



MASTER RESEARCH COLLABORATION AGREEMENT

BETWEEN

UNIVERSITI TEKNOLOGI PETRONAS

AND

UNIVERSITAS MUHAMMADIYAH SURAKARTA

Smart Technology for Sustainable Industry and Community

THIS MASTER RESEARCH COLLABORATION AGREEMENT is made on the 30th day of August 2021 (hereinafter referred to as "**this Agreement**");

BETWEEN INSTITUTE OF TECHNOLOGY PETRONAS SDN. BHD. [Company No. 352875-U], a company incorporated in Malaysia and having its registered address at Tower 1, PETRONAS Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur, Malaysia (hereinafter referred to as "**ITPSB**") which has been established to manage **UNIVERSITI TEKNOLOGI PETRONAS** (hereinafter referred to as "**UTP**"), a private higher learning institution established under the Private Higher Educational Institutions Act 1996 of the first part;

AND UNIVERSITAS MUHAMMADIYAH SURAKARTA (Minister of Education and Culture Decree No. 0330/O/1981), a university located at Jl. A. Yani Pabelan Kartasura, Sukoharjo, Jawa Tengah, 57169, Indonesia (hereinafter referred to as "**UMS**") of the second part.

UTP and UMS shall hereinafter be referred to collectively as the "Parties" and individually as the "Party".

WHEREAS

- A. ITPSB has earlier entered into a Memorandum of Understanding (hereinafter referred to as the "MoU") dated 26 March 2018 with The Council of Higher Education Research and Development of Muhammadiyah (hereinafter referred to as the "Council"), which operates under the Central Board of Muhammadiyah.
- B. UMS is one of the Higher Education Institutions under Muhammadiyah and is under the purview of the Council.
- C. ITPSB and the Council are of the view that there are synergistic benefits to be derived from the Parties' collaboration. Therefore, pursuant to and as part of the implementation of the MoU, ITPSB and UMS have agreed to collaborate to further develop the knowledge and expertise of both parties in relation to a general research theme in particular "**Smart Technology for Sustainable Industry and Community**" (hereinafter referred to as "Research") comprising of twenty six (26) projects (hereinafter referred to as "Project(s)") as further detailed out in this Agreement.
- D. The Parties hereby agree to enter into this Agreement for the purposes of establishing a framework of the collaboration for defining the principles, philosophy and obligations of each Party, particularly in respect of the Project(s) which includes establishing a framework for each Project.

NOW IT IS HEREBY AGREED AS FOLLOWS:

CLAUSE 1 – DEFINITIONS AND INTERPRETATIONS

- 1.1 In this Agreement, unless the context otherwise requires: -

"Affiliate" means, as to any Person, any other Person that, directly or indirectly, Controls, or is Controlled by, or is under common Control with, such Person;

"Agreement" means this Master Research Collaboration Agreement, including the recitals, schedules and addendums which forms an integral part of this agreement and which may be amended, varied, supplemented or otherwise modified at any time or from time to time by mutual agreement in writing between the Parties;

"Applicable Laws and Regulations" means with respect to any Person, any foreign, national, federal, state, local, municipal or other law, statute, constitution, resolution, ordinance, code, permit, rule, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Authority and any orders, writs, injunctions, awards, judgments and decrees applicable to such Person or its Subsidiaries, their business or any of their respective assets or properties;

"Background Information" means all technical data, information (including confidential information), drawings, designs, operating experience and procedures, techniques, know-how and other knowledge in any form, including Intellectual Property relating to technology owned or possessed by each Party at the date of commencement of this Agreement;

"Competition Authority" means any Governmental Authority having jurisdiction in competition or antitrust matters under any competition or antitrust legislation in any country in which UMS carries on or intends to carry on business or where its activities may have an effect;

"Competition Laws" means the Competition Act 2010 of Malaysia, and all Applicable Laws and Regulations that are designed to prohibit, restrict or regulate actions having the purpose or effect of monopolization, abuse of dominance, lessening of competition, engaging in cartel behaviour, price discrimination, predatory pricing, margin squeezing, impeding effective competition and restraint of trade or collusion;

"Control" or **"Controlled"** means in relation to a company or an entity (the "body"), the power of a Person to secure that the affairs of the body are conducted in accordance with the wishes of that Person:

- (a) by means of the holding of shares, or the possession of voting power, in or in relation to that or any other body including any subsidiaries, joint venture entities, variable interest entities or any other legal entity in which the Person is the legal or beneficial owner, directly or indirectly; or
- (b) as a result of any powers conferred by the articles of association, constitution or any other document regulating that or any other body;

"Data Processor" means a person who processes personal data solely on behalf of the Data User and does not process the personal data for his own personal purposes, or as similarly defined under the Personal Data Protection Act 2010 of Malaysia / GDPR / Data Protection Legislation;



"Data Protection Legislation" means the Personal Data Protection Act 2010 of Malaysia and all other Applicable Laws and Regulations relating to the processing of Personal Data and privacy including where applicable the guidance and codes of practice issued by the relevant Governmental Authority;

"Data Subject" means an individual who is the subject of personal data, or as similarly defined under the Personal Data Protection Act 2010 of Malaysia / GDPR / Data Protection Legislation;

"Data User" means a person who either alone or jointly or in common with the persons processes any personal data or has control over or authorizes the processing of any personal data, but does not include data processor, or as similarly defined under Personal Data Protection Act 2010 of Malaysia / GDPR / Data Protection Legislation;

"GDPR" means the European Union General Data Protection Regulation;

