



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

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:07-05-2025

| | | | |
|------------------|------------------------|-----------------|------------|
| Department | MECHANICAL ENGINEERING | Application No. | 2025010311 |
| Area of Research | POLYMER COMPOSITE | Research Mode | FULL TIME |

Name : ANEEZ KUNDUKULATHIL

Date of Birth / Age : 30-04-1977 / 48 Years

Gender : MALE

Category : OBC

e-Mail ID : aneez.k40@gmail.com

Mobile : 9544285201



Aneez

| | | | |
|--|-------------------|--|-------------------|
| Father's/Husband's Name | KOYATTY K | Father's/Husband's Occupation | RETIRED PROFESSOR |
| Family Income | 400000 | Residential Type | RURAL |
| Birth Place | KOZHIKODE, KERALA | Mother Tongue | MALAYALAM |
| Religion | MUSLIM | Martial Status | MARRIED |
| Aadhaar No. | 540112357675 | PAN No. | ARFPA6987L |
| Physically Challenged | NO | Type of Disability | - |
| Address for Communication: KUNDUKULATHIL KODASSERY THAZHAM KUTTIKATTUR KOZHIKODE DISTRICT KERALA INDIA Pin-673008 | | Permenant Address: KUNDUKULATHIL KODASSERY THAZHAM KUTTIKATTUR KOZHIKODE DISTRICT KERALA INDIA Pin-673008 | |

| Qualification | | | | | | |
|---------------|------------------------|-------------------------------|-------------|----------|-------|---------|
| Degree | Discipline | College/university | Year Passed | AVG/CGPA | Class | Mode |
| B.TECH | MECHANICAL ENGINEERING | UNIVERSITY OF CALICUT | 2006 | 60 | FIRST | REGULAR |
| MSC | MECHANICAL ENGINEERING | GLASGOW CALEDONIAN UNIVERSITY | 2008 | 62 | FIRST | REGULAR |

| Experience | | | | | |
|---|----------------|-----------------|---------------|------------------|--|
| Organization | Designation | Experience From | Experience TO | Work Nature | |
| UNIVERSITY OF TECHNOLOGY AND APPLIED SCIENCES | LECTURER | 2013-09-15 | 2025-05-07 | TEACHING FACULTY | |
| GOV. COLLEGE OF ENGINEERING, KOZHIKODE | GUEST LECTURER | 2009-02-02 | 2009-08-28 | TEACHING FACULTY | |

| Payment Details | | | | |
|-------------------------|----------------|---------------------|--------|---------|
| Transaction ID | Reference | Date of transaction | Amount | Status |
| 2025010311_250508003740 | BHD5KMT0K9XMH8 | 08-05-2025 | 600 | SUCCESS |

Investigating High-Velocity Impact Response of GFRP-Faced Aluminium Honeycomb Sandwich Panels

Abstract

This research aims to investigate the high-speed impact behaviour of aluminium honeycomb sandwich panels with glass fibre reinforced polymer (GFRP) composite face sheets. With increasing demands for lightweight yet impact resistant materials in the aerospace, automotive, and defence sectors, understanding the energy absorption, damage mechanisms, and failure modes of such hybrid structures is critical. The study will involve experimental testing using gas-gun or projectile-based setups, finite element modelling (FEM), and comparative analysis to evaluate the structural integrity and energy dissipation characteristics under varying impact conditions.

1. Introduction

Sandwich panels with composite face sheets and metallic cores offer high strength-to-weight ratios and are increasingly used in applications requiring both structural efficiency and impact resistance. Aluminium honeycomb cores provide excellent energy absorption, while GFRP face sheets add stiffness and durability. However, the high-speed impact behaviour of these hybrid systems is not yet fully understood, especially under varying projectile energies and core configurations.

2. Objectives

- To analyse the effect of projectile velocity on damage patterns and energy absorption.
- To evaluate the role of core geometry and thickness in impact resistance.
- To model the high-speed impact event using finite element software (e.g., ANSYS, LS-DYNA).
- To compare experimental results with numerical predictions for validation and optimization.

3. Methodology

- **Material Selection:** Aluminium honeycomb cores and GFRP face sheets with defined mechanical properties.
- **Sample Fabrication:** Panels will be fabricated with standardized dimensions and various core thicknesses.
- **Impact Testing:** High-velocity impact tests using a gas-gun setup with instrumented projectile.
- **Data Acquisition:** High-speed imaging and sensors to capture real-time deformation, penetration, and delamination.
- **Numerical Simulation:** FEM modelling for stress distribution and failure analysis.
- **Analysis:** Energy absorption, deformation of the back face, and residual strength will be evaluated.

