



## CURRICULUM VITAE



<b>I. PERSONAL PARTICULARS</b>			
<b>Name</b>	Ts. Dr. Norhana Binti Abdul Halim		
<b>Current Position</b>	Director/Associate Professor		
<b>Faculty / Department</b>	Center For Defence Foundation National Defence University of Malaysia		
<b>Position Applying for</b>	<b>Professor (VK7)</b>		
<b>II. ACADEMIC AND PROFESSIONAL QUALIFICATIONS</b> (Please list all academic qualifications, from your first degree, in chronological order)			
<b>Year</b>	<b>Degree</b>	<b>Discipline</b>	<b>University</b>
1998	BSc. Pyhsics (Hon.) Honors Class II (Upper Division)	Physics	University of Malaya
2010	PhD	Advanced Materials	University of Malaya
<b>III. TITLES OF POSTGRADUATE THESES WRITTEN (At MSc/PhD Level)</b>			
<b>No.</b>	<b>TITLES OF POSTGRADUATE THESES</b>		
1.	Thermo-electrical and Mechanical Studies of Polymer-Organically Modified Montmorillonite Composites – PhD Thesis		

**IV. WORK EXPERIENCE** (Please list your relevant experience in chronological order)

<b>Year</b>	<b>Position</b>	<b>Organisation</b>	<b>Start and End Date</b>
1999 - 2000	Laboratory Demonstrator	Academic	Center for Foundation Studies, University of Malaya
2003 -2006	Pengajar Sementara (Tutorship)	Academic	Physics Department, Faculty of Science, University of Malaya
2011 -2012	Lecturer	Academic	Center for Foundation Studies, University of Malaya
2012 -2017	Senior Lecturer	Academic	Center for Defence Foundation Studies, UPM
2017- current	Associate Professor	Academic	Center for Defence Foundation Studies, UPM

**1.0 TEACHING AND SUPERVISION****1.1 Postgraduate Courses**

(Please list in chronological order and state: course title, semester and year)

<b>No.</b>	<b>Course Title</b>	<b>Semester</b>	<b>Year</b>
1.	Research Methodology – Defining the Research Problem		2018 - 2019
2.	Research Methodology – Preparing for Viva-Voce		2018

**1.2 First Degree Courses**

(Please list in chronological order and state: course title, semester and year)

<b>No.</b>	<b>Course Title</b>	<b>Semester</b>	<b>Year</b>

**1.3 Diploma Courses**

(Please list in chronological order and state: course title, semester and year)

<b>No.</b>	<b>Course Title</b>	<b>Semester</b>	<b>Year</b>

## 1.4 Pre-Degree Courses

(Please list in chronological order and state: course title, semester and year)

No.	Course Title	Semester	Year
1.	Physics I (FMAJ0101) – for Special Preparatory Program to Japan at PASUM, UM	Sem 1	2011/2012
2.	Properties of Materials (FSAB0122) – PASUM, UM	Sem 2	2011/2012
3.	Physics I (FMAJ0101) – for Special Preparatory Program to Japan at PASUM, UM	Sem 1	2012/2013
4.	Physics I (FPY0316) – PAP, UPNM	Sem 1	2012/2013 to 2019/2020
5.	Physics II (FPY0326) – PAP, UPNM	Sem 2	2012/2013 to 2019/2020
6.	FMA0316 FIZIK 1	Sem 1	2022/2023

## 1.5 PhD Supervision

(Please list in chronological order)

No.	Name of Student	Project Title	Date of Registration	Role (Main / Co-Supervision)	Status • Completed • Submitted • In Progress	University
1	Nabilah Solehah Binti Ahmad Tamrin (No. Matriks: 3080144)	Simulation of Urea Kinetic Modelling for Adequate Dialysis Therapy	2012	Supervisor	Completed	UPNM
2	Ainnur Izzati Bt Kamisan (No Matrik: 3080171)	Electrocatalytic Behavior of Nanostructured Graphene/Metal Oxide Air Cathode Catalyst	2012	Co-supervisor	Completed	UPNM
3	Nurazlin Binti Ahmad (No Matrik: SHC1400690)	Nanogenerator (pyroelectric) for Energy Harvesting Application	2014	Co-supervisor	In progress	UM
4	Nur Amira binti Mamat Razali (No Matrik: )	RiceStraw Cellulose Micro/Nanofibe	2016	Supervisor	In progress	UPNM

	3080355)	r (CMNF) from Malaysia as Reinforcement for Nanocomposites				
5	Ainil Hawa Binti Jasni (No Matrik: 3080171)	Novel Hybrid Phosphotriesterase Immobilized on CNT Nanocomposite Based BioSensor for Determination of Malathion		Supervisor	Terminated	UPNM
6	Wan Mohd Hanif bin Wan Ya'acob (No Matrik: 3080350)	Nanocellulose/Kevlar Composite for Ballistics Application	2016	Co-supervisor	In progress	UPNM
7	Nursaadah Binti Ahmad Poad (Physics) (No Matrik: 3211524)	Effect of Chloroauric Acid Doping into P3HT Nanowires for Saturable Absorber	October 2020	Co-supervisor	In progress	UPNM
8.	Nurul Farhana binti Abu Kasim (Physics) (No Matrik : 3221609)	Optical and Surface Plasmon Resonance of Gold Decorated Reduced Graphene Oxide for Nerve Agent Fiber Optics Sensor	January 2022	Co-supervisor	In progress	UPNM

### 1.6 PhD External/Internal Examination

(Please list in chronological order)

No.	Name of Student	Project Title	External / Internal	Date of Viva	University
1.	Ruslinda Binti Md Ali (No Matriks 3080169)	Modified Activated Carbon-Based Cathodes using Cobalt	Internal	Completed 30 September 2020	UPNM

		Tetramethoxyphenylporphyrin (CoTMPP) And Graphene for Zinc-Air Battery			
2.	Mohammad Firdaus bin Roslee (No Matrik : 3080383)	Synthesis of Na <sub>3</sub> moxv <sub>2</sub> -X(Po <sub>4</sub> ) <sub>3</sub> /C as High Capacity and Stable Cycling Cathode Materials for Sodium-Ion Batteries	Internal	Completed 16 November 2021	UPNM

### 1.7 MSc (by Research)

(Please list in chronological order)

No.	Name of Student	Project Title	Date of Registration	Role (Main / Co-Supervision)	Status • Completed • Submitted • In Progress	University
1	Rusaini Athirah Binti Ahmad Rusdi (No Matrik: 3080314)	Characterization and Mechanical Studies on Laminated Bacterial Cellulose/Kevlar Composite	2015	Supervisor	Completed	UPNM
2	Nur Munirah Binti Mustapa (No Matrik: 3080377)	Characterization Gold Nanoparticles (GNP) From Laser Induced Coulomb Explosion (CE) For Nanophotolysis Therapy	2015	Supervisor	Terminated	UPNM
3	Nurul Syahirah Nasuha Binti Sa'aya (No Matrik: 3181097)	Preparation and Characterization of P3HT/Carbon Nanotubes composite for Malathion chemiresistive sensor application	2018	Supervisor	Completed	UPNM
4.	Rabiatul Adawiyah binti Mohd Darwis	Development of Microwave-Assisted	July 2020	Co-supervisor	In progress	UPNM

(No Matrik : 3211392)	Extractor for Essential Oils Extraction as Mosquito Repellent Application on Textile				
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### 1.8 MSc External/Internal Examination

(Please list in chronological order)