"Governmental Authority" means any supranational, national, federal, state, provincial, municipal or local court, administrative body or other governmental or quasigovernmental entity or authority with competent jurisdiction exercising legislative, judicial, regulatory or administrative functions of or pertaining to supranational, national, federal, state, municipal or local government, including any department, commission, board, agency, bureau, subdivision, instrumentality or other regulatory, administrative, judicial or arbitral authority or arbitral tribunal, whether domestic or foreign;

"Data User" means a person who either alone or jointly or in common with the persons processes any personal data or has control over or authorizes the processing of any personal data, but does not include data processor, or as similarly defined under Personal Data Protection Act 2010 of Malaysia / GDPR / Data Protection Legislation;

"Intellectual Property" means

- (a) Inventions; manner, method or process of manufacture; method or principle of construction; or design; plan, drawing or design; or scientific, technical or engineering information or document;
- (b) Improvement, modification or development of any of the foregoing;
- (c) Patent, application for a patent, right to apply for a patent or similar rights for or in respect of any intellectual Property referred to in paragraph (a) or (b);
- (d) Trade secret, know-how, confidential information or right of secrecy or confidentiality in respect of any information or document or other intellectual Property referred to in paragraph (a) or (b);
- (e) Copyright or other rights in the nature of copyright subsisting in any works or other subject matter referred to in paragraph (a) or (b);



- (f) Registered and unregistered trademark, registered design, application for registration of a design, right to apply for registration of a design or similar rights for or in respect of any work referred to in paragraph (a) or (b);
- (g) Any Intellectual Property in addition to the above which falls within the definition of intellectual property rights contained in Article 2 of the World Intellectual Property Organisation Convention of July 1967; and
- (h) Any other rights arising from intellectual activities in the scientific, literary or artistic fields,

Whether vested before or after the date of this Agreement and whether existing in Malaysia or otherwise and for the duration of the rights;

"PDPA" the Malaysian Personal Data Protection Act 2010, the applicable regulations, subsidiary legislation, guidelines, orders related thereto and any statutory amendments or re-enactments made of the PDPA from time to time;

"Person" means any natural person, corporation, limited liability company, trust, joint venture, association, company, partnership, governmental authority or other entity;

"Personal Data" has the meaning given by the Personal Data Protection Act 2010 of Malaysia / GDPR and relates only to personal data of which the Data User has control and authority over the processing thereof, and in respect of which a Data Processor is required to perform its obligations under this Agreement;

"process" or **"processes"** or **"processing"** collecting, recording, holding or storing Personal Data or carrying out any operation or set of operations on the Personal Data, including (a) the organization, adaptation or alteration of Personal Data; (b) the retrieval, consultation or use of Personal Data; (c) the disclosure of Personal Data by transmission, transfer, dissemination or otherwise making it available; or (d) the alignment, combination, correction, erasure or destruction of Personal Data;

Project(s) means the twenty six (26) research and development projects undertaken by the Parties jointly by virtue of this Agreement;

Research refers to the general research theme entitled **"Smart Technology for Sustainable Industry and Community"** undertaken by the Parties jointly;

"Sanctions Laws" means all Applicable Laws and Regulations concerning economic sanctions (including embargoes, export controls, restrictions on the ability to make or receive international payments, freezing or blocking of assets of targeted Persons, or the ability to engage in transactions with or involving specified Persons or countries, or any Applicable Law that threatens to impose economic sanctions on any Person for engaging in targeted behaviour) of any jurisdictions including –

- (a) the United Nations;
- (b) Malaysia;
- (c) the European Union;
- (d) the United Kingdom (including those administered by Her Majesty's Treasury);

- (e) the United States (including those administered by the Office of Foreign Assets Control of the Department of the Treasury, the Bureau of Industry and Security of the Department of Commerce, or the Department of State);

"Subsidiary(ies)" means, with respect to a Person, (i) any corporation of which a majority of the securities entitled to vote generally in the election of directors or commissioners thereof, at the time as of which any determination is being made, are owned by such Person, either directly or indirectly, (ii) any joint venture, general or limited partnership, limited liability company or other legal entity in which such Person is the record or beneficial owner, directly or indirectly, of a majority of the voting interests or the general partner, or (iii) any variable interest entity Controlled by such Person or its Subsidiary.

- 1.2 Any word (including a word defined or given a special meaning) denoting the singular shall include the plural and vice versa.
- 1.3 Any word denoting one gender only shall include each other gender.
- 1.4 A reference to a person shall include a corporation as well as a natural person.
- 1.5 A reference to a Schedule is a reference to a Schedule to this Agreement.

CLAUSE 2 – COLLABORATION

- 2.1 In this collaboration between UTP and UMS, both Parties shall carry out research collaboration activities in relation to the general theme of **"Smart Technology for Sustainable Industry and Community"** (hereinafter referred to as the "Research").
- 2.2 The Parties agree to establish and record in this Agreement the following twenty six (26) research and development Project(s) which will be led by UTP and UMS respectively, and the amount of research funding allocated for each Project:

No	Project ID	Lead Institution	Grant Amount
1	Investigation of Balsamina extract solubility in supercritical CO ₂ +ethyl acetate solvent using Hansen solubility parameter and semi-empirical solubility models	UTP	MYR20,000.00
	Optimization of nanoemulgel formulation of impatient Balsamina extract and its antibacterial activity	UMS	MYR20,000.00
2	The detection of ketoprofen by using quantum dots	UTP	MYR20,000.00
	Formula optimisation and characterisation of co-crystal modified ketoprofen using amorphoplallus oncopyllus	UMS	MYR20,000.00

