Publication Writing Style & Guideline: Edited Book

Assoc. Prof. Ts. Dr. Maslin Masrom

Panel Edited Book

Razak Faculty of Technology and Informatics

Universiti Teknologi Malaysia Kuala Lumpur

9 December 2021

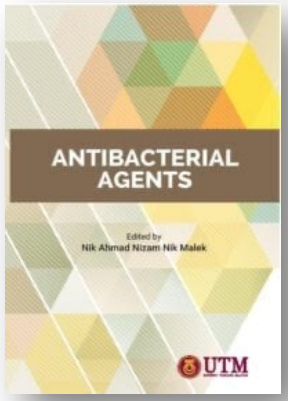
Objectives

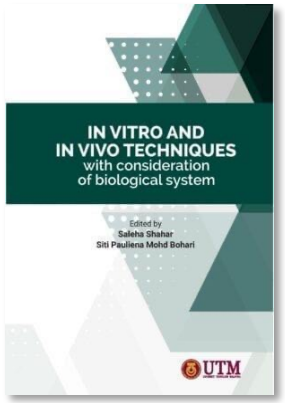
i. To ensure that the author/editor produces a quality Edited Book, and in accordance with the specification set by the Penerbit UTM Press

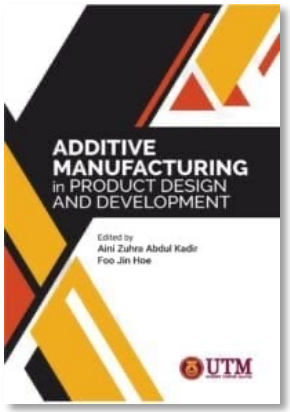
ii. To ensure that the author knows and understands the requirements in the publication of Edited Book.

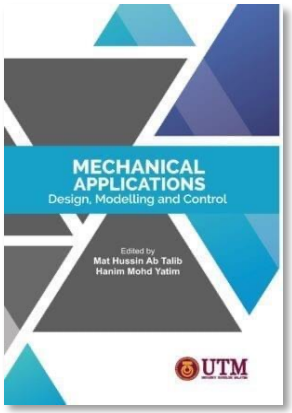
Examples of Edited Books

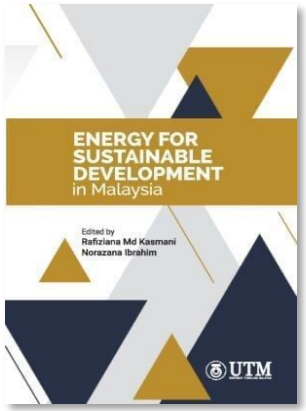
Examples of Edited Books cont'