No.	Name of Student	Project Title	External / Internal	Date of Viva	University
1.	Nur Ain Binti Ibrahim (No Matriks 3080096)	Pengekstratan Dan Pencirian Selulosa Dari Serat Daun Nanas ( <i>Ananas comosus</i> )	Internal (12 January – 6 February 2015)	Completed 5 Mac 2015	UPNM

### 1.9 Supervision (Postgraduate Research Project or Final Year Research Project)

(Please list in chronological order)

No.	Name of Student	Project Title	Date of Registration	Role (Main/Co-Supervision)	Status • Completed • Submitted • In Progress
1	Ummi Nurul Ain Bt Muhammad – Pengurusan Sumber Manusia	Faktor-faktor Tekanan Pegawai kadet UPNM 2013/2014		Main Supervisor	Completed
2	Muhammad Shauqi Bin Hazin	Mechanical Properties Characterization of Natural Bamboo		Main Supervisor	Completed

		Composit e. 2014/201 5			
3	Pkdt Mohamad Faiz Bin Mohd Othman	Experime ntal and Simulation of Crack on Laminate d Natural Bamboo Composit e. 2014/201 5		Main Supervisor	Completed

## 2.0 RESEARCH, PUBLICATION AND PRESENTATION

### 2.1 Research Projects

(Please list in chronological order and state: title, list of researchers, grant/year, source/amount and status)

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
1.	A Study of Physical Properties of the modified Montmorillonite Clay Minerals Found Naturally in Malaysia for Application in Filler Technology	<ul style="list-style-type: none"> <li>• Dr Norhana binti Abdul Halim – (PASUM)</li> <li>• Professor Dr Gan Seng Neon – (Chemistry, UM)</li> <li>• Professor Dr Zainol Abidin Ibrahim – (Physics, UM)</li> <li>• Assc. Professor Dr Ismail Yusoff – (Geology, UM)</li> <li>• Dr Zul Hazrin Zainal Abidin – (Physics, UM)</li> </ul>	1 <sup>st</sup> Sept. 2011 – 7 <sup>th</sup> Sept. 2012	Source: University Malaya Research Grant (UMRG) Amount: RM 55 280	Completed

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
2.	The Perturbation of Backscattered Fast Neutrons Flux Caused By The Resonances In The Cross Section Of C, N And O For Possible Use In Explosive Detection	<ul style="list-style-type: none"> <li>• Abqari Lutfi Albert bin Abdullah – (UPNM)</li> <li>• Professor Dr Nooruddin bin Ibrahim – (UPNM)</li> <li>• Dr Noriza binti Ahmad Zabidi – (UPNM)</li> <li>• <b>Dr Norhana binti Abdul Halim – (UPNM)</b></li> </ul>	January 2013 – December 2014	<i>Source:</i> RAGS/2012/UPNM/SG02/4 <i>Amount:</i> RM 29 850	Completed
3.	Electrochemical Properties Enhancement of Nanostructured Graphene/Metal Oxide Air Cathode Catalyst	<ul style="list-style-type: none"> <li>• <b>Dr Norhana binti Abdul Halim – (UPNM)</b></li> <li>• Professor Dr Muhd. Zu Azhan bin Yahya – (UPNM)</li> <li>• Nurazlin binti Ahmad – (UPNM)</li> <li>• Dr Abdul Malik bin Marwan – (UiTM)</li> <li>• Azuraida binti Amat – (UPNM)</li> </ul>	1 <sup>st</sup> May 2013 – 30 <sup>th</sup> . April 2015 <sup>1st</sup> May 2013 – 30 <sup>th</sup> . April 2015	<i>Source:</i> FRGS/1/2013/SG06/UPNM/02/2 <i>Amount:</i> RM 99 000	Completed
4.	Electronic Energy Band Structure and Magnetic Properties of Ion Nickel Superconductor	<ul style="list-style-type: none"> <li>• Professor Dr Muhd. Zu Azhan bin Yahya – (UPNM)</li> <li>• <b>Dr Norhana binti Abdul Halim – (UPNM)</b></li> </ul>	1 <sup>st</sup> May 2013 – 30 <sup>th</sup> . April 2015	<i>Source:</i> FRGS/1/2013/ST05/UPNM/02/2 <i>Amount:</i> RM 41 000	Completed



No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
		<ul style="list-style-type: none"> <li>• Nurazlin binti Ahmad – (UPNM)</li> <li>• Azuraida binti Amat – (UPNM)</li> </ul>			
5.	Preparation and Characterization of Novel Cellulose-KEVLAR Nanocomposites for Military Application	<ul style="list-style-type: none"> <li>• <b>Prof. Madya Dr Norhana binti Abdul Halim – (UPNM)</b></li> <li>• Profesor Dr Fauziah bin Abdul Aziz – (UPNM)</li> <li>• Lt. Kol. Prof Madya Ariffin bin Ismail (Tim. Ketua Projek)</li> <li>• Professor Dato' Dr Wan Md. Zin bin Wan Yunus – (UPNM)</li> <li>• Kol. Prof. Ir. Dr. Norazman bin Mohamad Nor – (UPNM)</li> <li>• Prof. Madya Dr. Risby bin Mohd. Sohaimi – (UPNM)</li> <li>• Prof. Madya Kpt Ahmad Zaidi bin Sulaiman (B) – (UPNM)</li> <li>• Dr. Dian Darina Indah binti Daruis – (UPNM)</li> </ul>	16 <sup>th</sup> Dec. 2013 – 16 <sup>th</sup> Dec. 2018	Source: NRGS/2013/UPNM/PK/P1 Amount: RM 1,571 190	Completed
6.	Characterization Gold Nanoparticles (GNP) From Laser Induced Coulomb	<ul style="list-style-type: none"> <li>• <b>Prof. Madya Dr Norhana</b></li> </ul>	1st Dis 2014 – 30th.	Source: <a href="#">FRGS/2/2014/</a>	Completed

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
	Explosion (CE) For Nanophotolysis Therapy	<b>binti Abdul Halim (UPNM)</b> <ul style="list-style-type: none"> <li>• Professor Dr Noorddin bin Ibrahim – (UPNM)</li> <li>• Dr Noriza binti Ahmad Zabidi – (UPNM)</li> <li>• <b>Prof. Madya Dr Norhana binti Abdul Halim (UPNM)</b></li> <li>• Professor Dr Noorddin bin Ibrahim – (UPNM)</li> <li>• Dr Noriza binti Ahmad Zabidi – (UPNM)</li> </ul>	Nov 2016 (extent till 31 Mei 2017)	<a href="#">ST02/UPNM/01/1</a> <i>Amount:</i> RM 93,000	
7.	Mechanical Properties of Bacterial Cellulose Composites	<ul style="list-style-type: none"> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> <li>• Prof. Emer. Dato' Dr Wan Md. Zin Wan Yunus</li> <li>• Lt Kol Prof Madya Ariffin Ismail Prof Dr Fauziah Aziz</li> </ul>	15 <sup>th</sup> Oct. 2017 – 14 <sup>th</sup> Oct. 2018	<i>Source:</i> UPNM/2017/G P JP/NRGS/2/S G/2  <i>Amount:</i> RM40,000	Completed
8.	Ballistic Performance of Laminated Hybrid Bacterial Cellulose (BC)/Kevlar Composites	<ul style="list-style-type: none"> <li>• Lt Kol Prof Madya Ariffin Ismail</li> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> <li>• Prof. Emer. Dato' Dr Wan Md. Zin Wan</li> </ul>	1 <sup>st</sup> April 2017 – 31 <sup>st</sup> Mac 2020	<i>Source:</i> UPNM/2017/G P JP/NRGS/2/S G/3  <i>Amount:</i> RM40,000	In progress