No	Project ID	Lead Institution	Grant Amount
	amylum and sodium crosscarmellose excipient		
3	1. Multispectral Image Analysis for Mangrove Health Monitoring or 2. Multispectral Image Analysis for Crop Health Monitoring or 3. Assessment of Fish Population for Monitoring of Coral Reef Ecosystem using Underwater Stereo Imaging System	UTP	MYR20,000.00
	Internet of things technology for smart farming	UMS	MYR20,000.00
4	Mechanical and Water Absorption Properties of Plastic Waste Composites	UTP	MYR20,000.00
	Heat and noise reducing bricks from plastic waste composite	UMS	MYR20,000.00
5	Ionic liquids assisted acetylated Kapok (Ceiba pentandra L. Gaertn.) fibers for oil spill cleanup	UTP	MYR20,000.00
	Development of kapok (Ceiba pentandra L. Gaertn.) fiber as a sorbent candidate for oil spill mitigation	UMS	MYR20,000.00
6	Distance behaviour of ride-sourcing services during COVID19 pandemic in Malaysia and Indonesia	UTP	MYR20,000.00
	Public transportation as a key to sustainable transportation	UMS	MYR20,000.00
7	Implementation of Mobile PV based Solar Electricity Charging Station for Rural Transportation	UTP	MYR20,000.00
	Development of BLDC-motor powered bicycle integrated with solar photovoltaic charging parking station	UMS	MYR20,000.00
8	Vision-based state estimation of an unmanned aerial vehicle	UTP	MYR20,000.00
	Design of logistic delivery drone for Covid-19 patients using non-GPS ROS technology	UMS	MYR20,000.00
9	Extract of antibacterial compound from African leaf via microwave-assisted technique	UTP	MYR20,000.00

No	Project ID	Lead Institution	Grant Amount
	Antibacterial activity of South Africa and Green Betel leaves extracts on Staphylococcus aureus and Escherichia coli	UMS	MYR20,000.00
10	Reservoir management by reducing evaporation using a sustainable technology	UTP	MYR20,000.00
	The mitigation of climate change on the sustainability of Pidekso Reservoir in Wonogiri Region	UMS	MYR20,000.00
11	Study on the Mechanical Properties of Rubber Seed Oil (RSO) based Recycled Asphalt Pavement	UTP	MYR20,000.00
	The effect of utilisation of waste plastic and tyre rubber for AB-AC and HRA road material on the structural, functional, and Marshall properties	UMS	MYR20,000.00
12	Digital marketing adoption for small businesses in Indonesia and Malaysia	UTP	MYR20,000.00
	Empowerment of traditional fabric enterprises in Sragen industrial cluster	UMS	MYR20,000.00
13	A circular bioeconomy to transform food industrial wastewater via microalgal cells' assimilation into biodiesel	UTP	MYR20,000.00
	Treatment of liquid waste from food industries using H ₂ O ₂ /O ₃ hybrid	UMS	MYR20,000.00
14	Analysis of bamboo composite sandwich structures subjected to high impact	UTP	MYR20,000.00
	Investigation of the strength of bamboo-wood composite using epoxy glue and iron plate connector	UMS	MYR20,000.00
15	The Impact of Urban Watershed to Hydrological Performance with The Presence of Sustainable Stormwater Management System	UTP	MYR20,000.00
	Emergency and disaster mitigation for Surakarta City	UMS	MYR20,000.00

No	Project ID	Lead Institution	Grant Amount
16	Incorporation of waste rubber product and biomass as sustainable approach in brick production	UTP	MYR20,000.00
	The effect of gypsum ceiling and water cooling roof on the house room temperature	UMS	MYR20,000.00
17	Parameters of eco-friendly building designs and sustainable construction with safety compared with Islamic concepts of architectural engineering	UTP	MYR20,000.00
	Parameters of eco-friendly building designs compared with Islamic concepts of architectures	UMS	MYR20,000.00
18	Comparative study of formulation of sun protection lotion from Stevia rebaudiana using local species	UTP	MYR20,000.00
	Modification of Polylactic acid with clay filler as bioplastic	UMS	MYR20,000.00
19	Formulation of sun protection lotion from Stevia rebaudiana and clove oil	UMS	MYR20,000.00
	Modification of Polylactic acid with clay filler as bioplastic	UTP	MYR20,000.00
20	Analysis of the strength of composite from clay and plastic fibres made from drinking bottles	UMS	MYR20,000.00
	Monocular image based trajectory estimation for Unmanned Ground Vehicles (UGV) in simulated indoor environments using V-Rep	UTP	MYR20,000.00
21	Control and trajectory Optimization Methods for Robotic Suryamu Using Matlab and V-Rep	UMS	MYR20,000.00
	Understanding participation patterns and trends of natural eco-tourism villages between Malaysia and Indonesia	UTP	MYR20,000.00
22	Development of eco-tourism village during new normal	UMS	MYR20,000.00
	Investigation of properties of ultrafine rice husk ash in the	UTP	MYR20,000.00

No	Project ID	Lead Institution	Grant Amount
	application of oil well cementing		
	The effect of rice husk microparticles filler on the density and strength of ceramic tiles	UMS	MYR20,000.00
23	Laboratory Scale Investigation on Clogging factor of B30 Diesel in Fuel System	UTP	MYR20,000.00
	Investigation of the effect of B30 on the diesel particulate filter of diesel engines	UMS	MYR20,000.00
24	Development of high-performance nano modified cement composite for repair and retrofit of seismically damaged beams	UTP	MYR20,000.00
	Mitigation of earthquake on existing buildings	UMS	MYR20,000.00
25	Prediction of flood in perak rivers using artificial neural network modelling	UTP	MYR20,000.00
	Modelling of flood risks on Bengawan Solo riverbank for area planning	UMS	MYR20,000.00
26	Predicting new Covid-19 cases in Malaysia using reliability growth model	UTP	MYR20,000.00
	Exploring the effect of population heterogeneity on Covid-19 Spread in Indonesia	UMS	MYR20,000.00

2.3 The Parties agree that the details of each of the above Projects shall be affected in the form of an Addendum(s) in accordance to the format set out in Schedule A.