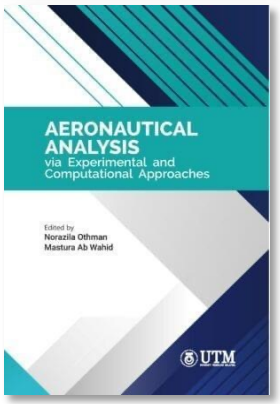


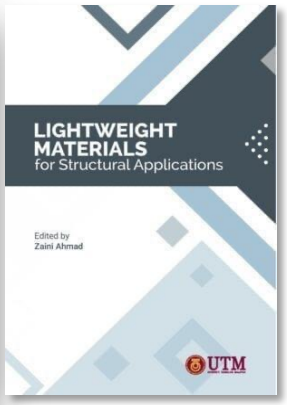


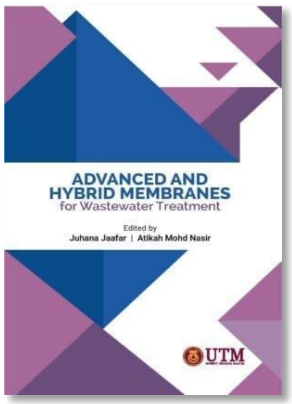


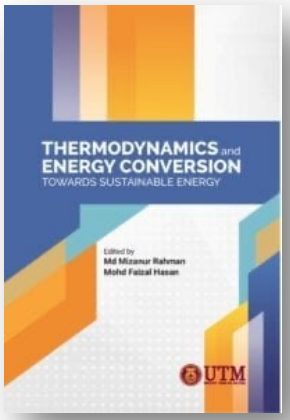


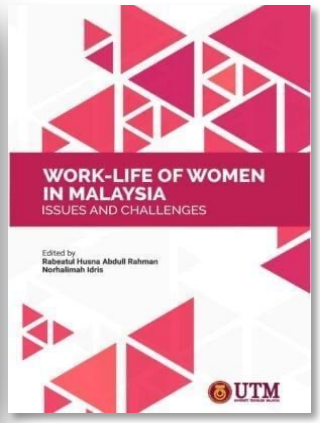








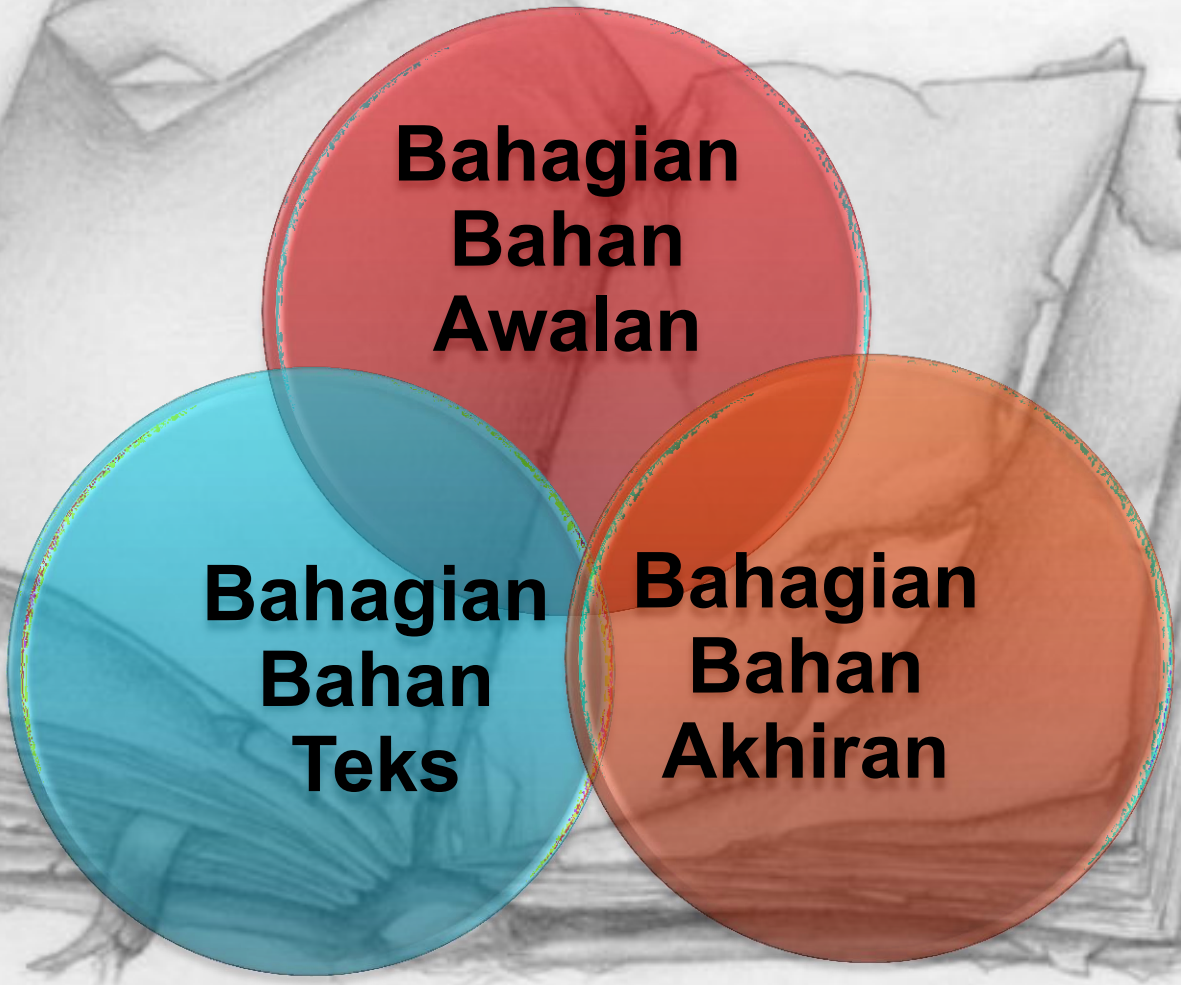




Sebuah manuskrip ditakrifkan sebagai lengkap apabila memenuhi syarat untuk dijadikan sebuah buku. Pada umumnya, sebuah buku perlu mengandungi tiga bahagian utama, iaitu:

