANAGEMENT

CHATHANNOOR (PO), KOLLAM - 691572

Phone: 0474-2590401, 2590700, Fax: 0474-2590700

Website: www.mesitam.ac.in e-mail: info@mesitam.ac.in

Approved by AICTE & Affiliated to A. P. J. Abdulkalam Technological University
[Run by the Muslim Educational Society (Regd), Calicut]

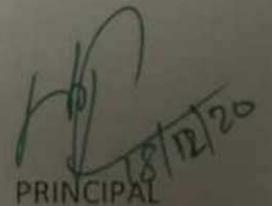
20/MES/CHN/

18/12/2020

EXPERIENCE CERTIFICATE

This is to certify that Prof. Rafi A, residing at RR Nivas, Njarakkal, Thrikkaruva, Perinad P.O., Kollam -691601 has been working as Assistant Professor in Mechanical Engineering Department of this Institute since 20th August 2009 and promoted as Associate Professor with effect from 01/12/2011. Currently, he serves the Institute as HoD, Department of Mechanical Engineering with effect from 01/01/2020. During this period, he was found sincere and hardworking. He is amiable in nature and character is good.

This certificate is issued based on his request.


PRINCIPAL



Dr. J. NAZAR

PRINCIPAL

MES INSTITUTE OF TECHNOLOGY & MANAGEMENT
CHATHANNOOR P.O., KOLLAM - 691572

MES COLLEGE OF ENGINEERING, KUTTIPPURAM



THRIKKANAPURAM P.O., MALAPPURAM DT., KERALA STATE - 679 573
Phone: 0494 3051234, Fax: 0494 2698081, Website: [www.http://mesce.ac.in](http://mesce.ac.in)
email: principal@mesce.ac.in, mesprinci@yahoo.com

(An ISO 9001 : 2000 Certified Institution & Accredited by National Board of Accreditation)
Approved by AICTE/Affiliated to University of Calicut

[RUN BY THE MUSLIM EDUCATIONAL SOCIETY (Regd.), CALICUT]



No.EC/B1/1127/2009

21-08-2009

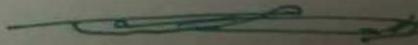
EXPERIENCE CERTIFICATE

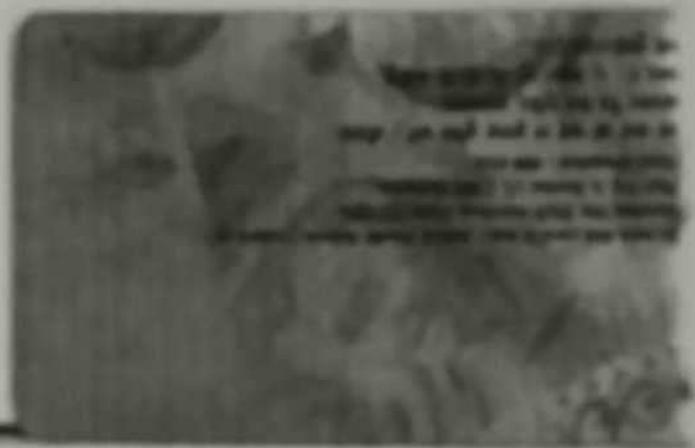
Certified that Mr. Rafi A. has been working as Lecturer in Mechanical Engineering Department of this College from 13-08-2001 to 30-09-2007 and as Assistant Professor from 01-10-2007. He has been relieved of his duties in the College from 19-08-2009 A.N. on his request for joining at MES Institute of Technology and Management, Chathannoor, Kollam.

His conduct and character during the period of his service in the College are good.

I wish him all success.

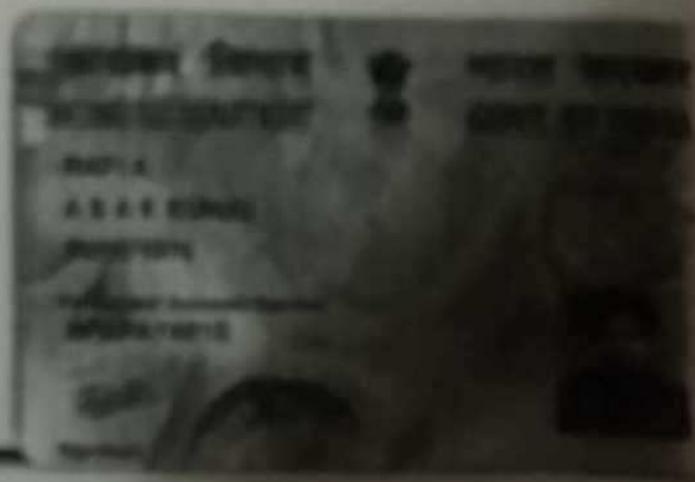



PRINCIPAL
MES COLLEGE OF ENGINEERING
KUTTIPPURAM, THRIKKANAPURAM (PO)
MALAPPURAM DIST KERALA-679 573



S. G. M. S. J.

P. S.





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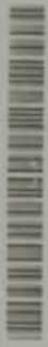
Unique Identification Authority of India