2.4 Research Funding

- (a) The Parties undertake to provide the following research funding (hereinafter referred to as the "Funding") for the purposes of implementing the Research:
- (i) UTP shall provide twenty six (26) research grants of Ringgit Malaysia Twenty Thousand Only (MYR20,000.00) per research grant to UMS to perform the Project(s) (Total Amount of MYR520,000.00);
 - (ii) UMS shall provide twenty six (26) research grants of Ringgit Malaysia Twenty Thousand Only (MYR20,000.00) per research grant to UTP to perform the Project(s) (Total Amount of MYR520,000.00).

- (b) Within thirty (30) days upon signing of this Agreement, UTP shall submit an invoice to UMS for the Funding (hereinafter referred to the "UTP Research Grant") and UMS shall transfer the UTP Research Grant amount to UTP within thirty (30) days from the date of receipt of the invoice. For the avoidance of doubt, UTP shall utilise the UTP Research Grant solely for the purpose of performing the Project(s).
- (c) Within thirty (30) days upon signing of this Agreement, UMS shall submit an invoice to UTP for the Funding (hereinafter referred to the "UMS Research Grant") and UTP shall transfer the UMS Research Grant amount to UMS within thirty (30) days from the date of receipt of the invoice. For the avoidance of doubt, UMS shall utilise the UMS Research Grant solely for the purpose of performing the Project(s).
- (d) Each Party shall bear its own costs in transferring the amounts described in Clauses 2.4(a)(i) and 2.2(a)(ii) above, including but not limited to bank charges and shortfall due to foreign exchange currency transaction, if any.

CLAUSE 3 – TAXES

- 3.1 Each Party shall be responsible for and shall pay at its own expense when due and payable all taxes assessed against it by a taxation authority of competent jurisdiction in connection with this Agreement. All taxes levied on each Party shall be for the account of each Party and shall not be reimbursed by the other Party.
- 3.2 Each Party shall fully protect and indemnify the other Party and hold the other Party safe and harmless from any and all claims or liability for taxes assessed or levied by the tax authority of competent jurisdiction, whichever is applicable against UTP or UMS for or on account of any payment made in connection with this Agreement.
- 3.3 Each Party further shall fully protect and hold the other Party harmless from all taxes assessed or levied against or on account of wages, salaries or other benefits paid to or enjoyed by each Party's employees, and all taxes assessed or levied against, on or for account of any property or equipment of the other Party in connection with the performance of this Agreement.
- 3.4 For the avoidance of doubt, "tax" or "taxes" as mentioned above include but shall not be limited to all income, profit, withholding tax, franchise, excess profits, royalty, other taxes, personal property taxes, employment taxes and contributions, imposed or that may be imposed by law, regulations or trade union contracts, which are enforced by or on behalf the tax authority of competent jurisdiction and includes penalties, interest and fines in respect thereof.

CLAUSE 4 – GENERAL RESPONSIBILITIES OF THE PARTIES

In consideration of and subject to the terms of this Agreement and all applicable laws, the Parties shall carry out their respective responsibilities in accordance with the provisions of this Agreement.



- 4.1 The Parties shall conduct and perform the Project(s) under this Agreement with due care, diligence and efficiency and in conformity with sound scientific, management and financial practice in respect of personnel and property of the Parties and in respect of the environment in which the activity is performed.
- 4.2 The Parties shall at all times undertake the Project(s) in such a manner as to always safeguard and protect the Parties' mutual interests and the Parties shall further take all necessary and precautionary steps to prevent abuse or uneconomical use of facilities and equipment, made available by the Parties.
- 4.3 Each Party shall exercise their duties in good faith, transparency and accountability with regards to the conduct of the Project(s) and further undertakes to ensure that the channels of communication between each Party shall remain open to ensure the success of the Project(s).
- 4.4 The Parties recognise that it is impracticable to make provisions in this Agreement for every contingency that may arise in the course of performance and implementation of the Project(s) and accordingly agree that it is their mutual intention that this Agreement shall operate between them with fairness and equity and if in the course of performance and implementation thereof unfairness to a Party is disclosed or foreseen then the Parties shall use their best endeavour to mutually agree upon such action as may be necessary to fairly and equitably remove the cause or causes of the same.

CLAUSE 5 – INTELLECTUAL PROPERTY

- 5.1 For the purpose of the Project(s):
 - (a) **Background Intellectual Property Rights**
Background Intellectual Property Rights shall include any Intellectual Property Rights that are made available as between the Parties, and which may include Background Information, which are to be used for the Project(s), subject to discussion and mutual agreement between the Parties. Background Intellectual Property Rights shall remain the separate property of the Party making such Background Intellectual Property Rights available.
 - (b) **Foreground Intellectual Property Rights**
Foreground Intellectual Property Rights shall include 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.
- 5.2 The ownership of all Foreground Intellectual Property Rights arising out of the Project(s) shall be expressly subject to a separate written agreement to be mutually agreed by the Parties.
- 5.3 The provision of this Clause 5 shall survive the expiry or termination of this Agreement.

