

# BioMeC

Biomechanical & Clinical  
Engineering



# TIER 5 – RESEARCH INITIATIVE GROUP (RIG)

<b>Name of RIG</b>	<b>:</b>	<b>Biomechanical &amp; Clinical Engineering (BioMeC)</b>
<b>Tier</b>	<b>:</b>	<b>5</b>
<b>Leader</b>	<b>:</b>	<b>Assoc. Prof. Ir. Dr. Jamaluddin Mahmud</b>
<b>CoRe</b>	<b>:</b>	<b>Frontier Materials and Industrial Application (FMIA)</b>
<b>Registered Faculty</b>	<b>:</b>	<b>Mechanical Engineering</b>
<b>Registration date (Senate Approval)</b>	<b>:</b>	<b>11 October 2016</b>
<b>UiTM Niche Area</b>	<b>:</b>	<b>Advanced Manufacturing &amp; Automation</b>
<b>RIG Niche Area</b>	<b>:</b>	<b>Research on Biomechanics, Clinical Engineering, behavior, deformation, damage and failure of bioengineering materials and manufacturing products</b>

# BACKGROUND OF MEMBERS

BIL	NAMA	KELAYAKAN AKADEMIK	FAKULTI	BIDANG KEPAKARAN
1	ASSOC. PROF. IR. DR. JAMALUDDIN BIN MAHMUD	PhD	Kejuruteraan Mekanikal	Engineering Mechanics & Materials
2	ASSOC. PROF. DR. SOLEHUDDIN BIN SHUIB	PhD	Kejuruteraan Mekanikal	Engineering Mechanics & Materials
3	DR. NOR FAZLI BIN ADULL MANAN	PhD	Kejuruteraan Mekanikal	Engineering Mechanics & Materials
4	DR. ABDUL HALIM BIN ABDULLAH	PhD	Kejuruteraan Mekanikal	Engineering Mechanics & Materials
5	DR. MOHD AFZAN BIN MOHD ANUAR	PhD	Kejuruteraan Mekanikal	Dynamics and Vibration
6	EN. SHAHRUL HIYAM BIN MARWAN	MSc	Kejuruteraan Mekanikal, UiTM BB	Engineering Mechanics & Materials
7	DR MUHAMMAD FAIRUZ BIN AZMI	MSc	Perubatan	Anatomy & Tissue Culture



# BioMeC Achievement (2015-2017)

PENCAPAIAN	2015	2016	2017
Master Degree – Enrolled/On-Going	1	2	2
Master Degree - Graduated	2	2	3
PhD – Enrolled/On-Going	1	2	2
PhD – Graduated	0	1	1
No. of research grants	1	2	3
Total value of research grants (RM)	99,200	220, 200	385,200
Total publication (Indexed Journals)	14	3	9
Total publication (Non-indexed Journals)	5	2	2
IPR (Patent, Industrial design, Copyright)	0	1	2

# OTHER ACHIEVEMENT (2015-2017)

ACHIEVEMENT	2015	2016	2017
NO. OF CONSULTANCY/ INDUSTRIAL LINKAGE/ COLLABORATION (National & International)	2	2	5
NO. OF MEMBERSHIP OF PROFESSIONAL BODIES AND ASSOCIATIONS (National & International)	10 (IEM, BEM, etc.)	11	11
NO. OF SPECIAL INVITATION/ APPOINTMENT/ EXPERTISE (National & International) incl. Keynote Speaker, Invited speaker, Thesis examiner, Judge, Reviewer, Panel, etc.)	6	6+1	10
NO. OF AWARDS/ RECOGNITION AND APPRECIATION (National & International)	3	3	1

# Niche Area and Relevance of BioMeC



to encourage  
**multidisciplinary**  
research on mechanical  
engineering and medical  
physics



research activities involve  
mechanical/clinical **testing**,  
analytical equations, modeling  
and computer simulation, and  
also development of medical  
support prototype and  
components.



The section **integrates**  
the perspectives of applied  
mechanics and materials  
science to solve practical and  
biomechanics problems  
based on clinical experiences  
and industrial demands.



# Niche Area and Relevance of BioMeC

- to encourage multidisciplinary research on mechanical engineering and medical physics.
- research activities involve mechanical/clinical testing, analytical equations, modeling and computer simulation, and also development of medical support prototype and components.
- The section integrates the perspectives of applied mechanics and materials science to solve practical and biomechanics problems based on clinical experiences and industrial demands.