പുസ്തകസംഖ്യ / Enrollment No. 2720199999114635

To

Raj A
S/O Anur Sam
R R Nivas
Nairackal
Permad P O Thrissur
Permad
Kerala 691601
9447876033

9447876033 / 27M / 108899 / 108900 / P



S8598058737FH



നിങ്ങളുടെ നമ്പർ നമ്പർ / Your Aadhaar No. :

3428 3421 6139

എൻ അധാർ. എൻ ഐഡൻറിറ്റി



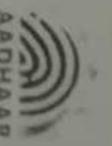
ഭാരത സർക്കാർ
Government of India



പേര്:
Raj A
പേര്:
S/O Anur Sam
പേര്:
R R Nivas
പേര്:
Nairackal
പേര്:
Permad P O Thrissur
പേര്:
Permad
പേര്:
Kerala 691601
പേര്:
9447876033

3428 3421 6139

എൻ അധാർ. എൻ ഐഡൻറിറ്റി



വിവരങ്ങൾ

- വിവരങ്ങൾ ഉറപ്പാക്കുന്നതിനായി
- വിവരങ്ങൾ ഉറപ്പാക്കുന്നതിനായി
- വിവരങ്ങൾ ഉറപ്പാക്കുന്നതിനായി

INFORMATION

- Aadhaar is proof of identity, not of citizenship
- To establish identity, authenticate online

27M / 108899

- നമ്പർ ഉറപ്പാക്കുന്നതിനായി
- നമ്പർ ഉറപ്പാക്കുന്നതിനായി
- നമ്പർ ഉറപ്പാക്കുന്നതിനായി
- Aadhaar is valid throughout the country
- Aadhaar will be helpful in availing Government and Non-Government services in future



ഭാരത സർക്കാർ
Government of India

പേര്:
Raj A
പേര്:
S/O Anur Sam
പേര്:
R R Nivas
പേര്:
Nairackal
പേര്:
Permad P O Thrissur
പേര്:
Permad
പേര്:
Kerala 691601
പേര്:
9447876033

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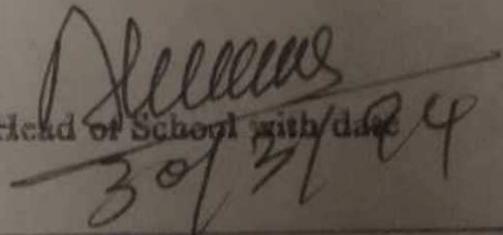


1. Name of Candidate..... RAFI: A.....
(In English, in block capitals, initials after the Name)
(a) Expansion of initials, if any.. Abdul Salam.....
(b) Name in Regional Language... രാഫി: റാ.....
2. Sex (Male or Female)... Male.....
3. Religion..... Islam..... 4. Caste. Muslim.....
5. Place of Birth... Njabakkal.....
(a) Panchayat or Town Thrikkaruvu (b) Country. India.....
6. Nationality... Indian.....
7. Date of Birth (in figures)... 30.5.1979.....
(in words)... Thirtieth May Nineteen Seventy Nine.....
8. Name of Father... A: Abdul Salam.....
9. Name of Mother... Munira Beevi: M.....
10. Name of Guardian... A: Abdul Salam.....
(as given in the admission register)
11. Relationship of the Guardian with the Pupil... Father.....
12. Occupation of the Parent/Guardian... Govt. Servant.....
13. Parent's or Guardian's Postal Address... R: R. Nivas,
Njabakkal, Perinad. Pa......
14. Mode of Presentation..... Regular.....
15. Personal Marks of Identification
(i) .. A black mole on the middle of the forehead
(ii) .. A black mole on the left side of the chest

I certify that the entries in this page are accurate as per relevant school records.

(School seal)

Name and Signature of Head of School with date
Designation


30/5/79

C. I. ALEXANDER
HEADMASTER

61/272/93.





MES INSTITUTE OF TECHNOLOGY & MANAGEMENT

CHATHANNOOR (PO), KOLLAM - 691572

Phone: 0474-2590401, 2590700, Fax : 0474-2590700

Website: www.mesitam.ac.in e-mail: info@mesitam.ac.in

Approved by AICTE & Affiliated to A. P. J. Abdulkaliam Technological University
[Run by the Muslim Educational Society (Regd), Calicut]

CERTIFICATE FROM THE ORGANISATION WHERE THE CANDIDATE IS EMPLOYED

Certified that Mr. Rafi A. is employed as Associate Professor & HOD in the Department of Mechanical Engineering of MES Institute of Technology & management, Chathannoor P.O., Kollam 691572.

We have no objection in forwarding his/her application for the Ph. D Research Programme

The candidate will be permitted to undertake part time study in the University/College and will be allowed to be present for discussions with the supervisor, attending course works, conduct of experiments and participations in seminars and related presentations. Further the required facilities at our organization will also be provided to the candidate for doing research.

Date : 18th December 2020

Signature of the Head of organization with office seal

Dr. J. NAZAR

PRINCIPAL

MES INSTITUTE OF TECHNOLOGY AND MANAGEMENT
CHATHANNOOR P.O., KOLLAM - 691572