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
		Yunus Prof Dr Fauziah Aziz			
9.	Design of Hybrid Carbon Nanotube/Polythiophene based Chemiresistive Sensor for VX-type Nerve Agent Simulant.	<ul style="list-style-type: none"> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> <li>• Prof. Emer. Dato' Dr Wan Md. Zin Wan Yunus</li> <li>• Prof Dr Muhd Zu Azhan Yahya</li> <li>• Lt Kol Prof Madya Ariffin Ismail</li> <li>• Dr Norli Abdullah</li> <li>• Dr Siti Zulaikha Ngah Demon</li> </ul>	1 <sup>st</sup> . April 2017 – 1 <sup>st</sup> . Mac 2020  Extended to 1 <sup>st</sup> . Dec 2021	Source: UPNM/2018/CHEMDEF/ST/3  Amount: RM200,000	In progress
10.	Simple and Rapid Method to Detect a Simulant of Nerve Agent by Colorimetric Incorporated with Image Processing Technique	<ul style="list-style-type: none"> <li>• Prof. Dr. Ong Keat Khim</li> <li>• Prof. Emer. Dato' Dr Wan Md. Zin Wan Yunus</li> <li>• Lt Col (R) Prof. Dr Victor Feisal</li> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> </ul>	1 <sup>st</sup> . April 2017 – 1 <sup>st</sup> . Mac 2020	Source: UPNM/2018/CHEMDEF/ST/2  Amount: RM200,000	In progress
11.	Polyonic Liquid - Metal Oxide Nanocomposite Based Sensor For Detection of Sarin Gas	<ul style="list-style-type: none"> <li>• Dr Siti Aminah Mohd Noor</li> <li>• Prof. Emer. Dato' Dr Wan Md. Zin Wan Yunus</li> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> </ul>	1 <sup>st</sup> . April 2017 – 1 <sup>st</sup> . Mac 2020	Source: UPNM/2018/CHEMDEF/ST/5  Amount: RM200,000	In progress

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
12.	Synthesis and Characterization of Nitrocellulose from Nano Cellulose for Green Propellant Preparation	<ul style="list-style-type: none"> <li>• Prof Emeritus Dato' Dr Wan Md. Zin Wan Yunus</li> <li>• Lt Kol Prof Madya Ariffin Ismail</li> <li>• Dr Siti Aminah Mohd Noor</li> <li>• Dr Noor Aisyah Ahmad Shah</li> </ul> <p><b>Prof. Madya Dr Norhana Abdul Halim</b></p>	15 <sup>th</sup> . August 2017 – 14 <sup>th</sup> . August 2019	<i>Source:</i> FRGS/1/2017/STG01/UPNM/03/1  <i>Amount:</i> RM101,442	In progress
13.	Detection of Chlorin Gas Using Metal-Oxide-CNT Nanocomposite	<ul style="list-style-type: none"> <li>• Prof. Madya Dr Noor Azilah Mohd Kasim</li> <li>• Prof. Dr Ong Keat Khim</li> </ul> <p><b>Prof. Madya Dr Norhana Abdul Halim</b> Dr Siti Aminah Mohd Noor</p>	1 <sup>st</sup> . Mac 2019 – 30 <sup>th</sup> . Mac 2020	<i>Source:</i> UPNM/2018/CHEMDEF/ST/4  <i>Amount:</i> RM200,000	In progress
14.	Role of Intermolecular Interaction in Conductive Polymer Wrapped MWCNT as Organophosphate Sensing Material Structure	<ul style="list-style-type: none"> <li>• Dr. Norli Abdullah</li> </ul> <p><b>Prof. Madya Dr Norhana Abdul Halim</b></p> <ul style="list-style-type: none"> <li>• Dr Siti Zulaikha Ngah Demon</li> <li>• Dr. Santhosh Matam (Uni. Of Cardiff, UK/UK Catalyst Hub@RCaH, STFC Rutherford Appleton laboratory, Chilton, UK Dr. Ian Silverwood (ISIS Facilities, STFC</li> </ul>	Jan 2020 – Jan 2022	<i>Source:</i> Newton ISIS  <i>Amount:</i> RM477,150.00	In progress

No.	Title	List of Researchers • Principal • Members	Grant Year	Source Amount	Status • Completed • In Progress
		Rutherford Appleton laboratory, Chilton, UK			
15.	Optical and Surface Plasmon Resonance of Gold Decorated Graphene Oxide for Nerve Agent Fiber Optics Sensor	<ul style="list-style-type: none"> <li>• Dr Siti Zulaikha Ngah Demon</li> <li>• <b>Prof. Madya Dr Norhana Abdul Halim</b></li> <li>Dr. Norli Abdullah</li> </ul>	1 <sup>st</sup> . Nov 2020 – 31 <sup>st</sup> . Oct 2023	<i>Source:</i> FRGS/1/2020/STG07/UPNM/03/1  <i>Amount:</i> RM118518	In progress
16.	The contribution of degraded waste honey as additive to reduce the crystallinity of polymer blend solid electrolytes for faster ionic conduction for separators in energy devices	<ul style="list-style-type: none"> <li>• Prof. Madya Dr. Mohd Fakhru Zamani Bin Abdul Kadir</li> <li>• <b>Prof. Madya Dr Norhana Binti Abdul Halim</b></li> <li>• Dr. Mazdida Binti Sulaiman</li> <li>• Prof. Madya Dr Ninie Suhana Binti Abdul Manan</li> <li>Dr. Aisyah Hartini Binti Jahidin</li> </ul>	1 <sup>st</sup> Septem ber 2022 – 31 <sup>st</sup> August 2025	<i>Source :</i> FRGS/1/2022/STG05/UM/02/9  <i>Amount :</i> RM17700	In Progress

## 2.2 Publications

### 2.2.1 Academic Journal

(Please list in chronological order and state: authors, year, title, publisher/journal, volume and number of pages (Please bold your name))

