

Universiti Teknikal Malaysia Melaka & Universitas Negeri Malang

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**MEMORANDUM OF AGREEMENT
ON JOINT RESEARCH**

BETWEEN



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

AND



**FACULTY OF ENGINEERING
UNIVERSITAS NEGERI MALANG**

JOINT RESEARCH AGREEMENT

This Agreement is made on the 28th day of June, 2023.

BETWEEN

UNIVERSITI TEKNIKAL MALAYSIA MELAKA, a public university established pursuant to the provisions of the Universities and University Colleges Act, 1971 (Act 30) and having its address at Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia (hereinafter referred to as "**UTeM**") of one part;

AND

UNIVERSITAS NEGERI MALANG, a higher education institution established pursuant to the Ministerial Decree No.38742/Kab. of the Ministry of Education, Teaching, and Culture, Republic of Indonesia, dated 1st September 1954 with its registered address at Jl. Semarang 5, Malang 65145, Jawa Timur, Indonesia (hereinafter referred to as "**UM**") of the other part.

UTeM and **UM** shall hereinafter be referred to singularly as "**Party**" and jointly as "**Parties**" but where the context may permit or so required, may refer to either one of them.

WHEREAS :

- (A) **UTeM**, a public university, offers diploma, undergraduate and postgraduate degree programs in the technical fields especially engineering, engineering technology, information technology and techno-entrepreneurship courses.
- (B) **UM** is a public university in East Java under the Ministry of Research, Technology and Higher Education, republic of Indonesia which strives to enhance

and strengthen its research and development and has taken various initiatives to complement its educational excellence and has entered into various collaborative arrangements with other parties to enhance networking.

- (C) UTeM and UM's researcher (collectively referred to as "**Researchers**" and singularly as "**Researcher**") are desirous of jointly researching and collaborating on a project known as "**CHARACTERISATION AND APPLICATION OF BIO-BASED NANOLUBRICANT WITH THE ADDITION OF SCALLOP SHELL NANO-SIZE POWDER AS A FRICTION REDUCTION ADDITIVE IN LUBRICANT**" (hereinafter referred to as the "**Project**") described in **Appendix One** of this Agreement, subject to the terms and conditions herein contained.
- (D) UM has on **9th MARCH 2023** proposed to contribute an industrial grant to the Researchers to assist the Researchers to carry out, design, develop and produce the Project on the terms and conditions set forth in this Agreement (hereinafter referred to as the "**Letter of Intent**"), appended herein in **Appendix Two** of this Agreement.
- (E) UTeM has on **28th MARCH 2023** offered a conditional offer to contribute an industrial grant to the Researchers to assist the Researchers to carry out, design, develop and produce the Project on the terms and conditions set forth in this Agreement (hereinafter referred to as the "**Conditional Offer Letter**"), appended herein in **Appendix Three** of this Agreement.
- (F) The Parties hereby agree to enter into this Agreement to define the obligations and responsibilities of each Party under this Agreement subject to the terms and conditions contained herein.

NOW THEREFORE, in consideration of the mutual agreements and undertakings set out in this Agreement and for other good and valuable consideration in kind, the receipt and

sufficiency of which are hereby acknowledged, the Parties have granted the rights and accepted the obligations hereinafter appearing and it is agreed as follows :

1. DEFINITION AND INTERPRETATION

1.1 Definition

In this Agreement, the following words and expressions shall have the following meanings unless the context otherwise requires:

“Agreement”	means this Agreement and all the schedules and annexure to it (as amended from time to time in accordance with the terms contained herein);
“Commercialization”	shall include (but is not limited to) all acts of commercializing from the Results of the Project and/or the Intellectual Property in respect of the Project such as outright sale, sales, assignment, royalties, commission, licensing, marketing, advertising etc.;
“Commencement Date”	means the date of this Agreement;
“Confidential Information”	shall include (but is not limited to) : (a) all information and documents related to intellectual property, trademarks, trade names, service marks, service names, logos, emblems, slogans, industrial designs, patents, copyrights, trade secrets, know how, products

	<p>and inclusive of in the form of photographs, video and/or CD filming, digital images, drawings, designs, CAD Data, financial, marketing, economics, commercial and strategic reports, information on territories of distribution, corporate and product information and all copies, reproductions, reprints and translations thereof, supplied by the Disclosing Party to the Receiving Party in connection with and in the course of the Project;</p> <p>(b) information and material demonstrated and furnished verbally or in any other mode which may reasonably be regarded by either Party as confidential regardless of whether these have been explicitly or tacitly identified as being secret or confidential. Any information which was expressly named or marked as being confidential shall in any case be deemed to be Confidential Information in the sense of this Agreement;</p> <p>(c) all of the above information disclosed in connection with the Project whether before or after the date of this Agreement;</p>
"Grant"	means such sums of money provided by UTeM and UM for the Project under this Agreement;

"Information and Documents"	include plans, maps, sketches, ground levels, drawings, specifications, estimates, designs, calculations, computer programmes, photographs, reports, models, manuals and other documents, whether in whole or part;
"Product"	means the Result of the Project which is " Bio - Nano Lubricant ";
"Result"	means the outcome of the work in respect of the Project;
"Specified Person"	means either UTeM's or UM's employees, officers, directors, advisors, consultants, agents, contractors, sub-contractors, students, researchers, research assistants, lecturers (temporary, on contractual basis or permanent), visiting lecturers, or representatives, or subsidiaries, group companies or affiliates (their officers, directors, advisors, consultants, employees, sub-contractors or representatives); and
"unexpended grant"	means the total amount of the grant which is unexpended at the time of the completion of all milestones prescribed for the Project.

1.2 Interpretation

- (a) The schedules attached hereto shall form integral parts of this Agreement and shall have the same force and effects as if the same is expressly set out in the body of this Agreement.
- (b) Any word or expression defined in this Agreement, shall unless the context otherwise requires, have the same meaning in the Schedules to this Agreement.
- (c) Any reference in this Agreement to a statute or any provision of a statute shall be constructed as a reference to that statute or provision as amended, re-enacted or extended at the relevant time.
- (d) References to persons shall include incorporated persons, references to the singular include the plural and vice versa and references to the masculine include the feminine.
- (e) The heading in this Agreement are inserted for convenience only and any reference thereto shall not be deemed to be part thereof or be taken into consideration in interpretation or construction of this Agreement.
- (f) The documents comprising this Agreement shall be read in the following order of precedence:
 - (i) The clauses of this Agreement.
 - (ii) The appendices.
- (g) Unless expressly provided otherwise, where any conflict occurs between the provisions contained in two or more of the documents forming this Agreement,

the document lower in the order of precedence shall where possible be read down only to the extent necessary to resolve such conflict. If the conflict remains incapable of resolution by reading down, the conflicting provisions shall be severed from the document lower in the order of precedence without otherwise diminishing the enforceability of the remaining provisions of that document.