CLAUSE 6 – CONFIDENTIALITY

- 6.1 The Parties agree that the Project(s) may involve the disclosure of certain confidential information of the respective Parties. For the purpose of the Project(s), the term "Confidential Information" refers to any and all information including but not limited to data and information pertaining to curricula, courses, syllabi, teaching materials, research activities and technical information made available by a Party ("Disclosing Party") to the other Party ("Receiving Party") during the course of the Project (s).
- 6.2 All Confidential Information shall be marked or identified as "CONFIDENTIAL" in writing and in a conspicuous manner at the time it is disclosed to the Receiving Party.
- 6.3 All Confidential Information disclosed to or provided by or on behalf of the Disclosing Party pursuant to this Agreement may not be disclosed, published, used or in any way exploited or permitted to be disclosed, published, used or exploited by the Receiving Party to any third party or re-produced for any purpose other than for the Project(s) without first obtaining the prior written approval of the Disclosing Party.
- 6.4 The obligations under this Clause 6 shall extend to and bind all of the Receiving Party's officers, directors, employees, advisors, contractors, sub-contractors, consultants, agents or representatives to whom the Confidential Information and/or document or documents in which it is contained is made available except where the Confidential Information is in or has come into the public domain otherwise than by the default or negligence of either Party or is required to be disclosed by any governmental or other authority or regulatory body to such extent only as is necessary for that purposes or as is required by law.
- 6.5 The confidentiality obligations under this Clause 6 shall survive the expiry of this Agreement.

CLAUSE 7 – RELATIONSHIP OF THE PARTIES

Nothing in this Agreement shall be construed as establishing or creating a partnership or a relationship of master and servant between any of the Parties hereto or as constituting any party as an agent or representative of the other Party for any purpose or in any manner whatsoever.

CLAUSE 8 – TERMINATION

- 8.1 If any party commits any of the conditions stated below, then, affected party shall be entitled to terminate this Agreement by serving a notice to that effect:
- 8.1.1 any party becomes insolvent or is unable to pay its debts when due or admits in writing its inability to pay its debts; or
- 8.1.2 any party enters any arrangement or composition with its creditors generally, or a receiver or manager is appointed; or
- 8.1.3 any party goes into liquidation or passed a resolution to go into liquidation, otherwise than for the purpose of reconstruction; or

- 8.1.4 any party fails to comply with any of the obligations under this Agreement.
- 8.2 The notice to terminate in the case of sub-clauses 8.1.1 to 8.1.3 shall not be less than twenty-one (21) days, save for in the case of sub-clause 8.1.4, whereby the notice to terminate shall take effect only after the affected party first giving twenty-one (21) days' notice in writing to the defaulting party to remedy a default, and where such default is not remedied in that period, upon giving not less than further twenty-one (21) days' notice of termination.
- 8.3 Upon termination of this Agreement, shall be without prejudice to the rights of the party terminating to seek and obtain damages for any breach of this Agreement by the other party.

CLAUSE 9 - FORCE MAJEURE

Both Parties shall not be held liable for delays or failures to perform that result from events or circumstances beyond the reasonable control of either Party and in particular, any failure by either to carry out its obligations as set out in Clause 4 above.

CLAUSE 10 – PUBLIC STATEMENT

Both Parties agree that no public statement shall be made on the Research and Project(s), or in relation to any products, processes or inventions developed as a result of the Research and Project(s) unless approved first by both Parties.

CLAUSE 11 – ASSIGNMENT

This Agreement shall not be assigned in whole or in part by either Party without the prior written consent of the other.

CLAUSE 12 – WAIVER

- 12.1 The waiver by a Party in respect of any breach of a term of this Agreement by the other party shall not be deemed to be a waiver in respect of any other term or of any subsequent breach of that term.
- 12.2 The failure of a Party to enforce at any time any term of this Agreement shall in no way be interpreted as a waiver of such term.

CLAUSE 13 – ANTI-BRIBERY AND CORRUPTION, ANTI-MONEY LAUNDERING

- 13.1 UMS shall comply, and/or shall procure that its directors, employees, subcontractors, agents or other third parties who are performing services in connection with this Agreement to comply, with all applicable anti-money laundering and anti-corruption laws, including but not limited to, the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act 2001, Malaysian Anti-Corruption Commission Act 2009, the United Kingdom Bribery Act 2010 and U.S. Foreign Corrupt Practices Act

of 1977, and regulations and any relevant anti-money laundering and/or anti-corruption policies and documents provided by UTP (including the provisions of the PETRONAS Code of Business Ethics ("**CoBE**") relevant to PETRONAS third parties and Anti-Bribery and Corruption Manual ("**ABC Manual**")) and have in place adequate controls and procedures to prevent corruption. The latest versions of the CoBE and ABC Manual can be accessed from <https://www.petronas.com/sustainability/governance-and-ethics>. UMS also undertakes that it has conducted and will continue to conduct their businesses in compliance with all applicable anti-corruption laws and have instituted and maintained, and will continue to maintain all necessary measures / policies and procedures designed to promote and achieve compliance with all anti-corruption laws .