# Niche Area and Relevance of BioMeC



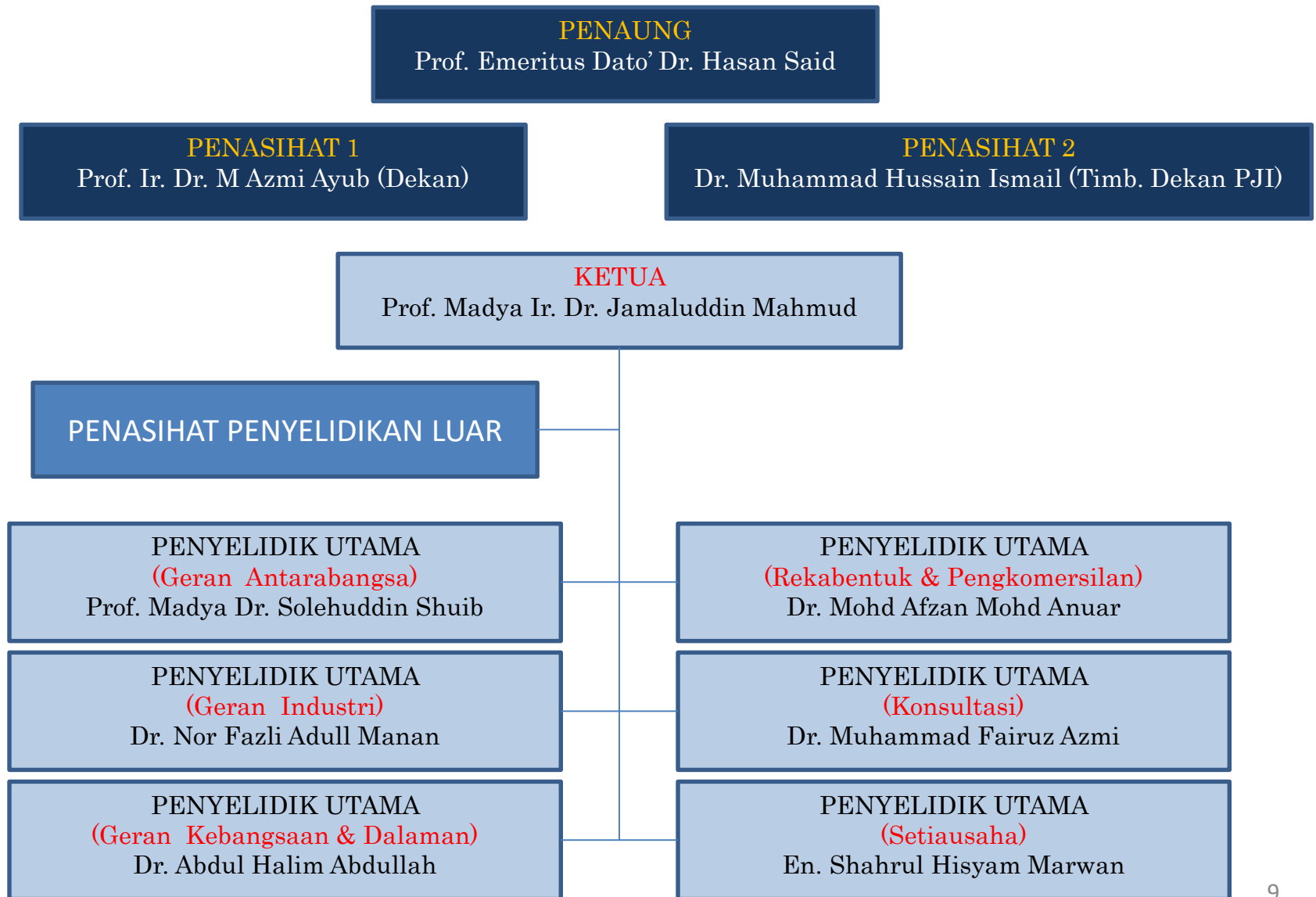
Many activities call attention on the following areas:

- Development of new design of medical support components which minimized the shortcomings as identified by surgeons and medical physician.
- Synthesis, processing, fabrication, machining, testing and modeling of engineering materials and medical support components
- Integration of engineering design and potential medical applications.
- Knowledge and technology transfer to researchers and clients includes guidelines, software, problem solving and innovation of design.