2. COLLABORATION PROGRAM

Without prejudice to the generality of the foregoing and in consideration of the Parties entering into this Agreement, provision by the Parties of the relevant facilities, place, research and development, manpower and granting permission to UTeM and UM's Specified Person to access and utilize Parties premises, data and documents relating to the Parties, for the Project pursuant to this Agreement hereinafter described in **Appendix One** herein, the Parties hereby agree to participate, collaborate, perform and execute the Project for the mutual benefit and interest and in full compliance with the terms and conditions herein set forth.

3. DURATION

- 3.1 This Agreement shall be effective and come into effect from the **COMMENCEMENT DATE** and shall continue in force for a period of **TWENTY-FOUR (24) months**, unless or until early termination by a written notice by any of the Parties herein according to the terms and conditions of this Agreement (hereinafter referred to as the "**Term**"). The Parties may extend the Term of this Agreement subject to mutual agreement by both Parties in writing.
- 3.2 The Parties shall carry out the Project in accordance with the provisions, terms, conditions and within the Term of this Agreement.

4. GRANT

- 4.1 **UTeM** hereby agrees to contribute the grant of **RINGGIT MALAYSIA THIRTY THOUSAND (RM30,000.00) ONLY** which shall be used for the purpose of carrying out the Project as specified in **Appendix One** herein and payable in full amount upon signing of this Agreement (hereinafter referred to as "**UTeM's Grant**").
- 4.2 **UM** hereby agrees to contribute an industrial grant of **RINGGIT MALAYSIA THIRTY THOUSAND (RM30,000.00) ONLY** which shall be used for the purpose of carrying out the Project as specified in **Appendix One** herein and payable in full amount upon signing of this Agreement (hereinafter referred to as "**UM's Grant**").
- 4.3 All payments and all other monies payable pursuant to this Agreement shall be paid directly to UTeM into a designated account to be mutually agreed between both UTeM and UM (hereinafter referred to as "**the Designated Account**").
- 4.4 At the conclusion of the Project, UTeM agrees to promptly return any unexpended grant to UM *via* Research and Innovation Management Center (CRIM), UTeM, if :
- (a) the Grant have not been used for its intended purpose; or
 - (b) the Grant have been used inconsistent with the terms and conditions of this Agreement; or
 - (c) the activities or Result funded by the Grant are materially incomplete by the end of this Agreement, as determined by the Parties mutually.

5. ROLES AND RESPONSIBILITIES

5.1 UTeM's responsibilities :

- (a) shall fund the Project by contributing the Grant as particularised in **Appendix**

One;

- (b) to provide Specified Person, premises, relevant facilities, place, research and development, manpower, data and documents to facilitate the Project as stated in **Appendix One** herein;
- (c) shall facilitate the Project as stated in **Appendix One** herein;
- (d) shall be responsible in the financial management of the Grant throughout the Term of this Agreement;
- (e) the Project shall be done according to the milestone as described in **Appendix One** herein;
- (f) shall be responsible to inform the other Party of any change of researcher(s) as stated in **Appendix One** hereto;
- (g) shall jointly develop the Product with UM;
- (h) shall jointly own the Product with UM;
- (i) shall provide Specified Person, premises, relevant facilities, place, manpower, data and documents for the purpose of carrying out laboratory test to the Product;
- (j) the ownership and maintenance of any equipment such as Soxhlet extractor analyzer set purchased with the Grant (if any), shall always remain with UTeM and maintained by UTeM; and
- (k) shall jointly publish papers with regard to the Project with UM.

5.2 UM's responsibilities :

- (a) shall fund the Project by providing the Grant to UTeM as particularised in **Appendix One**;
- (b) to provide Specified Person, premises, relevant facilities, place, research and development, manpower, data and documents to facilitate the Project as stated in **Appendix One** herein;
- (c) the Project shall be done according to the milestone as described in **Appendix One** herein;
- (d) shall be responsible to inform the other Party of any change of researcher(s) as stated in **Appendix One** hereto;
- (e) shall be responsible to ensure that the Grant is utilized by both Parties for the purpose of the Project according to **Appendix One** hereto;
- (f) shall jointly develop the Product with UTeM;
- (g) shall jointly own the Product with UTeM;
- (h) shall jointly publish papers with regard to the Project with UTeM.

6. REPRESENTATIONS, UNDERTAKINGS AND WARRANTIES

- 6.1 Each of the Parties represents and warrants to the other Party that during the Term of this Agreement :

- (a) This Agreement constitutes legal, valid and binding obligations of the Party in accordance with their respective terms;
- (b) All acts, conditions, things, approvals, consents, authorizations and licenses required to be done, fulfilled, performed or obtained in order to :
 - (i) enable the Party to lawfully enter into, exercise its rights under and the obligations expressed to be assumed by it in this Agreement; and
 - (ii) ensure that the obligations expressed to be assumed by the Party in this Agreement are legal, valid, binding and enforceable have been done, fulfilled, performed or obtained.
- (c) Neither the execution and delivery by it of this Agreement nor the performance or observance of any obligations hereunder does or will :
 - (i) conflict with, or result in any breach or violation of, any judgment, order of decree, indenture, mortgage, trust, deed, arrangement, obligations or duty by which is bound; or
 - (ii) cause any limitation of any of its powers whatsoever, however imposed, or on the right or ability of the Directors of it to exercise such powers, to be exceeded.
- (d) No litigation, arbitration or administrative proceedings are presently current or pending or threatened which default, litigation, arbitration or administrative proceedings, as the case may be, might materially affect the ability of the Party to enter into and/or to perform its obligations under this Agreement;

- (e) All Information and Documents furnished by the Party in connection with this Agreement does not contain any untrue statement or omit to state any fact the omission of which makes any statements made therein in the light of the circumstances under which they are made, misleading, and are made on reasonable grounds after due and careful inquiry and the Party is not aware of any material facts or circumstances that have not been disclosed to the other Party which might, if disclosed, adversely affect the decision of a person considering whether or not to enter this Agreement; and

- (f) The execution, delivery and performance of this Agreement are within its corporate power, have been duly authorized by all necessary corporate action, does not contravene their Constitution or Memorandum of Association and does not violate any law or regulation or any judgment, order or decrees of any governmental authority, or any governmental authority, or any contract or undertaking binding on or affecting it.

7. PROTECTION OF INTELLECTUAL PROPERTY RIGHTS

- 7.1 The protection of intellectual property rights shall be enforced in conformity with the respective national laws and regulations of Malaysia and Indonesia, respectively.

- 7.2 The use of the name, logo and/or official emblem of any of the Parties on any publication, document and/or paper is prohibited without the prior written approval of either Party.

- 7.3 “Background Intellectual Property” means any intellectual property rights that are possessed by each Party prior to the Term of this Agreement and/or developed independently by the Parties. Any Background Intellectual Property that are made available as between the Parties for the performance of the Project shall remain the separate property of the Party making such Background Intellectual Property and

nothing in this Agreement shall be construed to grant any implied license to the other Party to use such Background Intellectual Property other than in performance of this Project.