No.	Authors, year, title, publisher/journal, volume and number of pages (Please bold your name)	Type of Journal • ISI • SCOPUS • Peer-Reviewed
1.	<b>Halim, N. A.</b> "Penciriran Mekanikal ke atas Beberapa Sampel Kayu Malaysia", Final Year Thesis, (1998)	
2.	<b>Halim, N. A.</b> , Ahmad, A. B. and Ibrahim, Z. A., "Sintesis dan Penciriran Komposit ENR-50 Montmorillonite", <i>SimpoSains 2000</i> , Intekma Resort and Convention Centre Shah Alam, Selangor, 2 – 5 October 2000	
3.	<b>Halim, N. A.</b> , Ahmad, A. B. and Ibrahim, Z. A. (2000), "Thermally Stimulated Current measurements on Epoxidised Natural Rubber (ENR50) – Organically modified Montmorillonite Composite", <i>J Fizik Malaysia</i> , Vol 23, 79–84	ISI
4.	<b>Halim N. A.</b> , "Thermo-electrical and Mechanical Studies on Organically Modified Montmorillonite Composites", Ph.D Thesis, (2010)	
5.	<b>Halim, N.A.</b> , Ibrahim, Z.A. and Ahmad, A.B., (2010). Intercalation of water and guest molecules within Ca <sup>2+</sup> -Montmorillonite: DSC studies in low temperature range. <i>Journal of thermal analysis and calorimetry</i> , 102(3), pp.983-988	ISI
6.	Balakrishnan, V.V., Abidin, Z.H.Z., Nasir, K.M., Jamari, S.K.M., Saidon, N., Lee, S.V., <b>Halim, N.A.</b> and Yahya, R., (2013). The characteristics of a coating system containing lawsone dye colorant and PMMA-acrylic polyol blended resin. <i>Pigment &amp; Resin Technology</i> .	ISI
7.	Balakrishnan, V.V., Lee, S.V., <b>Halim, N.A.</b> , Arof, A.K. and Abidin, Z.H.Z., (2013). Characterisation of poly (vinyl alcohol) coating mixed with anthocyanin dye extracted from roselle flower with different nitrate salt. <i>Pigment &amp; Resin Technology</i> .	ISI
8.	Balakrishnan, V.V., Nasir, K.M., <b>Halim, N.A.</b> , Tajuddin, H.A., Arof, A.K. and Abidin, Z.H.Z., (2013). The effect of PMMA on physical properties of dammar for coating paint application. <i>Pigment &amp; Resin Technology</i> .	ISI
9.	Lee, S.V., Hadi, A.N., Abidin, Z.Z., Mazni, N.A., <b>Halim, N.A.</b> , Usop, R., Hassan, H.C., Majid, S.R. and Arof, A.K., (2015). Thermal and UV degradation of roselle anthocyanin extract and its mixtures with poly (vinyl alcohol) in different acid. <i>Pigment &amp; Resin Technology</i> .	ISI
10.	Lee, S.V., Usop, R., Hadi, A.N., Mazni, N.A., Majid, S.R., Arof, A.K., <b>Halim, N.A.</b> and Abidin, Z.H.Z., (2015). Comparison study on the effect of acid and nitrate salt on the properties of poly (vinyl alcohol) coating doped with dye consist of anthocyanin. <i>Pigment &amp; Resin Technology</i> . (ISI: IF 0.79, SCOPUS: Q3)	ISI
11.	Kamisan, A.I., Kamisan, A.S., Md Ali, R., Tunku Kudin, T.I., Hassan, O.H., <b>Halim, N. A.</b> , and Yahya, M.F., (2015). Synthesis of graphene via green reduction of graphene oxide with simple sugars. In <i>Advanced Materials Research</i> (Vol. 1107, pp. 542-546). Trans Tech Publications Ltd.	SCOPUS
12.	Usop, R., Abidin, Z.H.Z., Mazni, N.A., Hadi, A.N., <b>Halim, N.A.</b> , Taha, R.M., Careem, M.A., Majid, S.R. and Arof, A.K., (2016). The colour stability of natural dye coating films consisting of chlorophyll after exposed to UV-A. <i>Pigment &amp; Resin Technology</i> .	ISI

13.	Kamisan, A.I., Zainuddin, L.W., Kamisan, A.S., Kudin, T.I.T., Hassan, O.H., <b>Halim, N. A.</b> , and Yahya, M.Z.A., (2016). Ultrasonic Assisted Synthesis of Reduced Graphene Oxide in Glucose Solution. In <i>Key Engineering Materials</i> (Vol. 708, pp. 25-29). Trans Tech Publications Ltd.	SCOPUS
14.	<b>Halim, N.A.</b> , Ali, A., Abidin, Z.H.Z., Ahmad, A.B., Sulaiman, A.Z. and Ibrahim, Z.A., (2017). Thermal analysis of organically modified Ca 2+-montmorillonite using DSC and TSC techniques. <i>Journal of Thermal Analysis and Calorimetry</i> , 128(1), pp.135-140.	ISI
15.	Aziz, F.A., Ismail, A., Wan Md Zin, W.Y., Mohamad Nor, N., Sohaimi, R.M., Sulaiman, A.Z., <b>Halim, N. A.</b> , Daruis, D.D.I., Azraaie, N., Zainul Abidin, N.A.M. and Ibrahim, N.A., (2016). The treated cellulose micro/nano fibers (CMNF) from bioresources in malaysia. In <i>Materials Science Forum</i> (Vol. 846, pp. 434-439). Trans Tech Publications Ltd.	SCOPUS
16.	Azraaie, N., Zainul Abidin, N. A. M., Aziz, F. A., Radiman, S., Ismail, A., Wan Md Zin, W. Y., Mohamad Nor, N., Sohaimi, R. M., Sulaiman, A. Z., <b>Halim, N. A.</b> , Daruis, D. D. I., Ahmad, N. "Cellulose Microfibrils/Nanofibrils (CMNF) Produced from Banana ( <i>Musa acuminata</i> ) Pseudo-Stem Wastes: Isolation and Characterization", (2016), <i>Materials Science Forum</i> , Vol. 846, 448–453	SCOPUS
17.	Zainul Abidin, N.A.M., Aziz, F.A., Radiman, S., Ismail, A., Wan Yunus, W.M.Z., Nor, N.M., Sohaimi, R.M., Sulaiman, A.Z., <b>Halim, N. A.</b> , and Daruis, D.D.I., (2016). Isolation of microfibrillated cellulose (MFC) from local hardwood waste, Resak ( <i>Vatica</i> spp.). In <i>Materials Science Forum</i> (Vol. 846, pp. 679-682). Trans Tech Publications Ltd.	SCOPUS
18.	Ahmad Rusdi, R.A., Zainal Abidin, Z.H., Tajuddin, H.A., Abdul Aziz, F. and <b>Halim, N. A.</b> , (2017). Comparative Study of Chemical and Mechanical Treatment Effects on Bacterial Cellulose from Nata de Coco. In <i>Materials Science Forum</i> (Vol. 888, pp. 256-261). Trans Tech Publications Ltd.	SCOPUS
19.	Rusdi, R.A.R <b>Halim, N.A.</b> and Aziz F.A. "Preliminary Functional Group Study of Bacterial Cellulose Behaviour With and Without Acid Treatment", 2017, <i>Asian Journal of Materials Chemistry</i> , DOI: <a href="http://dx.doi.org/10.14233/ajmc.2016.AJMC-P22">http://dx.doi.org/10.14233/ajmc.2016.AJMC-P22</a>	SCOPUS
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### 2.2.2 Book/Chapter in Book:

(Please list in chronological order and state: authors, year, title, publisher, volume and number of pages  
(Please bold your name)

No.	Authors, year, title, publisher, volume and number of pages (Please bold your name)	Level <ul style="list-style-type: none"> <li>• International</li> <li>• National</li> <li>• University</li> </ul>
1.	Prof Dr Fauziah, <b>Dr Norhana</b> , Dr Noriza, Nurazlin, Albert, Azuraida, Wan Yusmawati, Siti Zulaikha, Nurshahidah, 2013, Modul Physics I FPY0316, Physics Department, Center For Defence Foundation, UPNM	University
2.	Prof Dr Fauziah, <b>Dr Norhana</b> , Dr Noriza, Nurazlin, Albert, Azuraida, Wan Yusmawati, Siti Zulaikha, Nurshahidah, 2014, Modul Physics II FPY0326, Physics Department, Center For Defence Foundation, UPNM	University
3.	<b>Norhana</b> , Noriza, Nurazlin, Albert, Azuraida, Wan Yusmawati, Siti Zulaikha, Nurshahidah, Noor Fadhilah, Shahrul Izwan, Nurul Hazwani, 2015, Manual Physics I FPY0316, Physics Department, Center For	University