Source: Rosli Hussin (2015)
(Bengkel Penulisan Book Chapters Staf Akademik)

TIGA BAHAGIAN UTAMA BUKU



Kerangka Edited Books

Bahan Awalan

- Tajuk/ judul *book chapters*
- Judul separa Judul penuh
- Hak cipta
- Kandungan
- Senarai penulis/ penyumbang
- Prakata

Bahan Teks

Bab 1 , Bab 2, Bab 3 .....

- Tajuk bab
- Nama Penulis
- Pengenalan
- Kajian Literatur
- Bahan dan Kaedah
- Hasil Kajian dan Perbincangan
- Kesimpulan

Transform?

Rujukan/Bibliografi

Bahan Akhiran

- **LAMPIRAN** *(jika ada)*
- INDEKS

Kerangka Umum

1. BAHAGIAN BAHAN AWALAN

a.
- Awalan buku atau sebelum bab 1.

b.
- Bahagian ini mengandungi maklumat tentang penerbit, penulis, hak cipta dan buku.

c.
- Tiga bahan utama yang mesti disediakan oleh penulis ialah halaman judul penuh, kandungan dan prakata.

d.
- Bahan lain disediakan (jika ada) ialah halaman dedikasi, senarai rajah dan sebagainya.

1 - BAHAGIAN AWALAN

Bahagian yang mengandungi maklumat umum tentang buku. Ini meliputi perkara berikut:

a) Tajuk/ Judul *book*
b) Judul separa

→ Ruang Promosi/maklumat

c) Judul penuh
d) Hak cipta
e) Content (Kandungan)
f) Senarai Penyumbang
g) Prakata