- 7.4 The Parties acknowledge that the Foreground Intellectual Property rights may arise from the implementation of this Project.
- 7.5 “Foreground Intellectual Property” means any intellectual property rights that arise, or are obtained or developed, created, written, prepared and discovered jointly by the Parties, arising or otherwise brought into existence pursuant to this Agreement.
- 7.6 The Parties agree that this Agreement shall not affect the ownership of any Background Intellectual Property of a Party or in any other technology, design, work, invention, software, data, technique, know-how, or materials that are not the Foreground Intellectual Property. The Parties also agree not to use any of the Background Intellectual Property in any technology, design, work, invention, software, data, technique, Know-how, or materials belonging to the other Party **except** for the purpose of carrying out the Project.
- 7.7 Any Foreground Intellectual Property arising from the Project shall be owned jointly between the Parties subject to Clause 7.15 and Clause 7.16 hereof. Any dispute pertaining to the same shall be determined upon further discussion between the Parties.
- 7.8 Each Party shall promptly disclose to the other(s) all Foreground Intellectual Property generated by it and each Party shall co-operate, where required, in relation to the preparation and prosecution of patent applications and any other applications relating to Foreground Intellectual Property.

- 7.9 For clarity purposes, the proportion, rights in and title of any Foreground Intellectual Property and terms and conditions in relation to the Commercialization will only be determined by the Parties after the completion of the Project, taking into consideration the financial and technical contributions of the Parties concerned to the development of the respective Foreground Intellectual Property and the Parties will enter into a separate agreement pertaining the same.
- 7.10 Each Party is hereby granted an irrevocable, non-transferable, royalty-free right to use all Foreground Intellectual Property generated in the course of the Project for academic and research purposes.
- 7.11 If any Party (the "Exercising Party") requires the use of Background Intellectual Property of any other (the "Other Party") in order to exercise its rights in the Foreground Intellectual Property (whether solely or jointly owned) then, provided the Other Party is free to license the Background Intellectual Property in question, the Other Party will not unreasonably refuse to grant or delay granting a licence to the Exercising Party so that the Exercising Party may use such Background Intellectual Property for the purpose of exercising its rights in Foreground Intellectual Property. The Exercising Party and the Other Party shall negotiate in good faith and agree on the reasonable terms for the grant of the license of the Other Party's Background Intellectual Property to the Exercising Party.
- 7.12 Notwithstanding anything contained in this Clause, the ownership of research finding and the intellectual property rights which is developed by using the UTeM's premise and facilities, not for the purpose of this Project, shall belong to UTeM.
- 7.13 It is agreed by the Parties that the contents of any written report, findings, results and/or recommendations made by UTeM's researcher, shall be for the Project and shall be based on real industrial testing data using Information and Documents

provided by either Parties, whichever is relevant for the successful completion of the Project under this Agreement.

7.14 Either Party undertake not to use or license the Products and/or concepts to any third party without prior written consent from the other Party.

7.15 Upon expiry or early termination of this Agreement, any Foreground Intellectual Property arising from the Project shall be solely owned by UTeM if UM has breach any terms and conditions of this Agreement. Therefore :

7.15.1 the Grant paid by UM to UTeM pursuant to this Agreement is not refundable (if any); and

7.15.2 UM shall have no further claims against UTeM for any losses or damages for breach of any of the terms and conditions covenants or stipulations contained in this Agreement.

7.16 Similarly, upon expiry or early termination of this Agreement, any Foreground Intellectual Property arising from the Project shall be solely owned by UM if UTeM has breach any of the terms and conditions covenants or stipulations contained in this Agreement. Therefore, UTeM shall have no further claims against UM for any losses or damages for UTeM's breach of any of the terms and conditions covenants or stipulations contained in this Agreement.

8. CONFIDENTIALITY

8.1 Confidential Information

Each Party shall undertake to observe the confidentiality and secrecy of the Confidential Information inter-alia documents, information and other data received or

supplied to the other Party during the Term of this Agreement or any other agreement made pursuant to this Agreement. The Parties agree that the provisions of this Clause shall continue to be binding between the Parties for the Term of this Agreement and shall continue to be in effect for a further period of **three (3) years** after completion or termination of this Agreement.

8.2 ***Undertaking to Keep Confidential Information Confidential***

8.2.1 Each of the Parties hereto undertakes that it will keep confidential any Confidential Information supplied to it by any of the other Party and will not disclose any such Confidential Information to any other person save to the extent that and subject to applicable laws, rules, regulations and procedure :

- (a) Such disclosure is required for the purposes of carrying out its obligations under this Agreement;
- (b) Disclosure of such information is made to UTeM's researchers involved in the Project;
- (c) Disclosure of such information is necessary for the purposes of raising finance; or
- (d) The obligations of confidentiality under these clauses shall not apply to any information or material which the recipient party can prove :
 - (i) Was already known to it prior to its receipt thereof from the disclosing party; or
 - (ii) Was subsequently disclosed to it lawfully by a third party who did not obtain the same (whether directly or indirectly) from the disclosing party; or

- (iii) Was in the public domain at the time of receipt by the recipient party to the disclosing party;
- (iv) Was required to be disclosed by any law or regulation wherein the receiving party notifies the disclosing party of such requirement within seven (7) days before such disclosure in order to enable the disclosing party to take the necessary steps to protect the interests of the disclosing party.

8.2.2 Subject to and unless otherwise agreed between the Parties in writing, the Parties shall, to the extent practicable and possible, procure that their respective representatives shall keep confidential all information received hereunder.

8.2.3 No Party shall unless required by law or any government, official or agency in connection with obtaining any permit, licenses or approvals necessary or appropriate for the conduct of the Project (either before or after the termination of this Agreement) disclose to any person not authorized by the relevant party to receive the same, any information relating to such Party or to the affairs of such Party or which the Party disclosing the same shall have become possessed during the Term of this Agreement and each Party shall use its best endeavours to prevent any such disclosure.

8.2.4 No Party shall, save as required by any applicable law or regulation, cause to be made any public announcement about this Agreement or the business and affairs of the Project without the prior written consent of the other Party.

8.2.5 The obligations set out in this Clause shall survive the termination of this Agreement but shall not apply to information that is or becomes generally known to the public other than due to breach of this Agreement.

9. JOINT PUBLICATIONS

- 9.1 Neither Party shall publish any information, articles, photographs, drawings and/or illustrations arising from the Project unless consented to in writing by the other Party.
- 9.2 The decision to publish the results from the Project would be made jointly by the Parties. In the event a publication ensues, authors from the respective Parties who have played a part in the work shall be named as co-authors.
- 9.3 Parties shall exchange of information, publication of joint papers and materials which are related to the Project.