- 13.2 UMS must notify UTP as soon as reasonably practicable (and in any event within ten (10) days) upon becoming aware of any fact that causes or constitutes a material breach of any of its representations and warranties under this Clause or a conviction by a court of competent jurisdiction or an agreement to be entered into with any Governmental Authority in respect of the applicable anti-money laundering and anti-corruption laws.
- 13.3 If UMS breaches this Clause, UTP shall be fully entitled to terminate the Agreement without any liability howsoever with written notice with immediate effect. UMS shall hold UTP harmless from any cost, expenses, claim, liability, fine or penalty, as a result of any breach of this Clause by UMS, its directors, employees, subcontractors and/or agents who are performing services in connection with this Agreement.
- 13.4 Upon request in writing by UTP, UMS shall within, five [5] Business Days, provide UTP with documentation evidencing compliance of its obligations under the applicable anti-corruption laws. If UTP reasonably suspects that there is a breach of any obligation under this Clause, UTP or a third party appointed by UTP shall have the right to immediately access and take copies of all records and other information relating to this Agreement held at the UMS' premises and meet with UMS' personnel to audit UMS' compliance with its obligations under this Clause and UMS shall provide all necessary assistance to the conduct of such audit by UTP or such third party. If the audit reveals a breach of any obligations under this Clause and any applicable anti-corruption laws, UMS will bear the cost of such audit and any remedial actions necessary to ensure compliance with Clause and indemnify and hold harmless UTP in respect of such breaches.

CLAUSE 14 – HUMAN RIGHTS

- 14.1 UMS warrants and undertakes that it will take [commercially reasonably] efforts to abide by best practices aligned with the Applicable Laws and Regulations concerning human rights.
- 14.2 UMS further warrants and undertakes to immediately notify UTP of all suspected or actual adverse human rights impact which it causes or has contributed to, whether directly or indirectly, and to remediate the adverse human rights impact including to provide adequate compensation or other appropriate remedy to the affected victims. Subsequently, UMS shall address the cause of the adverse human right impact so as to avoid further similar adverse impacts and provide to UTP a summary of the remedial and preventive measures taken within ten [10] days from the first occurrence.

CLAUSE 15 — PERSONAL DATA PROTECTION

- 15.1 UMS represents, warrants and undertakes to fully comply with all Data Protection Legislation in processing Personal Data in connection with this Agreement.
- 15.2 UMS agrees to ***immediately*** notify UTP of any complaint or request in relation to the Personal Data and/or where there has been an event of non-compliance with the Data Protection Legislation.
- 15.3 Where UTP discloses any Personal Data to UMS, UMS shall:
- (i) employ appropriate safeguards to ensure compliance with the Data Protection Legislation, including the implementation of administrative, organisational, physical and technical safeguards to reasonably and appropriately protect Personal Data which may be disclosed by UTP;
 - (ii) only process the Personal Data for purposes relating to the Agreement and shall strictly comply with all directions given by UTP in respect of the same;
 - (iii) not disclose the Personal Data to any third parties, or transfer any Personal Data without UTP's prior written consent; and
 - (iv) procure any third party that processes the Personal Data on behalf of the UMS to agree in writing to the same terms that UMS agrees to in this Clause 15.
- 15.4 UMS shall, at all times during and after the term of this Agreement, indemnify and keep indemnified UTP and its Affiliates against all losses, damages, costs or expenses and other liabilities incurred by, awarded against or agreed to be paid by UTP and/or its Affiliates and arising from UMS' breach of Data Protection Legislation or obligations under this Clause 15 except and to the extent that such liabilities have resulted directly from UTP's (or its Affiliates) instructions, or breach of this Agreement by UTP.

CLAUSE 16 — SANCTIONS

- 16.1 Each Party shall perform this Agreement in compliance with any applicable Sanctions Laws. No Party shall be obliged to perform any obligation under this Agreement if this would not be compliant with, would be in violation of, inconsistent with, or would expose either Party to punitive measures under any laws, regulations applicable to either Parties relating to Sanctions Laws.
- (i) Warranties
- UMS warrants that UMS, its Affiliates and to the best of its knowledge, each of their respective directors, officers, employees, agents and representatives, are not:-
- (a) the target of any Sanctions Laws;
 - (b) acting for the benefit of, or on behalf of, any person that is the target of any Sanctions Laws; and

- (c) engaged and will not engage in any activity that would result in UMS becoming a target of Sanctions Laws.
- 16.2 Each Party warrants that all goods or services supplied under this Agreement shall not be used for:-
 - (a) any activity that will or may facilitate the design, development, production, handling, usage, maintenance, storage, delivery of or in connection with weapons of mass destruction and its delivery system;
 - (b) any terrorism activity; and
 - (c) participation in transactions with persons engaged in such activities.
- 16.3 UMS undertakes to promptly notify UTP in the event it is no longer able to comply with the warranties above. UMS shall fully indemnifies UTP, its directors, shareholders and employees for any losses arising from a breach of these warranties.
- 16.4 UMS shall promptly notify UTP in the event it is no longer able to comply with the warranties above. UMS agrees to fully indemnify and hold UTP harmless, its directors, shareholders and employees for any losses arising from a breach of these warranties.
- 16.5 UMS must notify UTP **immediately** upon becoming aware that it or any of its affiliates is subject to any Sanctions Laws.