	Defence Foundation, UPNM	
4.	<b>Norhana</b> , Noriza, Nurazlin, Albert, Azuraida, Wan Yusmawati, Siti Zulaikha, Nurshahidah, Noor Fadhilah, Shahrul Izwan, Nurul Hazwani, Manual Physics II FPY0326, 2016, Physics Department, Center For Defence Foundation, UPNM	University
5.	Muhd Zu Azhan Yahya, Wan Md Zin Wan Yunus, Nor Laili Azua Jamari, Noor Azilah Mohd Kasim, Wan Yusmawati Wan Yusoff, Fadhlina Che Ros, Norli Abdullah, Noor Aisyah Ahmad Shah, <b>Norhana Abdul Halim</b> , 2021, Solid State Phenomena Vol. 317 (2021), <i>Trans Tech Publications Ltd</i> , Baech Switzerland. ISSN: 1662-9779	International

### 2.2.3 Proceeding Articles :

(Please list in chronological order and state: authors, year, title, publisher/conference, volume and number of pages (Please bold your name))

No.	Authors, year, title, publisher/conference, volume and number of pages (Please bold your name)	Level <ul style="list-style-type: none"> <li>• International</li> <li>• National</li> <li>• University</li> </ul>
1.	<b>N. A. Halim</b> , A. B. Ahmad and Z. A. Ibrahim, 2000, "Sintesis dan Pencirian Komposit ENR-50 Montmorillonite", <i>SimpoSains 2000</i> , Intekma Resort and Convention Centre Shah Alam, Selangor, 2 – 5 October 2000	National
2.	<b>N. A. Halim</b> , A. B. Ahmad and Z. A. Ibrahim, 2000, "Thermally Stimulated Current measurements on Epoxidised Natural Rubber (ENR50) – Organically Modified Montmorillonite Composite", proceeding <i>Perfik 2001</i> , Crystal Crown Hotel Petaling Jaya, Selangor	International
3.	<b>N. A. Halim</b> , Z. H. Z. Abidin, A. B. Ahmad, A.Z Sulaiman and Z. A. Ibrahim 2015, "Thermal Analysis of Organically Modified Ca <sup>2+</sup> -Montmorillonite using TSC and DSC Technique", proceeding 4th International Thermal Analysis Conference 2015, Bestari Hall, Level 2, UniKL Campus City, Kuala Lumpur, 21 – 23 Oktober 2015	International
4.	R.A.R Rusdi, Z. H.Z. Abidin, H.A. Tajuddin, F.A. Aziz and <b>N.A. Halim</b> , "Comparative Study of Chemical and Mechanical Treatment Effects on Bacterial Cellulose from Nata de Coco", 2016 proceeding International Conference on X-Ray & Related Techniques In Research & Industry 2016, (ICXRI 2016)	International
5.	<b>N.A. Halim</b> , A.B. Ahmad, Z.Z. Abidin and Z.A. Ibrahim "Water Removal in Polymer-Ca <sup>2+</sup> -Montmorillonite (Ca <sup>2+</sup> -Mon) Composites Prepared in Colloidal System: DSC studies in low temperature range", 2018, 4th Advanced Materials Conference 2018 (AMC2018)	

### 2.3 Presentation:

(Please list in chronological order)

No.	Event	Title of Paper Presented	Role (Keynote Speaker / Invited Speaker / Presenter)	Date	Organizer

1.	<i>SimpoSains 2000,</i>	“Sintesis dan Pencirian Komposit ENR-50 Montmorillonite”	Presenter	2 – 5 October 2000	Intekma Resort and Convention Centre Shah Alam, Selangor.
2.	<i>Perfik 2001,</i>	“Thermally Stimulated Current measurements on Epoxidised Natural Rubber (ENR50) – Organically modified Montmorillonite Composite”	Presenter		Crystal Crown Hotel Petaling Jaya, Selangor
3.	“XRD: X-Ray Diffraction Spectroscopy”, “XRD: X-Ray Diffraction Spectroscopy”, Workshop on X-Ray Diffraction (XRD) and Scanning Electron Microscope (SEM): Theory, Applications and Laboratory Practical		Speaker	4 <sup>th</sup> – 6 <sup>th</sup> June 2012	Department of Physics, Faculty of Science, University of Malaya.
4.	“Introduction to X-Ray Diffraction Spectroscopy & Single Crystal XRD”, Workshop on X-Ray Diffraction (XRD): Theory and Applications 18 <sup>th</sup>		Speaker	20 <sup>th</sup> June 2014	Department of Physics, Faculty of Science, University of Malaya.
5.	“Thermal 4 <sup>th</sup> . International Thermal Analysis Conference	Analysis of Organically Modified Ca <sup>2+</sup> -Montmorillonite via Thermally Stimulated Current	Presenter	21 <sup>st</sup> . – 23 <sup>th</sup> . October 2015	Bestari Hall, UniKL Kuala Lumpur.

	2015,	Technique”			
6.	5 <sup>th</sup> . International Conference On Solid State Science & Technology	“Characterization of Bacterial Cellulose Treated With Acid Hydrolysis,	Presenter	13 <sup>th</sup> . – 15 <sup>th</sup> . December 2015	
7.	Forum on Silicon Carbide 2016 (SiCRUM)	“Silicon Carbide (SiC) – Properties and Applications”	Presenter	10 <sup>th</sup> . October 2016	Center for Tropicalization (CENTROP) and Center for Foundation Studies (PAP), UPNM.
8.	“Collaboration Research Project - Ionic Liquid Applications”, Research Collaboration Meeting Between UPNM and Universiti Teknologi Petronas (UTP)		Speaker	2016	Fakulti Kejuruteraan Mekanikal, Uni Teknologi Petronas (UTP), Tronoh, Perak
9.	“Mechanical Properties of Bacterial Cellulose From Nata De Coco For Composite Material Purposes”, Protection & Survivallity Symposium 2018, (PSS2018),		Speaker	10-12 August 2018	Coral Cove Port Dickson, Negeri Sembilan.
10.	4 <sup>th</sup> Advanced Materials Conference 2018 (AMC2018),	“Water Removal in Polymer-Ca <sup>2+</sup> - Montmorillonite (Ca <sup>2+</sup> -Mon) Composites Prepared in Colloidal System: DSC studies in low temperature range”,	Presenter	27 <sup>th</sup> - 28 <sup>th</sup> November 2018	Hilton Hotel Kuching, Sarawak.

11.	7th International Conference on Solid State Science and Technology (7th ICSSST 2019)	“Localized Deep and Shallow Traps of $\alpha$ -Peaks from Thermally Stimulated Current (TSC) Measurement on Thermoplastic Polymers”	Invited Speaker	11th – 13rd November 2019	Everly Hotel Putrajaya
12.	7th International Conference on Solid State Science and Technology (7th ICSSST 2019)	“Localized Deep and Shallow Traps of $\alpha$ -Peaks from Thermally Stimulated Current (TSC) Measurement on Thermoplastic Polymers”	Presenter	11th – 13rd November 2019	Everly Hotel Putrajaya
13.	3rd Symposium on Multidisciplinary Science (2021)	Mechanical Behavior Evaluation of Kevlar Laminated Composite reinforced by Bacterial Cellulose from Nata de Coco: Tensile test and Low Velocity Impact Test	Presenter	7th July 2021	via Zoom
14.	3rd Symposium on Multidisciplinary Science (2021)	Mechanical Behavior Evaluation of Kevlar Laminated Composite reinforced by Bacterial Cellulose from Nata de Coco: Tensile test and Low Velocity Impact Test	Invited Speaker	7th July 2021	Via Zoom
15.	31st Regional Conference on Solid State Science and Technology (RCSSST2022), Faculty of Bioengineering and Technology,	Structural and Electrical Characterization of Conductive Home Grown Bacterial Cellulose Composite	Presenter	6th – 8th September 2022	Via Zoom

### 3.0 ACADEMIC RECOGNITION AND LEADERSHIP, CONSULTANCY, SERVICE TO THE UNIVERSITY AND SERVICE TO THE COMMUNITY

### 3.1 Academic Recognition and Leadership

Academic recognition and leadership such as Academic Award, Academic Assessor/ /Promotion Assessor (External), Visiting Professor/Fellowship, Editorial Board and other academic recognition.