10. JOINT PUBLIC COMMUNICATION

- 10.1 Any announcement (written and oral) relating to the Project shall be made jointly by the Parties. Such announcement shall acknowledge that the Project and the findings thereon (if any) is the result of the collaborative effort between Parties.
- 10.2 The Parties shall jointly coordinate all press conferences, press releases, public statements or any other publicity, if any, about the Project or its subject matter, including without limitation, the existence or contents of this Agreement. Public Communication shall not be allowed without the mutual consent in writing of both Parties hereto.
- 10.3 Joint organization and coordination of public communication such as seminars, conferences, workshops, courses etc. in relation to the Project, subject to the provisions of this Agreement and the future separate ownership agreements between the Parties in respect of the Intellectual Property and its Commercialization. Provided always that such public communication may only be held with the written consent of both Parties.

- 10.4 Joint organization and coordination of public communication such as press releases, announcements, promotions etc. in relation to the Project, subject to the provisions of this Agreement and the future separate ownership agreements between the Parties in respect of the Intellectual Property and its Commercialization. Provided always that such public communication may only be held with the written consent of both Parties.
- 10.5 Neither UTeM nor UM shall without first consulting in good faith with the other Party hereto, make any public announcement, directly or indirectly, regarding the Project, nor disclose the nature of such Project to any person; except as required by any applicable law, rule or regulation.
- 10.6 Neither Party shall use the name, insignia or logos of the other Party or any variant thereof in any form of advertising, promotional literature or press release, without such other Party's written consent, which consent shall not be unreasonably withheld, delayed or conditioned.
- 10.7 Neither Party shall use the name of the other or its respective employees, directors and officers in any publicity, advertising or news release without the prior approval of the other Party which approval shall include approval for the form and content of such publicity, advertisement or news releases, which will not be unreasonably withheld or delayed.
- 10.8 Neither Party agrees not to make or procure or permit a third party to make an announcement in respect of the Confidential Information.
- 10.9 Neither Party shall disclose and/or announce to the public the contents of this Agreement, its' contents and obligation of the Parties.

11. SUSPENSION

Each Party reserves the right for reasons of national security, national interest, public order or public health to suspend temporarily, either in whole or in part, the implementation of this Agreement which suspension shall take effect immediately after reasonable notification has been given to the other Party.

12. REVISION, MODIFICATION AND AMENDMENT

Either Party may request in writing a revision, modification or amendment of all or any part of this Agreement. Any revision, modification or amendment agreed to by the Parties shall be reduced into writing and shall form part of this Agreement. Such revision, modification or amendment shall not prejudice the rights and obligations arising from or based on this Agreement prior or up to the date of such revision, modification or amendment.

13. EXPIRY OR TERMINATION

13.1 In the event a Party is in breach of any terms or conditions of this Agreement (hereinafter referred to as "**the Breaching Party**") other than as a result of Force Majeure, the other aggrieved party (hereinafter referred to as "**the Non-Breaching Party**") shall be entitled to serve a written notice on the Breaching Party notifying it of the said breach by giving full particulars of the breach and requesting the Breaching Party to remedy the said breach within thirty (30) days from its receipt of the written notice failing which the Non-Breaching Party shall be entitled to serve a further notice on the Breaching Party to immediately terminate the Agreement.

13.2 Notwithstanding any provisions in this Agreement, either Party may elect to terminate this Agreement, or portions thereof, at any time before the expiration of the period of this Agreement by giving thirty (30) days prior written notice to the other Party. In such

an event, the Parties shall specify the disposition of all property, patents, any other results of work accomplished or in progress, performed under this Agreement when such disposition is not otherwise specified in this Agreement. Upon a termination by mutual consent, the Parties shall not make any new commitments and shall, to the extent feasible, cancel all outstanding commitments that relate to this Agreement or portions thereof mutually terminated, by the termination date, or as soon thereafter as feasible and no Party will have any further right, claim, entitlement, obligation or liability under this Agreement.

- 13.3 Upon the termination of this Agreement all the rights and obligations of the Parties under this Agreement shall automatically be of no effect and force save and except for antecedent breach and any terms and conditions which shall survive termination.
- 13.4 Upon termination of this Agreement, for any reason whatsoever, the Party disbursing any monies under this Agreement shall forthwith cease any further payments for the uncompleted portion of the Project.
- 13.5 Notwithstanding the above, upon termination of this Agreement all Information transmitted or furnished by one Party to the other Party and any copies made thereof shall at the Party's own costs and expenses be promptly returned and the Party shall not at any time make copies of any Confidential Information without the other Party's express written consent.
- 13.6 The provision under Clauses 6, 7 and 8 hereof shall survive the termination or expiration of this Agreement.

14. NOTICE

- 14.1 Any notices, approvals, demands, communications or requests required or permitted to be given or made under this Agreement shall be in writing in National or English

Language. Such notices, approvals, demands, communications or request shall be deemed to be duly given or made when it shall have been delivered by hand, by prepaid registered post or facsimile to the Party to which is required to be given or made at such Party's address specified below, or at such other address as either Party may specify in writing :

For UTeM :

Name : Faculty of Mechanical and Manufacturing Engineering Technology
Address : Universiti Teknikal Malaysia Melaka
Hang Tuah Jaya, 76100 Durian Tunggal, Melaka.
Tel. No. : +60132083267
Fax No. : +6062701064
Email : ilmanhakimi@utem.edu.my
Attention to : Dr. Muhammad Ilman Hakimi Chua bin Abdullah

For UM :

Name : Faculty of Engineering,
Address : Universitas Negeri Malang (UM)
Jl. Semarang No.5, Malang, 65145
Indonesia
Tel. No. : +62 (0)341 584759
Fax no. : +62(0)341 584759
Email : poppy@um.ac.id (cc to oia@um.ac.id)
Attention to : Rr. Poppy Puspitasari, S.Pd., M.T.,Ph.D.

- 14.2 Any notices, approvals, demands, communications or requests shall be deemed to have been duly served on the date of dispatch if delivered by hand.
- 14.3 Any notices, approvals, demands, communications or requests shall be deemed to have been duly served after expiration of three (3) days from the date of the notices,

approvals, demands, communications or requests sent by registered post, or by facsimile to the numbers aforesaid, at the time of transmission provided that the sender has a valid transmission report.

- 14.4 No notice, approval or request shall be sent by e-mail unless it is also sent by registered post or facsimile.
- 14.5 Any change of address by either Party shall be communicated to the other Party by notice in writing.