4. Expected Outcomes

- A better understanding of energy absorption mechanisms in composite-metal sandwich panels.
- Identification of critical parameters that influence high-speed impact performance.
- Validated numerical model for design prediction.
- Recommendations for optimizing panel design for high-impact applications.

5. Literature Review (Summary)

Previous studies have shown the efficiency of honeycomb structures in impact mitigation; however, the synergy between aluminium cores and GFRP faces under high-strain rate conditions remains under explored. The current literature lacks comprehensive data on the influence of face sheet properties, impact angle, and boundary conditions.

6. Timeline

| Phase | Duration | Activity |
|-------|-------------|--|
| 1 | Month 1–2 | Literature review & material procurement |
| 2 | Month 3–5 | Panel fabrication & experimental setup |
| 3 | Month 6–8 | Impact testing & data acquisition |
| 4 | Month 9–10 | Numerical modelling & simulation |
| 5 | Month 11–12 | Analysis, validation & report writing |

7. Significance

The findings will contribute to the design of lightweight, impact-resistant structural components suitable for critical applications, enhancing safety and material efficiency in high-performance engineering systems.

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Serial Number 4427 4145 3140 3446

GLASGOW CALEDONIAN UNIVERSITY

Date of Issue: 28th November 2008



GLASGOW
CALEDONIAN
UNIVERSITY

ACADEMIC TRANSCRIPT

Student name: Aneez Kundukulathil

Date of Birth: 30/04/77

Student Identifier: 200621572

Programme of Study: Master of Science in Mechanical Engineering

Period of Study: September 2006 - September 2008

Final Award: MSc

Stages of Study

| Level | Session | Module | Mark (%) | Credit Points | Result |
|-------|-----------|--|----------|---------------|--------|
| SM | 2006/2007 | ENGM521 - MECHANICAL CONDITION MONITORING | 63 | 15 | P |
| SM | 2006/2007 | ESDM505 - ADVANCED ENGINEERING MECHANICS - DYNAMICS | 65 | 15 | P |
| SM | 2006/2007 | ESDM506 - COMPUTATIONAL MECHANICS | 45 | 15 | P |
| SM | 2007/2008 | ENGM529 - PROJECT PLANNING AND MANAGEMENT | 69 | 15 | P |
| SM | 2007/2008 | ENGM533 - STRATEGY AND INNOVATION | 42 | 15 | P |
| SM | 2007/2008 | ESDM502 - APPLIED THERMO FLUIDS AND COMPUTATIONAL FLUID ME | 71 | 15 | P |
| SM | 2007/2008 | ESDM503 - ADVANCED ENGINEERING MECHANICS - STRUCTURES | 71 | 15 | P |
| SM | 2007/2008 | ESDM504 - QUALITY ASSURANCE | 55 | 15 | P |
| SM | 2007/2008 | ESDM510 - PROJECT (MECHANICAL ENGINEERING) | 76 | 60 | P |
| | | Total Scottish Masters Credit Points | | 180 | |

This transcript is an official document. Should confirmation of authenticity be required please contact the University's Examinations Office.

Mr. E. B. Ferguson
Academic Registrar

Glasgow Caledonian University, Cowcaddens Road, Glasgow G4 0BA, Scotland, United Kingdom
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UNIVERSITY
STAMP



UNIVERSITY OF CALICUT

Folio No. **1990**



Calicut University P O
673 635
Dated **4-11-06**

No EE II/-

MEMORANDUM

The following marks were awarded to him/her at the Eighth Semester Examination in B. Tech. (Engineering) Degree Course.

Branch - MECHANICAL ENGINEERING

| Reg. No. Month & year | Group | Subject | Marks awarded | | Maximum marks | | Result |
|--------------------------|--------------------|---|---------------|-------------|---------------|-----------|---------------|
| | | | Written | Sessional | Written | Sessional | |
| 109 DEC-99 | ME 801 | Compressible Fluid Flow | 49 | 30 | 100 | 50 | |
| 99 | ME 802 | Operations Research | 53 | 30 | 100 | 50 | |
| 4005 DEC-2000 | ME 803 | Thermal Engineering III | 45 | 35 | 100 | 50 | |
| 7003 DEC-98 | ME 804 | Modern Manufacturing Systems | 40 | 38 | 100 | 50 | |
| DEC-99 | ME 805 | Materials Management Elective | 55 | 35 | 100 | 50 | |
| PRACTICALS | | | | | | | |
| DEC-98 | ME 806 | Project | - | 82 | - | 100 | PASSED |
| 99 | ME 807 | Seminar | - | 42 | - | 50 | |
| 99 | ME 808 | Viva-Voce | 65 | - | 100 | - | |
| | | Total for VIII Semester | 307 | 292 | 600 | 400 | |
| Carry over Marks | | | | | | | |
| | | Total of I and II Semester | 571 | 506 | 1100 | 650 | |
| | | Total of Semester III | 360 | 260 | 700 | 350 | |
| 30/11/DEC-2001 | | Total of Semester IV | 385 | 248 | 700 | 350 | |
| 277/MARCH-2006 | | Total of Semester V | 357 | 264 | 700 | 350 | |
| | | Total of Semester VI | 340 | 261 | 700 | 350 | |
| 5710 DEC-2004 | ME 705 Elective | Total of Semester VII STATISTICAL QUALITY CONTROL | 308 | 150 | 600 | 300 | |
| | | Grand Total | 2628 | 1981 | 5100 | 2750 | |