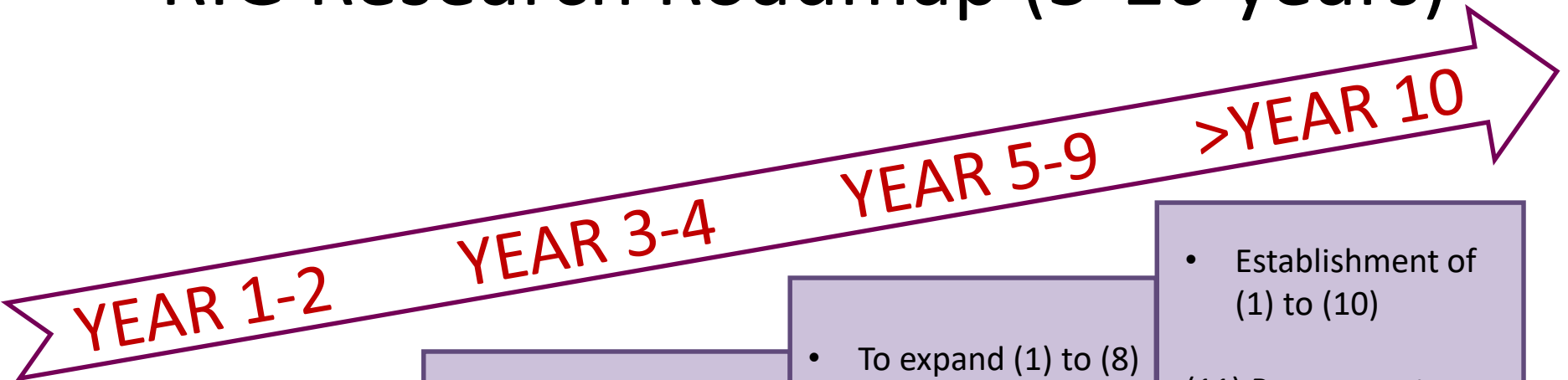




# Organizational Chart



# RIG Research Roadmap (5-10 years)



- (1) Postgraduates
- (2) Research grants
- (3) publications (especially high impact journals)
- (4) Industrial collaborations
- (5) Consultations

- Reinforcement of (1) to (5)
- (6) International collaboration
- (7) Product commercialization/ Copyright
- (8) Intellectual Property/ Patents

- To expand (1) to (8)
- (9) Progresses to EK4
- (10) CoE Social Responsibility/ Citizenship (CSR)

- Establishment of (1) to (10)
- (11) Progresses to Institute (EK3)

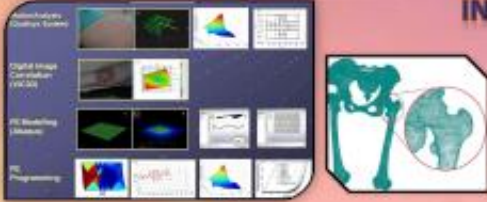
# BIOMECHANICAL AND CLINICAL ENGINEERING (BioMeC) RIG



## GROUP MEMBERS



## INNOVATIONS



## AWARDS



## SUPERVISIONS



## ACTIVITIES



## PUBLICATIONS

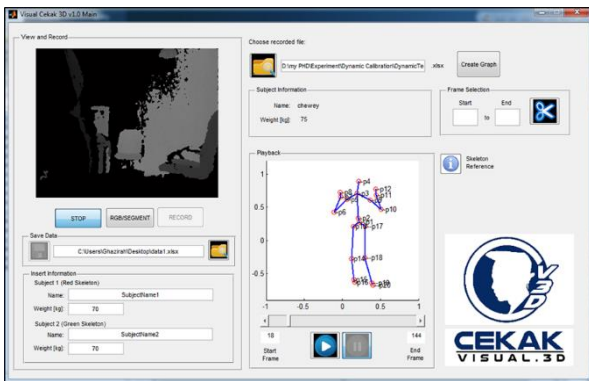
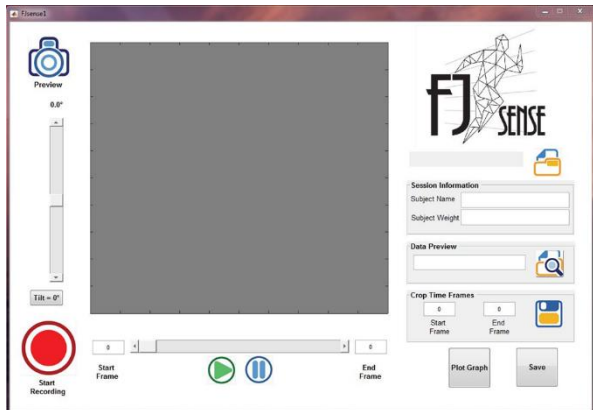


## NETWORKS



Contact Information:  
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# Innovations



# HIGHLIGHTS



**Recognition from PSSCM on  
Silat Biomechanics**



**Inaugural International Conference @ Intekma  
Resort**



**Keynote speech in Biomechanics  
ICCBB 2016 @ Langkawi**

# BENCHMARK



# OBJECTIVE

- **To analyse/ benchmark the trend of indexed publications pertaining to Biomechanics and Biomaterials by Malaysian affiliation (& ASEAN countries)**