15. FORCE MAJEURE

15.1 Neither UTeM nor UM shall be in breach of its obligations under this Agreement if it is unable to perform or fulfil any of its obligations under this Agreement (or any part of them) as a result of the occurrence of an *Event of Force Majeure*. An *Event of Force Majeure* shall mean an event, not within the control of the Party affected, which that Party is unable to prevent, avoid or remove, and shall mean :

- (a) war (whether declared or not), hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection, military or usurped power, civil war, or acts of terrorism;
- (b) ionizing radiation or contamination by radioactivity from any nuclear waste, from the combustion of nuclear fuel, radioactive toxic explosive, or other hazardous properties of any explosive, nuclear assembly or nuclear component thereof;
- (c) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds;

- (d) natural catastrophe including but not limited to earthquakes, floods, subsidence, and subterranean spontaneous combustion or any operation of the force of nature, lightning and exceptionally inclement weather;
- (e) riot, commotion and disorders, criminal damage, sabotage, strike, lock out, labour unrest or other industrial disturbances (affecting the performance of this Agreement) which are not the fault of UM or their contractors or UTeM which causes, or can reasonably be expected to cause any Party to fail to comply with its obligations;
- (f) endemic, epidemic or pandemic; or
- (g) any other unforeseeable event which fulfils the criteria as set forth below :
 - (i) beyond the reasonable control of the Party affected by such event, circumstance or combination of events or circumstances;
 - (ii) which was not foreseeable or, if foreseeable, could not have been prevented or avoided or overcome by the affected Party having taken all reasonable precautions and due care;
 - (iii) which directly causes the affected Party to be unable to comply with all or a material part of its obligations under this Agreement; and
 - (iv) which is not the direct result of a breach by the affected Party of its obligations under this Agreement,

PROVIDED THAT an *Event of Force Majeure* shall not include economic downturn, non-availability of or insufficient of funds or lack of financing on the part of UTeM and UM to perform its obligations under this Agreement.

- 15.2 Either Party hereto shall notify the other in writing of the occurrence of any *Event of Force Majeure* and of the cessation of such event.
- 15.3 Where an *Event of Force Majeure* shall result in either UTeM or UM being unable to perform its obligations hereunder, the obligations of both UTeM and UM shall not be terminated but shall be suspended for a maximum of thirty (30) days during which the Parties hereto shall assess the damage or delay brought about by the *Event of Force Majeure* and take all reasonable steps to mitigate any loss, damage, delay or interruption to their obligations under this Agreement and where it is still reasonable for the Party concerned after the said 30-day assessment period completed, to continue with the performance of its obligations under this Agreement, the Parties shall agree to new terms and conditions and in the event the Parties fail to agree to the new terms and conditions, this Agreement shall terminate.
- 15.4 Notwithstanding Clause 15.3, in the event that either of the Parties is of the opinion that the *Event of Force Majeure* is of such degree of severity as to render the performance of their obligations under this Agreement as impossible or impracticable, such Party may opt to terminate this Agreement by written notice to the other specifying the date upon which the termination is to take effect.

16. NON-WAIVER

No failure or delay by any Party in exercising any right, power or remedy under this Agreement shall operate as a waiver thereof, nor shall any single or partial exercise of the same preclude any further exercise thereof or the exercise of any other right, power or remedy. Without limiting the foregoing, no waiver by any Party of any breach of any provision hereof shall be deemed to be a waiver of any subsequent breach of that or any other provision hereof. If at any time any provision of this Agreement is or becomes illegal, invalid or unenforceable in any respect, the legality, validity or

unenforceability of the remaining provisions of this Agreement shall not be affected or impaired thereby.

17. LANGUAGE

All notices or other communications under or in connection with this Agreement may be in English or in Bahasa Malaysia. If any such notice or other communication is translated into Bahasa Malaysia or English, as the case may be, then in the event of any conflict between the original text and the translation, the original text shall prevail.

18. ENTIRE AGREEMENT

This Agreement constitutes the entire agreement between the Parties hereto with respect to the matters dealt with therein and supersedes any previous agreement or understanding between the Parties hereto in relation to such matters. Each of the Parties hereby acknowledges that in entering into this Agreement, it has not relied on any representation or warranty save as expressly set out herein or in any document expressly referred to herein.

19. RELATIONSHIP OF THE PARTIES

No provision of this Agreement shall be construed as creating a partnership, agency, joint venture or fiduciary relationship between the Parties hereto. No provision of this Agreement is deemed to constitute either Party as the legal representative or agent of the other Party for any Project whatsoever. Neither Party shall have any right or authority to assume, create or incur any liability or obligation of any kind expressed or implied against in the name or on behalf of the other Party except as otherwise expressly provided herein or as may otherwise be agreed in writing by the Parties.

20. SEVERABILITY

- 20.1 If any of the provision of this Agreement is found by a court of competent jurisdiction to be invalid, illegal and/or unenforceable, in whole or part, under the present or future laws, such provision shall be deemed to be deleted from this Agreement as if it had never formed a part hereof and the remaining provisions of this Agreement shall remain in full force and effect.
- 20.2 Notwithstanding the foregoing and in lieu of such invalid, illegal and/or unenforceable provision, the Parties hereto shall thereupon negotiate in good faith in order to agree on the terms of a mutually satisfactory provisions similar in terms, with such modifications as are necessary, to the original provision as may be possible that is valid, legal and enforceable so as to give to the intent of the Parties hereto.

21. SETTLEMENT OF DISPUTES

Any difference or dispute between the Parties concerning the interpretation and/or application of any of the provision of this Agreement shall at first instance be attempted to be settled amicably through mutual consultation and/or negotiations between the Parties without reference to any third party. In the event such mutual consultation or negotiation does not result in any amicable settlement of the dispute, Parties agree to submit to the jurisdiction and determination of the Courts of Malaysia.

22. MUTUAL TRUST

In entering into this Agreement, the Parties recognize that it is impracticable to make provision for every contingency that may arise in the course of performance thereof and accordingly the Parties hereby declare it to be in the intention that the Agreement shall operate between the Parties with fairness, good faith and without detriment to the interests of either them and if in the course of Agreement, unfairness to any Party

is disclosed or anticipated, then the Parties shall use their best endeavours to agree upon such action as may be necessary and equitable to rectify the unfairness.

23. ASSIGNMENTS

Except with the prior written approval of the other Party, neither Party shall assign or transfer the benefits or obligations of this Agreement or any part thereof.

24. BINDING EFFECT

This Agreement shall be binding upon the Parties and their permitted legal assigns and successors in title.

25. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of Malaysia and Indonesia, respectively.

26. COST AND EXPENSE

26.1 *Stamp Duty*

UM shall bear and pay all stamp duties on this Agreement.


26.2 *Other costs*

Each Party shall pay its own legal and other costs and expenses in relation to the preparation and completion of this Agreement.

[END OF TERMS AND CONDITIONS]


IN WITNESS WHEREOF the Parties have hereunto set their hand the day and year first above-written.