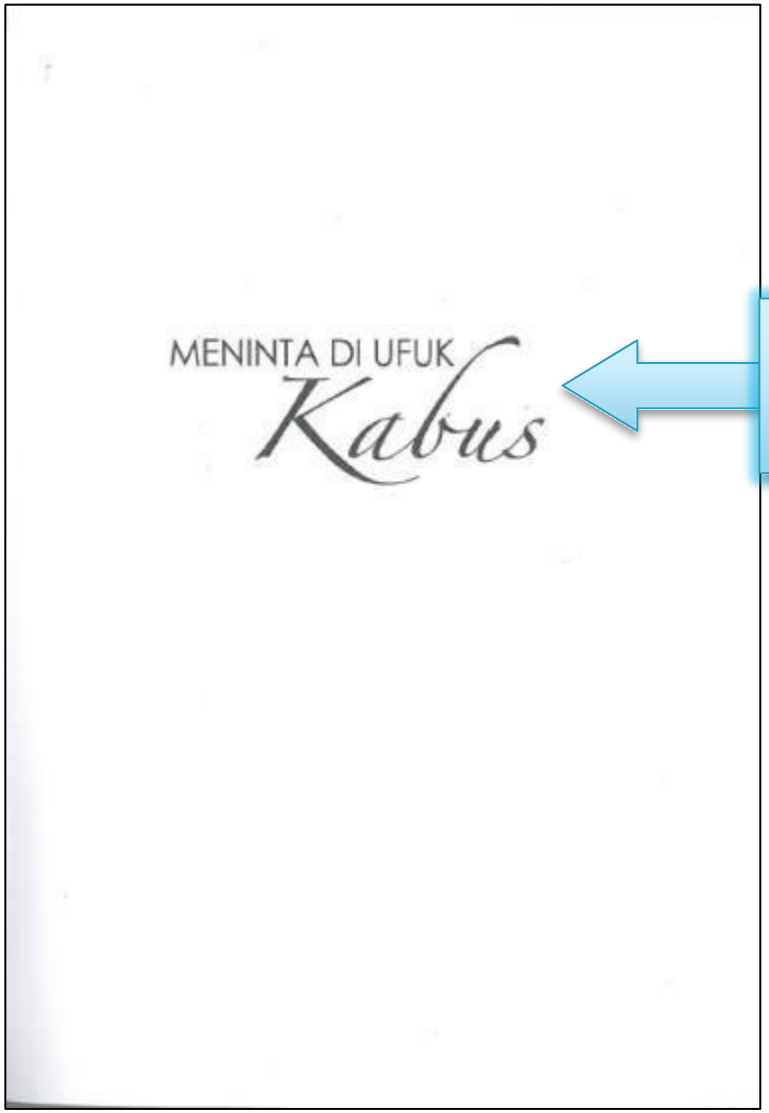
Disediakan oleh Penerbit

Dibekalkan oleh Editor kepada Penerbit

Judul Separa

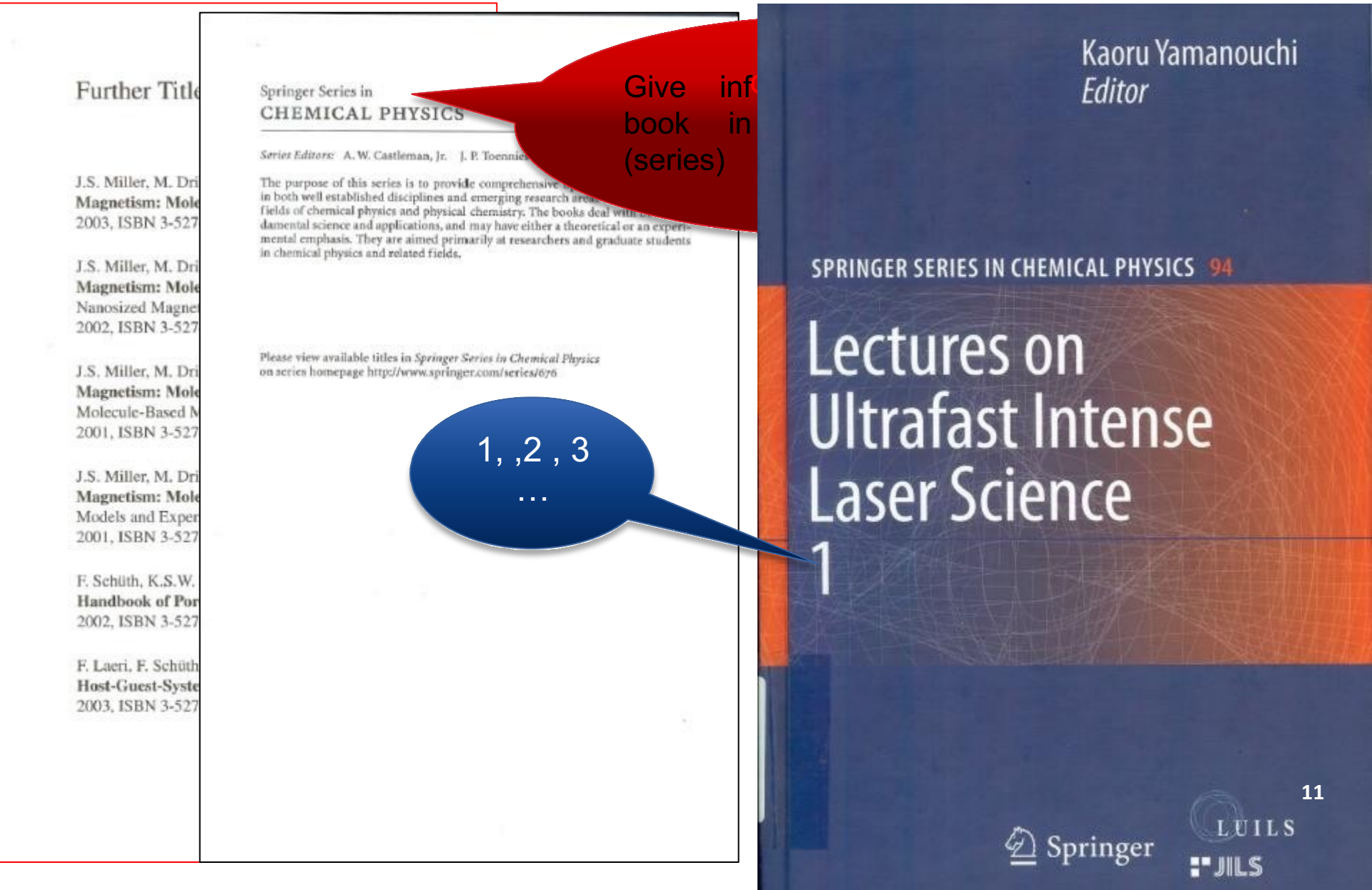
Gaya &
Panduan
Penerbitan

BOOK
CHAPTERS



Judul buku sahaja

Halaman Promosi / Maklumat



Judul Penuh