#### 3.1.1 Leadership in Committee

No.	Academic Recognition	Year	Level	Awarding Body / Name of Institution
1.	Invited speaker in Workshop on X-Ray Diffraction (XRD) and Scanning Electron Microscope (SEM): Theory, Applications and Laboratory Practical.	4 <sup>th</sup> – 6 <sup>th</sup> June 2012	National	Center for Ionic Department of Physics, Faculty of Science, University of Malaya
2.	Invited speaker in Workshop on X-Ray Diffraction (XRD): Theory and Applications.	18 <sup>th</sup> – 20 <sup>th</sup> June 2014	National	Center for Ionic Department of Physics, Faculty of Science, University of Malaya
3.	Permohonan Pemfailan Paten bagi produk penyelidikan Cellulose Microbril/Nanobril (CMNF) From Bioresources For Defence And Security Application	30 <sup>th</sup> April 2014	National	
4.	British Invention Show 2014, Barbican Exhibition Center, London	22 <sup>nd</sup> – 25 <sup>th</sup> October 2014	International	British Inventors Society, Malaysia Delegates: Universiti Putra Malaysia Faculty of Engineering Prof. Dr. Ratnasamy Muniandy 43400 UPM Serdang, Selangor
5.	Invited speaker in Forum on Silicon Carbide 2016 (SiCRUM): Silicon Carbide (SiC) – Properties and Applications	10 <sup>th</sup> October 2016	University	Center for Tropicalization (CENTROP), Bilik Mesyuarat Aras 8, Bangunan Bestari, UPNM
6.	Presenter in Research Collaboration Meeting between UPNM and Universiti Teknologi Petronas (UTP): Collaboration Research Project - Ionic Liquid Applications	21 <sup>st</sup> October 2016	University	Pusat Pengurusan Penyelidikan dan Inovasi (PPPI) UPNM
7.	Invited Participant to Bengkel Hala Tuju Penyelidikan Nanocellulose	24 <sup>th</sup> . November 2016	National	Bahagian Pusat Nanoteknologi Kebangsaan (NNC), Kementerian Sains, Teknologi dan Inovasi



	– Fasa Penyediaan Pelan Pembangunan Hala Tuju Dan Pelan Tindakan.			Malaysia (MOSTI)
8.	Evaluation - Journal Reviewer 1. Journal of Applied Polymer Science (ISI) - 4 articles 2. Journal of Polymer Research (ISI) - 1 article 3. Journal of Thermal Analysis and Calorimetry (ISI) - 1 article 4. Polymer Composites (ISI) - 1 article 5. Pigment and Resin Technology (ISI) - 1 article		International	1. <a href="#">John Wiley &amp; Sons (USA)</a> 2. <a href="#">Springer (Netherlands)</a> 3. <a href="#">Springer (Netherlands)</a> 4. <a href="#">John Wiley &amp; Sons (USA)</a> Emerald Group Publishing (UK)
9.	Jury for Programme – RMC Conference For Young Scientists 2017 Malaysia Young Scientists Organisation (MYSO)	31 <sup>st</sup> March 2017	National	Royal Malay Collogue
10.	Committee for the purchase of FTIR spectrophotometers for the construction of container research laboratories	5 <sup>th</sup> April 2017	University	Universiti Pertahanan Nasional Malaysia (UPNM)
11.	Evaluator for graduate colloquium	17 <sup>th</sup> – 18 <sup>th</sup> July 2017	University	Universiti Pertahanan Nasional Malaysia (UPNM)
12.	Interview panel for the post of graduate research fellow at the National Defense University of Malaysia	21 <sup>st</sup> July 2017	University	Universiti Pertahanan Nasional Malaysia (UPNM)
13.	Treasurer for Defense Chemical Laboratory Development Seminar (CHEMDEF)-Laboratory equipment: Gas Chromatography-Mass Spectrometer (GC-MS), Attenuated Total Reflectiion-Fourier Transform Infrared (ATR-FTIR) Spectrometer and CHNSO Analyzer	20 <sup>th</sup> December 2017	University	Universiti Pertahanan Nasional Malaysia (UPNM)
14.	Committee member for olympiad science and mathematic 2018 federal territory level	19 <sup>TH</sup> April 2018	University	Universiti Pertahanan Nasional Malaysia (UPNM)

15.	Panel and Secretariat for interview public candidates for the SPM/equivalent graduate study program for the 2018/2019 academic session	29 <sup>th</sup> April – 2 <sup>nd</sup> May 2018	University	Universiti Pertahanan Nasional Malaysia (UPNM)
16.	Member of The Exhibition Committee For Education Carnival At Smk Bandar Tasik Selatan 2018	7 <sup>th</sup> April 2018	University	Universiti Pertahanan Nasional Malaysia (UPNM)
17.	Head of logistic, certificate and souvenir committee for protection and survivability symposium 2018 (PSS 2018)	10-12 <sup>th</sup> August 2018	University	Universiti Pertahanan Nasional Malaysia (UPNM)
18.	Speaker and facilitator of the training of trainer workshop for the mentee mentor program under the STEM strengthening initiative 2018	17 <sup>th</sup> – 18 <sup>th</sup> October 2018	University	Universiti Pertahanan Nasional Malaysia (UPNM)
19.	Committee member of the 7th International Conference on Solid State Science and Technology (ICSSST19)	11 <sup>th</sup> – 13 <sup>th</sup> November 2019	International	Universiti Pertahanan Nasional Malaysia (UPNM)
20.	Invited Participant in International Dean's Course Malaysian Chapter (MyIDC) 2021/2022 Online Onboarding: June 22- 23 2021	2021/2022 Part 1: July 26 – 29 2021 Online Mode Part 2: November 14-19 2021 Universiti Pendidikan Sultan Idris , Perak Part 3: February 19 – 26, 2022 Bintulu dan Miri , Sarawak	National	International Dean's Course Malaysian Chapter (MyIDC)
21.	Professional Jury, "PAP Innovation Competition 2021 (PAPIC 2021)"	30 <sup>th</sup> March 2021	University	Universiti Pertahanan Nasional Malaysia (UPNM)
22.	Invited Participant in "Program Hala Tuju Strategik Pengurusan Universiti Tahun 2022"	21 January 2022 – 23 January 2022	University	Universiti Pertahanan Nasional Malaysia (UPNM)

23.	Organizing Committee in the 2 <sup>nd</sup> inter pre-university matriculation innovation competition 2022	2 – 4 March 2022 & 8 March 2022	University	Universiti Pertahanan Nasional Malaysia (UPNM)
24.	Logistic Committee in Webinar siri ke-8 Yayasan Tuanku Fauziah “Women in Search of Excellence” (WiSE) “Cabaran Wanita Dalam Keselamatan”	20 April 2022	State	Pejabat Penolong Naib Canselor (Perkhidmatan, Jaringan Industri dan Perhubungan Korporat) dan Yayasan Tuanku Fauziah