For and on behalf of
UNIVERSITAS NEGERI MALANG



PROF. DR. HARIYONO, M.Pd.
REKTOR


Date :

In the presence of


PROF. DR. ANDOKO, M.T

DEAN
FACULTY OF ENGINEERING


For and on behalf of
**UNIVERSITI TEKNIKAL MALAYSIA
MELAKA**



**PROFESSOR Ts. DR. MASSILA
BINTI KAMALRUDIN**
VICE CHANCELLOR

Date :

In the presence of



**Ts. DR. NUR RASHID BIN MAT
NURI @ MD DIN**
DEPUTY DEAN (ACADEMIC)
**FACULTY OF MECHANICAL &
MANUFACTURING ENGINEERING
TECHNOLOGY**

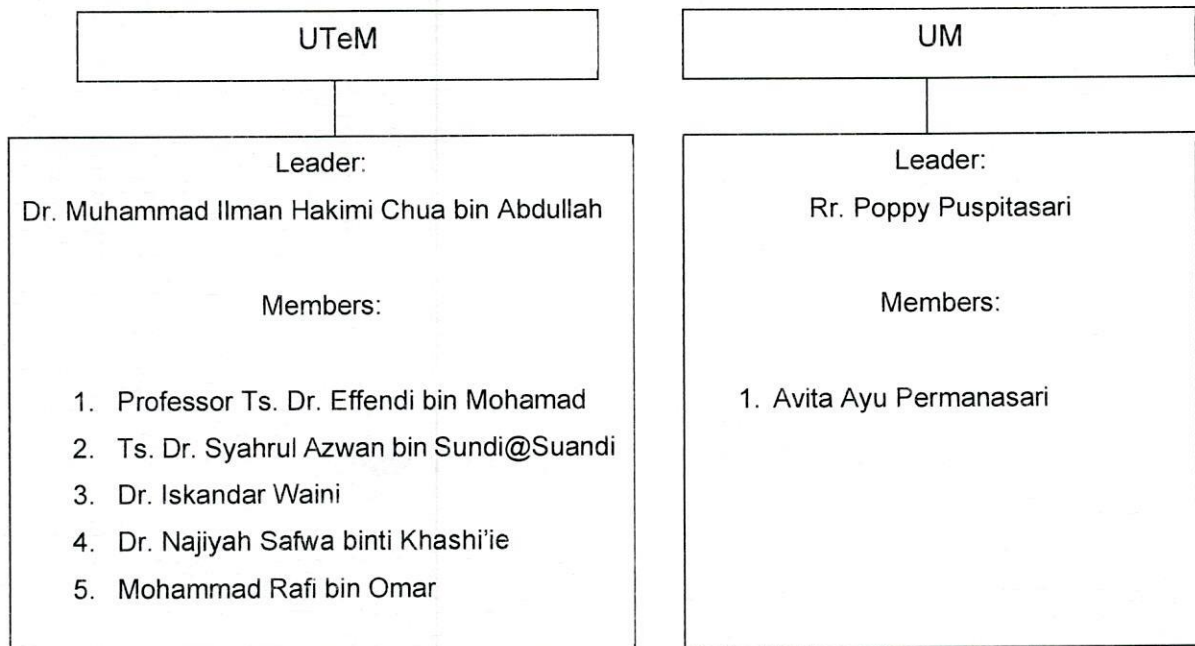
APPENDIX ONE

CHARACTERISATION AND APPLICATION OF BIO-BASED NANOLUBRICANT WITH THE ADDITION OF SCALLOP SHELL NANO-SIZE POWDER AS A FRICTION REDUCTION ADDITIVE IN LUBRICANT

1. Objectives

- i. To investigate the efficacy of banana peel extraction oil-based infused with an optimised volume per cent of scallop-shell nanoparticles on lubricant quality properties.
- ii. To evaluate the dispersion stability of scallop-shell nanoparticles as a friction and wear-reduction additive infused with banana oil.
- iii. To analyse the tribological behaviour and lubrication mechanisms of the developed bio-lubricant.

2. Team Chart



3. Responsibilities

The responsibilities in term of percentages are shown as in Table 1.

No	Schedule	Responsibility (percentage)	
		UTeM (%)	UM (%)
1	DOE setup parameters and design for testing	60	40
2	Sample preparation	50	50
3	DOE setup parameters and design for testing	50	50
4	Tribological testing and validation	100	-
5	Pilot run for potential application	50	50

Table 1: Responsibility of the task given.

4. Deliverables

The deliverables for UTeM and UM as listed in Table 2

UTeM & UM	Journals papers WOS/SCOPUS index
	Indexed proceeding/ Conference paper
	Intellectual Properties

Table 2: Deliverables

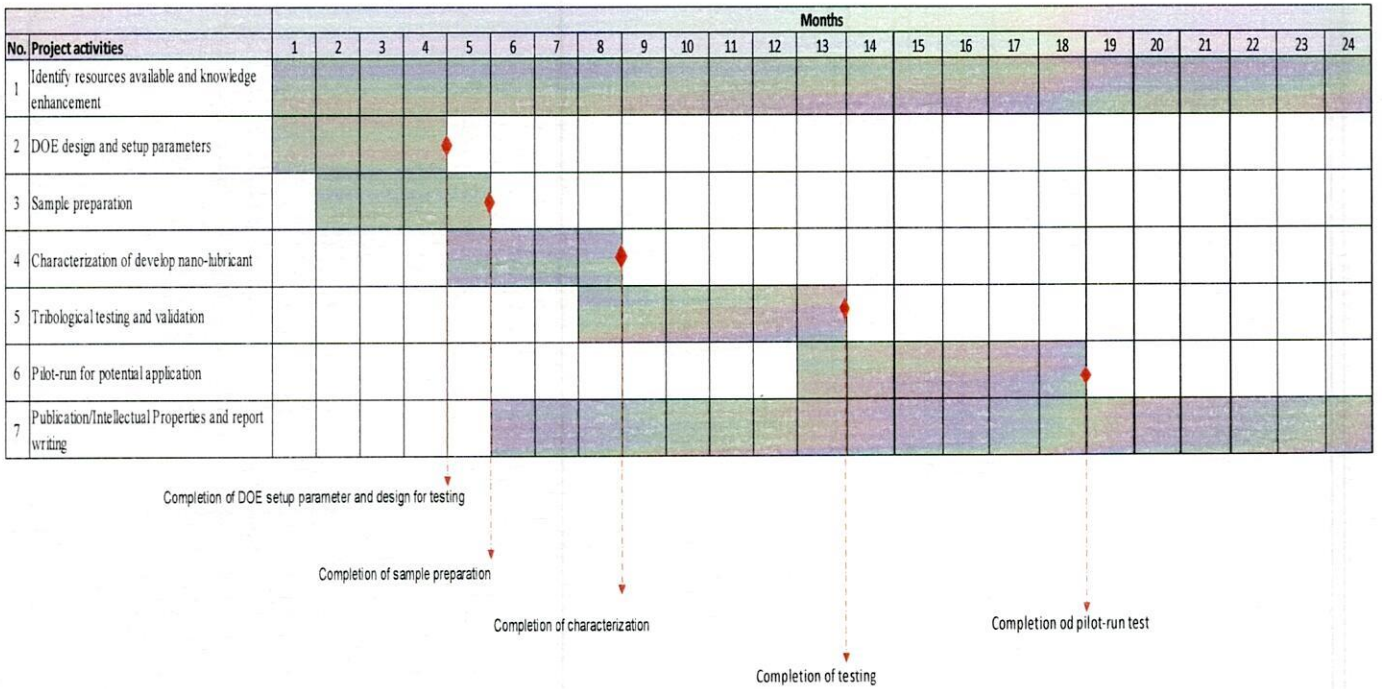
5. Justification

The justifications of the Project and university are lists below:

It may help both universities reduce a collaboration gap, which is highly recommended by the Ministry of Higher Education :

- (a) Actual product-development research (expert field); and
- (b) An opportunity to acquire international research grant through a collaboration between UTeM researcher and UM researcher.
- (c) This collaboration activity will involve important elements that may support and assist UTeM to soar its ranking in MyRA through high evaluation score point in MyRA evaluation instruments by cooperation in research and development between academic researcher and industry.