The minimum in a subject is 50% of marks at the University Examination or 40% at the University Examination and an aggregate minimum of 50% in the University Examination marks plus Sessional marks.

Name of College **L. B. S. C. E. Kasaragod**

Shri/Smt. **Aneez-K. [Kundukukathi]**

Marks entered by **##**

Marks checked by **##**

CONTROLLER OF EXAMINATIONS

M/S
S.O.

A.R./D.R (Exams.)

SCHOOL OF ENGINEERING AND COMPUTING



Friday, November 28th, 2008

To Whom It May Concern,

MSc Mechanical Engineering

I confirm that Aneez Kundukulathil was registered on the above programme here at Glasgow Caledonian University.

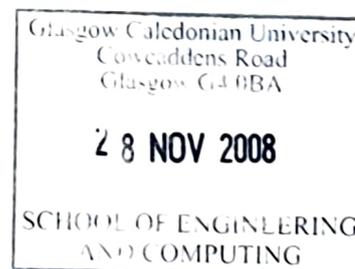
Aneez was granted an MSc at the Assessment Board held on 13th June 2008.

If you would like any further information, please do not hesitate to contact me.

Yours faithfully

A handwritten signature in black ink, appearing to read 'D. Irvine'.

Deborah Irvine
Programme Administrator
School of Engineering and Computing
Glasgow Caledonian University



Glasgow Caledonian University T +44 (0)141 331 3000
Cowcaddens Road F +44 (0)141 331 3005
Glasgow G4 0BA www.caledonian.ac.uk
Scotland, United Kingdom

Principal and Vice-Chancellor Professor Pamela Gillies BSc PGCE MEd MMedSci PhD FRSA FFPH AcSS Hon FRCPS(Glasg)

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No :
DATE :
DATE : 23/11/2022

الرقم :
التاريخ :
الموافق : ١١/١٢/٢٠٢٢

شهادة لمن يهمه الأمر
To whom it may concern

The University of Technology and Applied Sciences (The Higher College of Technology) certifies that Mr. Aneez Kundukulathil Indian citizen was working in this college, as Mechanical Engineering Lecturer in Engineering Department and was appointed through Technical & Administrative Training Institute since 18/9/2013 up to 15/12/2022.

تشهد جامعة التقنية والعلوم التطبيقية (الكلية التقنية العليا) بأن الفاضل/ أنيز كوندوكولاثي هندي الجنسية عمل بهذه الكلية بوظيفة محاضر هندسة ميكانيكا بقسم الهندسة ، بعقد خاص مع معهد التدريب التقني والإداري منذ تاريخ ١٨/٩/٢٠١٣ وحتى ١٥/١٢/٢٠٢٢ م.

This certificate is based on his request for admission to whom it may concern, without any liability on the part of the College what so ever.

وعليه أعطيت له هذه الشهادة بناء على طلبه وذلك لتقديمها لمن يهمه الأمر، وذلك دون أدنى مسؤولية على الكلية فيما يتعلق بحقوق الغير.

We highly appreciate your kind cooperation.

وتفضلوا بقبول فائق الاحترام،،،،

علي بن خليفة بن علي الحكاماني

Ali Khalifa Ali Al Hakamani

مساعد العميد للشؤون الإدارية والمالية

Asst. Dean Administration Financial Affairs



آفاق واسعة Broad Horizons



GOVERNMENT ENGINEERING COLLEGE

KOZHIKODE - 673 005 - KERALA, INDIA

Principal : 0495 - 2383210
Office : 0495 - 2383220
Fax : 0495 - 2383210

E-mail : principal@geckkd.ac.in
Website : www.geckkd.ac.in

Ref No.