CLAUSE 17 – EXPORT CONTROLS

- 17.1 Each Party warrants to the other Party that all goods supplied under this Agreement shall not be used for any activities that will or may facilitate the design, development, production and delivery of or in connection with the weapons of mass destruction or any act of terrorism or any restricted activity under the Malaysian Strategic Trade Act 2010 (“**STA**”) or any other applicable export controls laws. Each Party fully indemnifies the other Party for any losses arising from the breach of the STA and/or any other applicable export controls laws.
- 17.2 Notwithstanding anything to the contrary contained herein, all obligations of the Parties are subject to prior compliance with export regulations applicable to each Party and such other related laws and regulations as may be applicable to each Party, and to obtaining all necessary approvals required by the applicable government entity. Each Party shall each use its reasonable efforts to obtain such approvals for its own activities. Each Party shall cooperate with the other Parties and shall provide assistance to the other Parties and access to its information as reasonably necessary to obtain any required approvals.
- 17.3 UMS must notify UTP as soon as reasonably practicable (and in any event within ten [10] days) upon becoming aware of any fact that causes or constitutes a material breach of any of its representations and warranties under this Clause or a conviction by a court of competent jurisdiction or an agreement to be entered into with any Governmental Authority in respect of the applicable export control laws. The Parties agree that upon request in writing by UTP, UMS shall within, five [5] Business Days, provide UTP with

documentation evidencing compliance of its obligations under the applicable export control laws.

- 17.4 Each Party warrants to the other Party that all goods supplied under this Agreement shall not be used for any activities that will or may facilitate the design, development, production and delivery of or in connection with the weapons of mass destruction or any act of terrorism or any restricted activity under the Malaysian Strategic Trade Act 2010 ("STA") or any other applicable export controls laws. Each Party fully indemnifies the other Party for any losses arising from the breach of the STA and/or any other applicable export controls laws.

CLAUSE 18 – COMPETITION LAW

- 18.1 UMS shall comply, and/or shall procure that its directors, employees, subcontractors, agents or other third parties who are performing services in connection with this Agreement to comply, with all applicable Competition Laws.
- 18.2 UMS agrees to promptly notify UTP of any suspected or occurrence of infringement of any Competition Laws in connection with this Agreement. UTP reserves the right to suspend indefinitely or terminate this Agreement without any liability howsoever with written notice with immediate effect in the event of notification of suspected or actual infringement of Competition Laws.
- 18.3 If UMS breaches this Clause, UTP shall be fully entitled to terminate the Agreement without any liability howsoever with written notice with immediate effect. UMS shall hold UTP harmless from any cost, expenses, claim, liability, fine or penalty, as a result of any breach of this Clause by UMS, its directors, employees, subcontractors and/or agents who are performing services in connection with this Agreement.
- 18.4 UMS must notify UTP as soon as reasonably practicable (and in any event within ten [10] days) upon becoming aware of any fact that causes or constitutes a material breach of any of its representations and warranties under this Clause or a conviction by a court of competent jurisdiction or an agreement to be entered into with any Governmental Authority in respect of the applicable Competition Laws.

CLAUSE 19 – INDEMNITY

Without prejudice to any other rights and remedies to which UTP may have recourse in law, UMS undertakes and agrees that it will at all times hereinafter indemnify and keep it indemnified fully and effectively against all claims, proceedings, actions, loss or damage, costs and expenses and other liabilities which they may directly or indirectly suffer or sustain as a result of or in connection with any misrepresentations contained in or any breach of any of the representations, warranties and undertakings of UMS set out in this Agreement. The indemnity shall remain in full force and effect for the entire duration of this Agreement and shall survive the termination of this Agreement.

CLAUSE 20 – NOTICES

- 20.1 Any notice required to be given pursuant to this Agreement shall be in writing and may be delivered or posted by ordinary mail, postage prepaid, to the Party to which such notice is required to be given under this Agreement at the address set out in **Schedule B**.
- 20.2 The addresses referred to in Schedule B may, from time to time, be changed by written notice.
- 20.3 Any notice given under this clause by post shall be deemed to have duly served at the expiration of fourteen (14) clear days (i.e. excluding weekends or public holidays) after the time of such posting and production of any official post office receipt showing the time and date of posting shall be conclusive evidence of the time and date of posting.

CLAUSE 21 – ENTIRE AGREEMENT

The terms of the Agreement between the Parties are those set out in this Agreement and the Schedules and no written or oral agreement or understanding made or entered into prior to the date of this Agreement shall in any way be read or incorporated into this Agreement.

CLAUSE 22 – SUCCESSORS-IN-TITLE

This Agreement shall be binding on the respective heirs, personal representatives, receivers, successors-in-title and assigns of the Parties hereto.

CLAUSE 23 – AMENDMENT/MODIFICATION

Any provision of this Agreement may be amended or modified by mutual consent between the Parties and such amendment/modification shall be in writing and signed by the duly authorised representative of the Parties.

CLAUSE 24 – WARRANTY, INDEMNITY AND LIABILITY

- 24.1 The Parties undertake to indemnify and keep each other indemnified from and against any and all loss, damage, or liability resulting from the breach of the Agreement including any act, neglect, or default of their respective employees or agents.
- 24.2 Each Party represents to the other Party that:
- 24.2.1 it has legal power, authority and right to enter into this Agreement and to perform its obligations hereunder;
- 24.2.2 it is not at the date of the Agreement a party to any agreement or understanding with any third party which in any significant way prevents it from fulfilling any of its material obligations hereunder; and
- 24.2.3 to the best of its knowledge, the title in any Intellectual Property disclosed or made available in pursuant to this Agreement or anything made, used or otherwise disposed of in connection with the same will be free from



infringement of patents, copyrights, trademarks or other intellectual property rights of any third party.