6. Project Timeline (Gant chart)



7. Financial Contribution

BUDGET/BELANJAWAN				
<p>Please indicate your estimated budget for this research and <u>details of expenditure</u> according to the guidelines attached. Sila nyatakan anggaran bajet bagi cadangan penyelidikan ini dan berikan butir-butir perbelanjaan lengkap dengan berpandukan kepada garis panduan yang dilampirkan.</p>				
	Budget details <i>Butiran belanjawan</i>	Amount requested by applicant (RM) / Jumlah yang dipohon (RM)	Grant	
			UTeM (RM)	UM (RM)
(i)	<p>Vot 29000A Temporary & Contract Personnel Elaun GRA/ SRA Sila nyatakan secara lengkap dengan pecahannya sekali.</p> <p>Vot 29000B – Special Services/Honorarium Perkhidmatan lhtktisas, yuran pendaftaran seminar)dan/atau latihan teknikal/khas. Yuran Penerbitan Jurnal selepas mendapat kelulusan CRIM dan perkhidmatan lain termasuk hospitaliti /enumerator. Sila nyatakan secara lengkap dengan pecahannya sekali</p> <p>UTeM 1. WOS paper fee RM6000 2. Scopus paper fee RM1400 3. English proofread for 2 journal papers (RM0.10 per word) x 3000 words per paper. RM600</p> <p>UM 1. Currier fee (sample from UM)</p>	10,000	7,000	3,000
(ii)	<p>Vot 21000 – Siling 10% daripada jumlah yang diluluskan Travelling Expenses and Subsistence/ Perbelanjaan Menghadiri Seminar(Termasuk perjalanan dan penginapan. Sila nyatakan secara lengkap dengan pecahannya sekali</p> <p>UTeM 1. Local conference/expo: -Transportation (RM1000) -Accommodation (RM1500) -Meal fee: government rate for DS52 (RM500/6 days)</p>	16,000	3,000	13,000

Universiti Teknikal Malaysia Melaka & Universitas Negeri Malang

No. : MoA(TP).04.1.2023.460000.019

No. : 17.4.3/UN32.32/KS/2023

	<p>UM -Transportation for the scallop shell collection -Transportation UM to UTeM -Accommodation</p>			
(iii)	<p>Vot 24000 Rental <i>Sewaan</i> Sila nyatakan secara lengkap dengan pecahannya sekali</p> <p>UM 1. Furnace 2. Ball Mill Machine 3. Sonification 4. SEM</p>	10,700	-	10,700
(iv)	<p>Vot 27000 Research Materials & Supplies <i>Bekalan & bahan-bahan lain</i> Sila nyatakan secara lengkap dengan pecahannya sekali.</p> <p>UTeM 1. Soxhlet Solvent (2.5L x 10) RM2000 2. 12.7mm diameter SKF carbon-chromium steel ball (1000 pcs) RM4000 3. Hexane (2.5L x 5) RM500 4. DURAN 100ml bottles RM1000 5. Consumable items (gloves, mask, syringe, tissue) RM 500</p>	8,000	8,000	-
(v)	<p>Vot 28000 Maintenance and Minor Repair Services <i>Penyelenggaraan dan Pembaikan Kecil yang dibeli</i> Sila nyatakan secara lengkap dengan pecahan nya sekali.</p> <p>Minor repair for 4-ball tester</p>	3,300	-	3,300
(vi)	<p>Vot 35000 – Siling Jumlah (Vot35000 + Vot36000) adalah tidak lebih 40% daripada bajet dipohon</p> <p>Special Equipment (Fix Asset) Sila nyatakan secara lengkap dengan pecahannya sekali</p> <p>Soxhlet extractor analyzer set. RM12000</p>	12,000	12,000	-
	<p>Vot 36000 Accessories (Inventory) Sila nyatakan secara lengkap dengan pecahannya sekali</p>	-	-	-
	TOTAL AMOUNT	60,000	30,000	30,000

APPENDIX TWO
LETTER OF INTENT

(shall be read, construed and interpreted as a part of this Agreement)



MINISTRY OF EDUCATION, CULTURE,
RESEARCH AND TECHNOLOGY
STATE UNIVERSITY OF MALANG (UM)
FACULTY OF ENGINEERING

Jl. Semarang 5, Malang 65145

Phone: (0341) 565-307

Website: www.ft.um.ac.id, Email: ft@um.ac.id

LETTER OF INTENT

Prof. Ts. Dr. Effendi bin Mohamad,
Dean,
Faculty of Mechanical & Manufacturing Engineering Technology (FTKMP),
Universiti Teknikal Malaysia Melaka,
Hang Tuah Jaya,
76100 Durian Tunggal,
Melaka, Malaysia.

(Attn: Dr. Muhammad Ilman Hakimi Chua bin Abdullah)

09 MARCH 2023

Dear Sir,

**LETTER OF INTENT TO JOIN-COLLABORATE IN RESEARCH & DEVELOPMENT
PROJECT OF CHARACTERISATION AND APPLICATION OF BIO-BASED
NANOLUBRICANT WITH THE ADDITION OF SCALLOP SHELL NANO-SIZE
POWDER AS A FRICTION REDUCTION ADDITIVE IN LUBRICANT**

It is our pleasure to initiate a collaboration proposal in knowledge and technical exchange between **Faculty of Engineering, Universitas Negeri Malang** and the **Faculty of Mechanical & Manufacturing Engineering Technology (FTKMP), Universiti Teknikal Malaysia Melaka** in the research and development of a new bio-based lubricant.

2. Below are the scopes agreed upon based on earlier discussions:

- a) UTeM shall procure a grant of **RINGGIT MALAYSIA THIRTY THOUSAND (RM 30,000) ONLY** which shall be used for the purpose of carrying out the Project and payable to Universitas Negeri Malang, UM.
- b) UM hereby agrees to contribute an international grant of RINGGIT MALAYSIA THIRTY THOUSAND (RM 30,000) ONLY which shall be used for the purpose of carrying out the Project and payable to Universiti Teknikal Malaysia Melaka, UTeM.
- c) **UTeM** to provide **all the necessary testing** on the **development of the product** above (*sample preparation, formulation, testing, validation, and analysis*)
- d) UM agreed to contribute as an international contributor, to support any technical support toward the product development.

3. This is in reference to a few discussions held between two (2) parties which have come to a mutual agreement in contributing ideas and commitment to ensure the success of the project proposed. Any transaction and process involved shall be recorded and endorsed for future reference.