No:E1/3189/2011

Dated, 20.12.2011

EXPERIENCE CERTIFICATE

This is to certify that Shri.AneezKundukulathil, Azhinhilam (House), Azhinhilam (po), Farook College (via), Malappuram (Dt.) 673632(pin) has worked as a guest Lecturer in Mechanical Engineering Department of this institution during the period from 02.11.2009 to 31.03.2010 & now working from 01.06.2010 to till date purely on hourly contract basis.

This certificate is issued as per his request for future career.



To

Shri. Aneez Kundukulathil

Sahade P R
PRINCIPAL
PRINCIPAL
GOVT. ENGINEERING COLLEGE
WEST HILL KOZHIKODE - 5
PIN 673 005

आयकर विभाग

INCOME TAX DEPARTMENT

ANEEZ

KUNDUKULATHIL KOYATTY

30/04/1977

Permanent Account Number

ARFPA6987L

Aneez

Signature



भारत सरकार

GOVT. OF INDIA



10022010



ELECTION COMMISSION OF INDIA

ഇൻഡ്യ തെരഞ്ഞെടുപ്പ് കമ്മീഷൻ

IDENTITY CARD

തിരിച്ചറിയൽ കാർഡ്

JCW1711696



| | |
|----------------------|-----------------------------------|
| Elector's Name | : Aneez |
| സമ്മതിദായകന്റെ പേര് | : അനീസ് |
| Father's Name | : Koyatty |
| അച്ഛന്റെ പേര് | : കോയട്ടി |
| Sex: സ്ത്രീ/പുരുഷൻ | : M / പു |
| Age as on 01-01-2002 | : <input type="text" value="24"/> |
| വയസ്സ് 01-01-2002 ൽ | : <input type="text" value="24"/> |

JOWY711696

Address : 398

Kundukalathil

1,

Vazhayur Grama Pancha

വിലാസം : 398

കുണ്ടുകുത്തിൽ

1,

വാഴയൂർ ഗ്രാമ പഞ്ചായത്ത്

Electoral Registration Officer

ഇലക്ടറൽ രജിസ്ട്രേഷൻ ഓഫീസർ

Kondotty LA Constituency

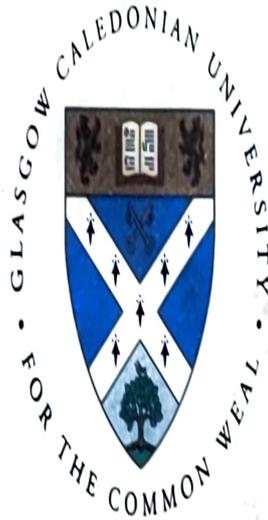
കൊണ്ടോട്ടി അസംബ്ലി നിയോജകമണ്ഡലം

Place : Ernad

സ്ഥലം : എറനാട്

Date / തീയതി : 11-09-2002

This card may be used as Identity Card under different Government Schemes
ഈ കാർഡ് വിവിധ സർക്കാർ പദ്ധതികൾക്കുള്ള തിരിച്ചറിയൽ കാർഡായി ഉപയോഗിക്കാവുന്നതാണ്



The University Senate certifies that

Aneez Kundukulathil

*has completed an approved programme of study
and fulfilled the conditions required for the award of*

*Master of Science
in
Mechanical Engineering*

PRINCIPAL AND VICE-CHANCELLOR

SECRETARY TO THE SENATE

2nd July 2008

DATE





കാലിക്കറ്റ് യൂണിവേഴ്സിറ്റി

FACULTY OF ENGINEERING

Whereas it has been certified by duly appointed Examiners that

Aneez. K. (Kundukulathil)

is qualified to receive

the Degree of Bachelor of Technology (B. Tech.)

in Branch Mechanical Engineering,

he having been placed in Second Class

at the Examination held in

March 2006 (Reg. No. 277)

(VIII Semester passed in

December 2000, Reg. No. 4005)

The Senate of the University of Calicut hereby confers on him

the Degree of

Bachelor of Technology

with all the Rights, Privileges and Honours thereunto appertaining.

Given under the seal of the University

CALICUT UNIVERSITY P O
Kerala INDIA
PIN-673 635

Date 08/09/2010

[Signature]
VICE CHANCELLOR



Nº 253003



The University Senate certifies that

Aneez Kundukulathil

*has completed an approved programme of study
and fulfilled the conditions required for the award of*

*Master of Science
in
Mechanical Engineering*

PRINCIPAL AND VICE-CHANCELLOR

SECRETARY TO THE SENATE

2nd July 2008

DATE





കാലിക്കറ്റ് യൂണിവേഴ്സിറ്റി

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Given under the seal of the University

CALICUT UNIVERSITY PO
Kerala INDIA
PIN-673 635

[Signature]
VICE CHANCELLOR



Date 08/09/2010

Nº 253003