Judul Buku

Nama Editor

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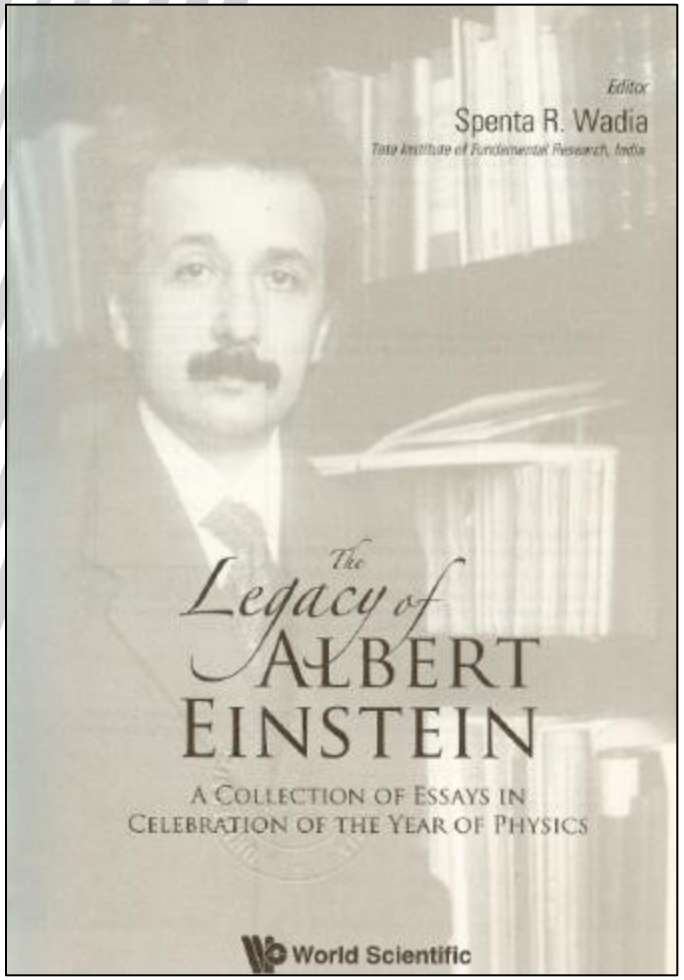

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Maklumat cetakan

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Disediakan oleh editor (Penerbit)