### 3.1.2 Recognition / Awards (Conference, Invention Competition, Academician)

No.	Academic Recognition	Year	Level	Awarding Body
1.	Gold Medal awarded at the Malaysian Technology Expo 2014 for the invention/innovation of Cellulose Nanocrystals (CNC) from Biosources	20 <sup>th</sup> – 22 <sup>nd</sup> February 2014	International	Malaysian Association of Research Scientist (MARS)
2.	Sijil Kecemerlangan for the Gold Medal awarded at the Malaysian Technology Expo 2014		University	Universiti Pertahanan Nasional Malaysia
3.	Gold Medal awarded at the 25 <sup>th</sup> International Invention, Innovation & Technology Exhibition (ITEX) 2014 for the invention of Cellulose Microbril/Nanobril (CMNF) From Natural Bio-Based Cellulose For Defence And Security Application	8 <sup>th</sup> – 10 <sup>nd</sup> May 2014	National	Ministry of Science, Technology & Innovation (MOSTI) and Malaysian Invention and Design Society (MINDS)
4.	Bronze Medal awarded at the Malaysian Technology Expo 2015 for the invention/innovation of Saiz Matter - Cellulose Microfibrill/Nanofibril (CMNF) Extraction from Bioresources	12 <sup>th</sup> – 14 <sup>th</sup> . February 2015	International	Malaysian Association of Research Scientist (MARS)
5.	Bronze Medal awarded at the Malaysian Technology Expo 2015 for the invention/innovation of Improving Prototype High Velocity Impact Hybrid Combat Armor Fabrication Made of Natural Fibres	12 <sup>th</sup> – 14 <sup>th</sup> . February 2015	International	Malaysian Association of Research Scientist (MARS)
6.	Bronze Medal awarded at the Malaysian Technology Expo 2015 for the invention/innovation of Development of Green Interior Panel Made of Laminated Bamboo	12 <sup>th</sup> – 14 <sup>th</sup> . February 2015	International	Malaysian Association of Research Scientist (MARS)

	Fiber Thermoset Composites			
7.	Anugerah Perkhidmatan Cemerlang 2014 of (Majlis Anugerah UPNM 2015)	27 <sup>th</sup> . March 2015	University	Universiti Pertahanan Nasional Malaysia (UPNM)
8.	Silver Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2015), NDUM for poster presentation entitled "Effects of Micro and Nanosized Fibrills Extracted From Bacterials Cellulose on The Formation Reinforced Epoxy Composites"	29 <sup>th</sup> .- 30 <sup>th</sup> . April 2015	International	Universiti Pertahanan Nasional Malaysia (UPNM)
9.	Silver Prize Seoul awarded at the Soule International Invention Fair (SIIF) for the invention of Cellulose Micro/Nano Fibril (CMNF) From Natural Bio-Based	26 <sup>st</sup> . - 29 <sup>th</sup> . November 2015	International	Korea Invention Promotion Association, Seoul, Korea
10.	Sijil Penghargaan Prestasi Cemerlang Tahun 2015	28 <sup>th</sup> . October 2016	University	Universiti Pertahanan Nasional Malaysia (UPNM)
11.	Silver Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2017), NDUM for poster presentation entitled " <i>Portable Solar System</i> "	10 <sup>th</sup> - 11 <sup>th</sup> . July 2017	National	Universiti Pertahanan Nasional Malaysia (UPNM)
12.	Gold Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2017), NDUM for poster presentation entitled " <i>Futuristic Protective Gears From Natural Cellulose</i> "	10 <sup>th</sup> - 11 <sup>th</sup> . July 2017	National	Universiti Pertahanan Nasional Malaysia (UPNM)
13.	Gold Medal awarded at the Malaysia Technology Expo 2018 (MTE 2018), for poster presentation entitled "Natu-Cell Armour : A Material for Personnel Protection"	22- 24h February 2018	National	Malaysian Association of Research Scientist
14.	Silver Medal awarded at the Malaysia Technology Expo 2018 (MTE 2018), for poster presentation entitled "Next Generation Body Protective Mat from Tropical Cellulose/Latex Electrospun Nanocomposite Fiber"	22- 24h February 2018	National	Malaysian Association of Research Scientist
15.	Bronze Medal awarded at the Malaysia Technology Expo 2018 (MTE 2018), for poster	22- 24 <sup>th</sup> February 2018	National	Malaysian Association of Research Scientist

	presentation entitled “Innovative Military Protective Gears from Rice Straw Cellulose Nanocomposite”			
16.	Silver Medal awarded at the 29th International Invention, Innovation & Technology Exhibition (ITEX) 2022 for the invention of “Cellulose based electrospun nanocomposites fibers from agricultural rubber waste for protective gear”	10 – 12 <sup>th</sup> May 2018	International	Ministry of Science, Technology & Innovation (MOSTI) and Malaysian Invention and Design Society (MINDS)
17.	Silver Medal awarded at the 29th International Invention, Innovation & Technology Exhibition (ITEX) 2022 for the invention of “NatuCell armour : Personnel Protection from Green Material”	10 – 12 <sup>th</sup> May 2018	International	Ministry of Science, Technology & Innovation (MOSTI) and Malaysian Invention and Design Society (MINDS)
18.	Invited speaker at Bengkel “Train of Trainers” Bagi Program Mentor-Mentee Di Bawah Inisiatif Pengukuhan Stem Tahun 2018: Guru Pemangkin STEM Alaf Baru	17 <sup>th</sup> -18 <sup>th</sup> October 2018	State	Jabatan Pendidikan Wilayah Persekutuan KL dan UPNM
19.	Gold Medal awarded at the Defence, Security and Sustainability 2019 (DSS 2019) Exhibition NDUM for poster presentation entitled “Application of Novel Cellulose-Kevlar Nanocomposite for Military Helmet and Plate of Armour Vest”	25 <sup>th</sup> . April 2019	National	Universiti Pertahanan Nasional Malaysia (UPNM)
20.	Bronze Medal awarded at the Defence, Security and Sustainability 2019 (DSS 2019) Exhibition NDUM for poster presentation entitled “Rational Design of Hybrid F-MWCNT/P3HT Based Chemiresistor for Detection of Chemical Warfare Agent (CWA)”	25 <sup>th</sup> . April 2019	National	Universiti Pertahanan Nasional Malaysia (UPNM)
21.	Gold Medal awarded at the Defence, Security and Sustainability 2019 (DSS 2019) Exhibition NDUM for poster presentation entitled “Developing A Holistic Ethnic Tolerance Index in Malaysia” by AP Dr Wan Hasniah Wan Husin, <b>AP Dr Norhana Abdul Halim</b> and En Wan Muhd Izrin Wan Rashid	25 <sup>th</sup> . April 2019	National	Universiti Pertahanan Nasional Malaysia (UPNM)