- 24.3 Nothing in this Agreement shall be construed as an obligation by the Party to bring or prosecute or defend actions or suits against/by third parties for infringement of patents, copyrights, trademarks or other intellectual property or contractual rights, whether in connection with the Know-how and Intellectual Property or the Project IP or otherwise.
- 24.4 A Party, including its affiliates, officers, directors, employees, agents, or contractors, shall not be liable, in contract, tort, negligence, breach of statutory duty or on any other legal theory or basis, for any indirect or consequential loss, including loss of profit, revenue or goodwill, incurred by another Party arising from or in connection with this Agreement.
- 24.5 Each Party shall be solely responsible and liable for the acts and omissions of its directors, agents, contractors, and employees.
- 24.6 The parties acknowledge and agree that in the event of a material breach of the Agreement by either party, the non-defaulting party shall endeavor to do all things as may reasonably be necessary to mitigate any losses that it may suffer pertaining such breach.

CLAUSE 25 – CONTINGENCY

The Parties recognise that it is impracticable to make provisions in this Agreement for every contingency that may arise in the course of performance and implementation of the Agreement and accordingly agree that it is their mutual intention that this Agreement shall operate between them with fairness and equity and if in the course of performance and implementation thereof unfairness to a Party is disclosed or foreseen then the Parties shall use their best endeavour to mutually agree upon such action as may be necessary to fairly and equitably remove the cause or causes of the same.

CLAUSE 26 – COUNTERPARTS

This Agreement may be executed in counterparts all of which shall constitute one agreement binding on both Parties and shall have the same force and effect as an original instrument notwithstanding that both Parties may not be signatories to the same original or the same counterpart.

CLAUSE 27 - DIGITAL SIGNATURE

The Parties may sign this Agreement in one (1) or more counterparts by the duly authorised representatives of the Parties, each of which constitutes an original and all of which taken together shall constitute the Agreement. The Parties may sign and deliver this Agreement by facsimile or by emailed portable document format ("PDF") document (or other mutually agreeable document format), and a reproduction of this Agreement with a Party's signature made by facsimile or PDF, sent by facsimile or email shall have the same effect as and be enforceable as a signed and delivered original version of this Agreement.

CLAUSE 28 – COSTS AND EXPENSES

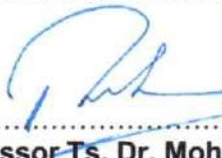
Each Party shall bear its own costs and expenses incurred in the preparation, execution, stamping and implementation of this Agreement.

{End of Clauses}



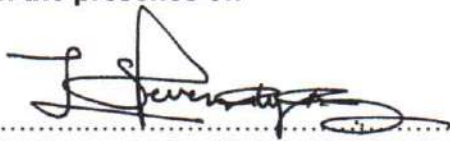
IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be signed in their respective names as of the day and year first above written.

Signed by and on behalf of:
INSTITUTE OF TECHNOLOGY PETRONAS SDN. BHD.



.....
Professor Ts. Dr. Mohamed Ibrahim Abdul Mutalib
Vice Chancellor and CEO

In the presence of:



.....
Professor Ir. Dr. Mohd. Shahir Liew
Deputy Vice Chancellor Research and Innovation

Signed by and on behalf of:
UNIVERSITAS MUHAMMADIYAH SURAKARTA



.....
Professor Dr. Sofyan Anif, M.Si
Rector

In the presence of:



.....
Dr. Supriyono
Vice Rector of Collaboration and International Affairs

**SCHEDULE A
FORMAT OF ADDENDUM**

Addendum Relating to the Master Research Collaboration Agreement between Institute of Technology PETRONAS Sdn Bhd ("ITPSB") and Universitas Muhammadiyah Surakarta ("UMS")

This Addendum is issued pursuant to the Master Research Collaboration Agreement between ITPSB and UMS dated _____ (the "Agreement"). It is acknowledged and agreed between the Parties that the terms and conditions of the Agreement shall apply in full to this Addendum and the Parties agree to abide by the provisions of the Agreement when performing the Project(s) in accordance with this Addendum.

Project No	
Project Title	
Duration	From _____ to _____ () months

1. Project Objectives
2. Background/Scope of Works
3. Project Schedule and Deliverables
4. Project Team
5. Project Reporting
6. Project Cost
7. Payment Schedule

Approved by
Universiti Teknologi PETRONAS

Deputy Vice Chancellor
Research and Innovation

Approved by
Universitas Muhammadiyah Surakarta



Vice Rector
of Collaboration and International Affairs

SCHEDULE B

NOTICE

INSTITUTE OF TECHNOLOGY PETRONAS SDN. BHD.

For Contractual Matters:

Legal Services Unit
Universiti Teknologi PETRONAS
32610 Bandar Seri Iskandar
Perak Darul Ridzuan, Malaysia
Tel.: +605-3688239
Fax: +605-3654088
Email: utp.legal@utp.edu.my

For Technical Matters:

Research Management Centre (RMC)
Universiti Teknologi PETRONAS
32610 Bandar Seri Iskandar
Perak Darul Ridzuan, Malaysia
Tel.: +605-3687200
E-mail: utprmc_ss02@utp.edu.my

UNIVERSITAS MUHAMMADIYAH SURAKARTA

For Contractual Matters:

Office of Collaboration and International Affairs
Universitas Muhammadiyah Surakarta
Gedung Induk Siti Walidah, 7th Floor
Jl. A. Yani Pabelan Kartasura, Sukoharjo,
Jawa Tengah, 57169, Indonesia
Tel.: +62-271-717417 ext. 1707
Fax: +62-271-715448
Email: int.office@ums.ac.id

For Technical Matters:

Research and Innovation Office
Universitas Muhammadiyah Surakarta
Gedung Induk Siti Walidah, 5th Floor
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