Pencetak dan alamat

Halaman Kandungan

Mesti disediakan oleh Editor

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Senarai penyumbang

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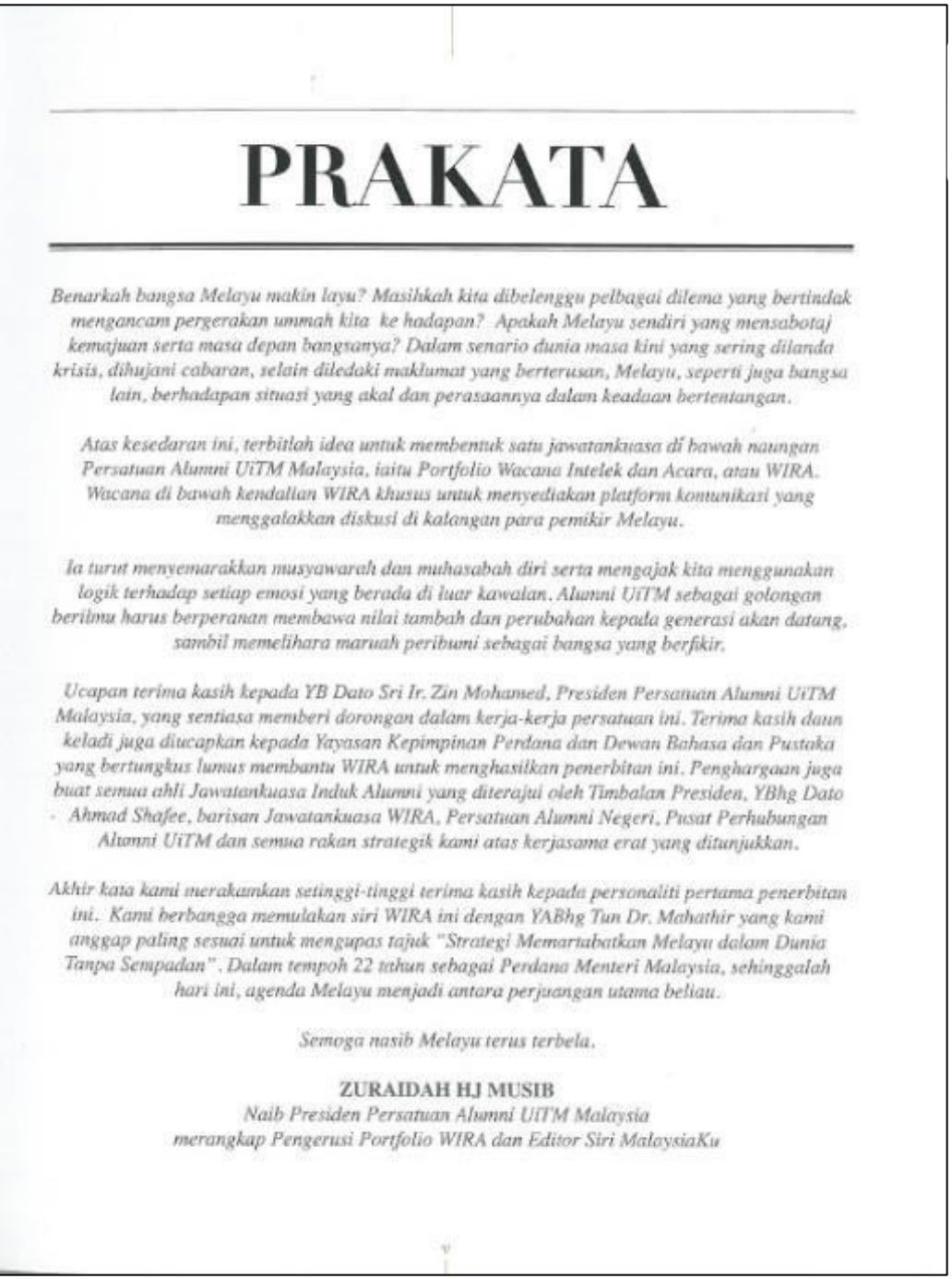

PRAKATA

Benarkah bangsa Melayu makin layu? Masihkah kita dibelenggu pelbagai dilema yang bertindak mengancam pergerakan ummah kita ke hadapan? Apakah Melayu sendiri yang mensabotaj kemajuan serta masa depan bangsanya? Dalam senario dunia masa kini yang sering dilanda krisis, dihujani cabaran, selain diledaki maklumat yang berterusan, Melayu, seperti juga bangsa lain, berhadapan situasi yang akal dan perasaannya dalam keadaan bertentangan.

Atas kesedaran ini, terbitlah idea untuk membentuk satu jawatankuasa di bawah naungan Persatuan Alumni UiTM Malaysia, iaitu Portfolio Wacana Intelek dan Acara, atau WIRA. Wacana di bawah kendalian WIRA khusus untuk menyediakan platform komunikasi yang menggalakkan diskusi di kalangan para pemikir Melayu.

Ia turut menyemarakkan musyawarah dan muhasabah diri serta mengajak kita menggunakan logik terhadap setiap emosi yang berada di luar kawalan. Alumni UiTM sebagai golongan berilmu harus berperanan membawa nilai tambah dan perubahan kepada generasi akan datang, sambil memelihara maruah peribumi sebagai bangsa yang berfikir.