22.	Gold Medal awarded at the International Conference and Exposition on Inventions by Institutions of Higher Learning 2019 (PECIPTA 2019) for poster presentation entitled “Developing Ethnic Tolerance Index among Students in Malaysia” by AP Dr Wan Hasniah Wan Husin, <b>AP Dr Norhana Abdul Halim</b> and En Wan Muhd Izrin Wan Rashid	22 -23 <sup>th</sup> . September 2019	International	Ministry of Education and UTHM
23.	Patent Awarded: MY-171610-A <i>Isolation of Cellulose Microfibril/Nanofibril from Banana Pseudo-Stem Waste</i>	21 October 2019 (6 Mac 2015 – 6 Mac 2035)	National	Intellectual Property Corporation of Malaysia (MyIPO)
24.	Patent Application: PI2020007113 <i>Flexible Conductive Composite Sheet and Method Thereof</i>	28 December 2020	National	Intellectual Property Corporation of Malaysia (MyIPO)
25.	Sijil Penghargaan Prestasi Cemerlang Tahun 2020	2020	University	Universiti Pertahanan Nasional Malaysia (UPNM)
26.	Patent Awarded: MY-182665-A <i>A Process of Preparing Cellulose Nanofibrils</i>	28 January 2021	National	Intellectual Property Corporation of Malaysia (MyIPO)
27.	Bronze Medal awarded at the Malaysia Technology Expo 2021 (MTE 2021), for poster presentation entitled “B-Ex Paper : Modified Bacterial Cellulose With Extendd Fuctionality”	(22-26 March 2021)	National	Malaysian Association of Research Scientist
28.	Sijil Penghargaan Prestasi Cemerlang Tahun 2021	2021	University	Universiti Pertahanan Nasional Malaysia (UPNM)
29.	Bronze Award at the Kelantan International Learning & Innovation Exhibition (KILIEX 2021) : Energy Harvesting Figure of Merit of PVDF-TrFE/ZnO QDs Composite Film Nurazlin binti Ahmad, Prof. Dr. Wan Haliza binti Abd. Majid, Ainfatin Kamalia binti Rosli, DR. Mohd Arif bin Mohd. Sarjidan, <b>Prof. Madya Ts. Dr. Norhana binti Abdul Halim</b>	29 <sup>th</sup> June 2021	International	UiTM Kelantan
30.	Best Video Awarded at the Kelantan International Learning & Innovation Exhibition (KILIEX 2021) : Energy Harvesting Figure	29 <sup>th</sup> June 2021	International	UiTM Kelantan

	of Merit of PVDF-TrFE/ZnO QDs Composite Film Nurazlin binti Ahmad, Prof. Dr. Wan Haliza binti Abd. Majid, Ainfatin Kamalia binti Rosli, DR. Mohd Arif bin Mohd. Sarjidan, <b>Prof. Madya Ts. Dr. Norhana binti Abdul Halim</b>			
31.	Gold Medal awarded at the 33 <sup>rd</sup> International Invention, Innovation & Technology Exhibition (ITEX) 2022 for the invention of Methyl-2-pyridyl Ketoxime : A potential broad spectrum antidote for organophosphate poisonings	26-27 May 2022	International	Ministry of Science, Technology & Innovation (MOSTI) and Malaysian Invention and Design Society (MINDS)
32.	Patent Awarded: MY-171610-A <i>FLEXIBLE EDLC ASSEMBLED FROM MODIFIED BACTERIAL CELLULOSE (26 July 2022)</i>	2022	National	Intellectual Property Corporation of Malaysia (MyIPO)
33.	Gold Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2022), NDUM for poster presentation entitled "SCOBY-Based Free Standing Electrodes for Green Energy Storage Technology"	3- 4 August 2022	National	Universiti Pertahanan Nasional Malaysia (UPNM)
34.	Gold Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2022), NDUM for poster presentation entitled "Exploring Metal Oxide Nanoparticles Decorated 3D Carbon Nanostructures Solid State Sensor for VOC Monitoring"	3 – 4 August 2022	National	Universiti Pertahanan Nasional Malaysia (UPNM)
35.	Gold Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2022), NDUM for poster presentation entitled "Enhanced Surface Plasmon Resonance (SPR) Sensing Built in Tapered Fiber Optics for Remote Chemical Monitoring" Nurul Farhana Abu Kasim, Siti Zulaikha Ngah Demon, <b>Norhana Abdul Halim</b> , Ong Keat Khim	3 – 4 August 2022	National	Universiti Pertahanan Nasional Malaysia (UPNM)

36.	Silver Medal awarded at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2022), NDUM for poster presentation entitled "Essential Oils Extracted from Different Types of Plants Using Microwave Assisted Extraction Method" Rabiatul Adawiyah Mohd Darwis, Ts. Dr. Fadhlina Che Ros, <b>Prof Madya Ts. Dr. Norhana Abdul Halim</b> , Dr. Hidayi Hamdan, Dr. Nurul Huda Osman	3 – 4 August 2022	National	Universiti Pertahanan Nasional Malaysia (UPNM)
37.	2 <sup>nd</sup> Place Winner Category Best Awarded: Fundamental (S&T) at the Defence, Security and Sustainability Colloquium & Exhibition (DSS 2022), NDUM for poster presentation entitled "Exploring Metal Oxide Nanoparticles Decorated 3D Carbon Nanostructures Solid State Sensor for VOC Monitoring"	3 – 4 August 2022	National	Universiti Pertahanan Nasional Malaysia (UPNM)
38.	Gold Medal awarded at the International Conference and Exposition on Inventions by Institutions of Higher Learning 2022 (PECIPTA 2022) for poster presentation entitled "SCOBY-Based Bacterial Cellulose As Free-Standing Electrodes For Green Energy Storage Technology"	1- 3th November 2022	International	Ministry of Education and UMK

### 3.2 Consultancy work that benefited to the University.

(Please list in chronological order and state: title, year, sponsor, value and duration of consultancy)

No.	Title	Year	Sponsor	Value	Duration

### 3.3 Service to the University



Service to the university such as Vice Chancellor/Deputy Vice Chancellor/Dean/Director, Deputy Dean/Deputy Director/Unit Coordinator/Hostel Warden, Programme Chairperson/ Assistant Warden/Fellow. Representing University in Sports and Other Non-Academic Activities. Professional/Academic Association (Committee Member).

(Please list in chronological order and state: position/membership and duration)

No.	Position/Membership	Duration
1.	Head of Physics Department, Center for Defence Foundation Studies, UPNM	2012 - 2016
2.	Deputy Director, Center for Defence Foundation Studies, UPNM	2017 - 2019
3.	Head of Pure & Applied Science Cluster	2017 - 2019
4.	Internal Auditor Internal Auditor for Malaysian Research Assessment Instrument (MyRA)	2018 - 2020
5.	Member of the senate	2019 - 2024
6.	Deputy Chairman For Development Of A New Program Of Bachelor Of Security Science In Industry -Faculty Of Defense Science And Technology	2022 - 2024
7.	Committee member of The STEM Driving Force Position Center for Defence Foundation Studies,	2022 - 2024
8.	President of The Women's Association Sponsor/Protem Committee	2022-
9.	Director, Center for Defence Foundation Studies, UPNM	2019 - Current

### 3.4 Service to the community

(Please list in chronological order)

No.	Organization	Role	Start Date	End Date	Level
1.	SMK Seksyen Tiga, Bandar Kinrara, Selangor	Auditor	2018	2019	local

No.	Organization	Role	Start Date	End Date	Level
1.	Institute of Materials, Malaysia (IMM)	Member	1 March 2004		
2.	Malaysian Institute of Physics (MIP)	Member	August 2010		
3.	Malaysian Solid State Science & Technology (MASS)	Member	30 May 2014	Life time membership	
4.	Malaysian Board of Technologist (MBOT)	Graduate Technologist	5 August 2020	4 August 2021	

5.	Malaysian Board of Technologist (MBOT)	Profesional Technologist	26 December 2020	25 December 2021	
6.	Department of Atomic Energy Ministry	Radiation Protection Officer	16 February 2022	15 February 2025	