BENCHMARK

Scopus



Web of Science<sup>SM</sup>

Search

## PARAMETERS

### KEYWORDS :

- BIOMECHANICS
- BIOMECHANICAL ENGINEERING
- BIOMATERIALS

### DOCUMENT TYPE :

- JOURNAL
- ARTICLE
- CONFERENCE PAPER

BOOLEAN OPERATORS : "or"

### PUBLICATION YEARS :

- 2005-2013

### COUNTRY :

- OVERALL
- ASEAN

### AFFILIATION/FUNDING AGENCIES :

- MALAYSIAN UNIVERSITIES

# BENCHMARK

# Scopus



Web of Science<sup>SM</sup>

Search

	2005		2006		2007		2008		2009		2010		2011		2012		2013	
	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS
<b>OVERALL</b>	6913	2273	7327	2464	7472	2945	8043	3328	9087	4186	9491	4794	9311	4858	9984	5382	9048	5739
<b>ASEAN</b>	104	49	97	44	102	44	130	52	145	77	203	72	188	108	253	134	218	162
<b>SINGAPORE</b>	82	43	77	36	76	33	92	42	94	42	106	48	101	61	103	57	105	73
<b>MALAYSIA</b>	9	1	5	3	8	5	26	3	33	20	50	9	56	33	84	43	74	57
<b>THAILAND</b>	12	5	12	4	15	7	13	8	19	14	39	15	29	11	54	26	27	24
<b>INDONESIA</b>	2	0	3	0	5	0	1	0	3	2	6	3	4	2	14	6	8	7
<b>VIETNAM</b>	0	0	0	0	0	0	0	0	0	1	5	0	3	2	4	1	5	3
<b>PHILIPINES</b>	0	0	1	1	0	0	0	1	0	1	1	1	0	0	0	1	2	0
<b>MYANMAR</b>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
<b>BRUNEI</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>CAMBODIA</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LAOS</b>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0



# BENCHMARK

# Scopus



Web of Science<sup>SM</sup>

Search

	2005		2006		2007		2008		2009		2010		2011		2012		2013	
	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS
<b>MALAYSIA</b>	9	1	5	3	8	5	26	3	33	20	50	9	56	33	84	43	74	57
<b>UM</b>	0	0	1	0	1	0	8	0	6	1	7	0	12	2	26	7	23	5
<b>UTM</b>	0	0	0	0	0	0	2	0	3	0	13	0	8	1	22	1	18	5
<b>USM</b>	1	0	1	0	3	0	2	0	2	0	5	1	11	5	8	4	11	4
<b>UKM</b>	0	0	1	0	0	0	4	0	1	0	6	0	4	1	8	1	4	1
<b>UPM</b>	2	0	0	0	2	0	2	0	3	2	2	0	2	1	4	0	9	1
<b>UiTM</b>	0	0	0	0	0	0	0	0	2	0	3	0	1	0	5	1	5	0
<b>UniMAP</b>	0	0	0	0	0	0	1	0	1	0	4	0	1	0	6	0	2	1
<b>UMP</b>	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	0
<b>IIUM</b>	1	0	0	0	2	0	3	0	2	0	4	0	2	0	4	1	1	0
<b>UTHM</b>	0	0	0	0	0	0	0	0	2	0	3	0	0	0	1	0	2	0
<b>UMS</b>	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0
<b>UTP</b>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1
<b>UNITEN</b>	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0
<b>UTAR</b>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
<b>UTeM</b>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0

# BENCHMARK

# Scopus



Web of Science<sup>SM</sup>

Search

Universities	No. of publication			Focus Area
	2005 until 2013	2014 (till 15 <sup>th</sup> October 2014)	Total	
UM	99	22	121	Orthopaedics, Motion Capture, Biomaterials, Bone
UTM	73	14	87	Implants, Bone, Biomaterials
USM	58	6	64	Bone, Biomaterials, skin
UKM	31	6	37	Bone, Biomaterials, Orthopaedics
UPM	30	3	33	Biomaterials, Bone, Implant
IIUM	20	0	20	Bone, Biomaterials, Implants
<u>UiTM</u>	17	3	20	Motion Capture, Skin Biomechanics, Biomaterials
UniMAP	16	1	17	Biomaterials, Biomechanics
UMP	10	1	11	Implants, Biomaterials

# Planning

## 2. Seminar on Bio-Mechanical-Clinical

Invites:  
Engineers, Medical Physician, Supplier and vendors for medical equipment

## 1. MESPIC 2018

(September 2018)

Special Issue for Publication

## 3. Potential Project Visit

Faculty of Medicine,  
Faculty of Health Sciences

## 4. Research Grant

Applying research grant either internal or external fund