MINISTRY OF EDUCATION, CULTURE,
RESEARCH AND TECHNOLOGY
STATE UNIVERSITY OF MALANG (UM)
FACULTY OF ENGINEERING

Jl. Semarang 5, Malang 65145

Phone: (0341) 565-307

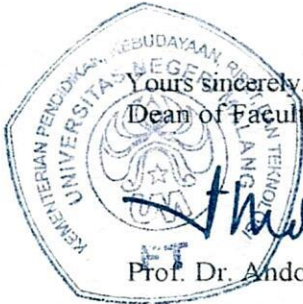
Website: www.ft.um.ac.id, Email: ft@um.ac.id

Upon acceptance of this letter of intent, parties shall discuss the terms and conditions in detail.

We would like your cooperation and full support for this project. Thank you and looking forward to your acceptance.

Yours sincerely,

Dean of Faculty of Engineering, Universitas Negeri Malang



Andoko
Prof. Dr. Andoko, M.T

APPENDIX THREE
CONDITIONAL OFFER LETTER

(shall be read, construed and interpreted as a part of this Agreement)

Prof. Ir. Ts. Dr. Ghazali bin Omar
Timbalan Naib Canselor (Penyelidikan & Inovasi)

Rujukan Kami (Our Ref): UTeM.11.02/500-25/25/37 (89)
Rujukan Tuan (Your Ref):
Tarikh (Date) 28 Mac 2023

DR. MUHAMMAD ILMAN HAKIMI CHUA BIN ABDULLAH
Ketua Penyelidik
Fakulti Teknologi Kejuruteraan Mekanikal dan Pembuatan

السَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ / Salam Sejahtera

Tuan/Puan

SURAT TAWARAN GERAN PENYELIDIKAN PADANAN ANTARABANGSA (URMG) 2023 DENGAN BERSYARAT

Dengan segala hormatnya merujuk kepada perkara di atas.

2. Sukacita dimaklumkan bahawa, projek penyelidikan tuan/puan di bawah Geran Penyelidikan Padanan Antarabangsa URMG telah **DILULUSKAN BERSYARAT** sebagaimana butiran berikut :

Ketua Projek : DR. MUHAMMAD ILMAN HAKIMI CHUA BIN ABDULLAH

Penyelidik Bersama : i) Profesor Ts. Dr. Effendi bin Mohammad
ii) Ts. Dr. Syahrul Azwan bin Sundi @ Suandi
iii) Dr. Iskandar Waini
iv) Dr. Najiyah Safwa binti Khashi'ie
v) Rr. Poppy Puspitasari
vi) Avita Ayu Permanasari

Tajuk Projek : Characterisation and Application of Bio-Based Nanolubricant with the Addition of Scallop Shell Nano-Size Powder as a Friction Reduction Additive in Lubricant

Bidang Penyelidikan : Science and Technology

Jumlah Diluluskan : RM 30,000.00 (UTeM) + RM 30,000.00 (UM)

... 2/-

SEBUAH UNIVERSITI TEKNIKAL AWAM



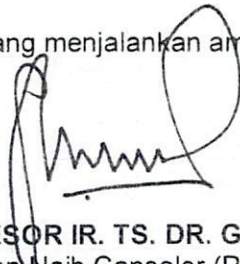
Syarat Tawaran : Tuan/puan diberikan tempoh sehingga **2 Jun 2023** untuk menyerahkan Salinan MoA/MoU yang lengkap ditandatangani kepada Pejabat Pengurusan Penyelidikan dan Inovasi. Mohon berhubung dengan Pejabat Penasihat Undang-Undang untuk urusan ini. Kegagalan menyerahkan dokumen lengkap tersebut pada masa yang ditetapkan akan menyebabkan tawaran ini TERBATAL.

Diharapkan tuan/puan dapat memberi kerjasama sepenuhnya kepada pihak kami dalam membantu melancarkan perjalanan projek ini.

Terima kasih.

'MALAYSIA MADANI'
'BERKHIDMAT UNTUK NEGARA'
'KOMPETENSI TERAS KEGEMILANGAN'

Saya yang menjalankan amanah,



PROFESOR IR. TS. DR. GHAZALI BIN OMAR
Timbalan Naib Canselor (Penyelidikan & Inovasi)

Sk - Dekan, Fakulti Teknologi Kejuruteraan Mekanikal dan Pembuatan
- Fail Projek



KERAJAAN MALAYSIA

IBU PEJABAT
LEMBAGA HASIL DALAM NEGERI MALAYSIA
 MENARA HASIL
 PERSIARAN RIMBA PERMAI
 CYBER 8, 63000 CYBERJAYA
 SELANGOR DARUL EHSAN

**SIJIL SETEM**

ASAL

STAMP CERTIFICATE


(Sila lekatkan sijil setem ini ke atas surat cara sebagai bukti penyyetaman)
 Please attach this stamp certificate to the instrument as evidence of stamping

Cara Bayaran *Payment Method* FPX TRANSACTIONS
No. Adjudikasi *Adjudication No.* T01D881D87XM002 (SALINAN 1/3)
Jenis Surat Cara *Type Of Instrument* MEMORANDUM OF AGREEMENT
 SURAT CARA UTAMA
Tarikh Surat Cara *Date Of Instrument* 28/06/2023
Balasan *Consideration* RM 60,000.00
Maklumat Pihak Pertama / Penjual / Pemberi *First Party / Vendor / Transferor / Assignor*
 UNIVERSITI TEKNIKAL MALAYSIA MELAKA, (00000)
Maklumat Pihak Kedua / Pembeli / Penerima *Second Party / Purchaser / Transferee / Assignee*
 UNIVERSITAS NEGERI MALANG
Butiran Harta / Suratcara *Property / Instrument Description*
 TIDAK BERKENAAN




Dengan ini disahkan surat cara ini disetem dan diindors seperti maklumat di bawah:
 This is to certify this instrument is stamped and indorsed as below:

No. Sijil Setem <i>Stamp Certificate No.</i>	M0027A231306639
Tarikh Penysetaman <i>Date of Stamping</i>	25/07/2023
Duti Setem Dikenakan <i>Amount of Stamp Duty</i>	RM 10.00
Penalti <i>Penalty</i>	RM 0.00
Pelarasan <i>Adjustment</i>	RM 0.00
Jumlah Dibayar <i>Total Amount Paid</i>	RM 10.00
Indorsemen <i>Indorsement (Akta Setem 1949)</i>	Seksyen 12



LEMBAGA HASIL DALAM NEGERI
MALAYSIA



LEMBAGA HASIL DALAM NEGERI
MALAYSIA

Pemungut Duti Setem

No. Kelulusan Perbendaharaan *Treasury Approval No.* : KK/BSKK/10/600-2/1/2(60)Tarikh Cetak *Printed Date* : 25/07/2023 07:52:57

Pengesahan ketulenan Sijil Setem ini boleh dipastikan di stamps.hasil.gov.my atau melalui aplikasi telefon pintar
 The authenticity of this Stamp Certificate can be verified at stamps.hasil.gov.my or by mobile app

Ini adalah cetakan komputer dan tidak perlu ditandatangani
 This is a computer generated printout and no signature is required