Ucapan terima kasih kepada YB Dato Sri Ir. Zin Mohamed, Presiden Persatuan Alumni UiTM Malaysia, yang sentiasa memberi dorongan dalam kerja-kerja persatuan ini. Terima kasih dan keladi juga diucapkan kepada Yayasan Kepimpinan Perdana dan Dewan Bahasa dan Pustaka yang bertungkus lumus membantu WIRA untuk menghasilkan penerbitan ini. Penghargaan juga buat semua ahli Jawatankuasa Induk Alumni yang diterajui oleh Timbalan Presiden, YBhg Dato Ahmad Shafee, barisan Jawatankuasa WIRA, Persatuan Alumni Negeri, Pusat Perhubungan Alumni UiTM dan semua rakan strategik kami atas kerjasama erat yang ditunjukkan.

Akhir kata kami merakamkan setinggi-tinggi terima kasih kepada personaliti pertama penerbitan ini. Kami berbangga memulakan siri WIRA ini dengan YABhg Tun Dr. Mahathir yang kami anggap paling sesuai untuk mengupas tajuk "Strategi Memartabatkan Melayu dalam Dunia Tanpa Sempadan". Dalam tempoh 22 tahun sebagai Perdana Menteri Malaysia, sehinggalah hari ini, agenda Melayu menjadi antara perjuangan utama beliau.

Semoga nasib Melayu terus terbela.

ZURAIDAH HJ MUSIB
Naib Presiden Persatuan Alumni UiTM Malaysia
merangkap Pengerusi Portfolio WIRA dan Editor Siri MalaysiaKu

Prakata

- Mesti disediakan oleh Editor
- Gambaran keseluruhan buku – tujuan, sasaran dan skop & kandungan
- Ciri menarik, cara penggunaan, kepentingan buku
- Menyatakan kepentingan buku (memiliki) dan penghargaan
- Nama editor ditulis pada akhir prakata.

2 BAHAGIAN BAHAN Teks

Bab 1 , Bab 2, Bab 3 .....

- Tajuk bab
- Nama Penulis
- Pengenalan
- Kajian Literatur
- Bahan dan Kaedah
- Hasil Kajian dan Perbincangan
- Kesimpulan

Transform?

Rujukan/Bibliografi

3. Bahagian Bahan Akhiran

- ✓ **Bahan akhiran terdiri daripada:**
  - ❖ Indeks
- **Blurb (**Sinopsis)

Indeks

Mudahkan pembaca mencari maklumat di dalam teks

Setiap buku ilmiah harus mempunyai indeks

Penulis bertanggungjawab menyediakan indeks

Petunjuk Indeks disediakan selepas pruf akhir disahkan

Indeks boleh terdiri daripada kata, frasa, dan nama.

Entri dan subentri dimulakan dengan huruf kecil, kecuali kata nama khas.

Susunan entri mengikut abja

Indeks

Entri mestilah mengandungi tajuk dan penunjuk tempat.

Entri dan penunjuk tempat dijarakkan. Jika lebih satu penunjuk tempat, pisahkan dengan koma.

Contoh Indeks

❖ Entri nama/perkara

afektif 43

pembelajaran sains 22

Alias Ali 99, 105, 121

penunjuk

tempat

❖ Entri konsep/idea utama televisyen

kajian perbandingan kesan 85 kebaikan 62 keburukan 62

Blurb

1. Maklumat pengiklanan yang terdapat pada kulit belakang buku.
2. Pengiklanan khusus yang memerihalkan buku dan penulis secara ringkas.
3. Menonjolkan keistimewaan buku dan ketokohan penulis (selling point).

Blurb

UTM
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Title

Sinopsis

Biodata

METHANE-CARBON DIOXIDE
Conversions to SYNGAS AND HYDROCARBONS

This monograph describes the new innovation that has recently been developed for the CH_4-CO_2 conversions process. Optimization of CO_2 reforming of methane to synthesis gas with the help of experimental design, empirical modeling and ANN modeling are developed for CORM in presence of oxygen. An overview on thermodynamic equilibrium analysis has shown that an increase of sweep factors induced more significant enhancement on hydrogen permeation than permselective area. The NiO/CeO_2 catalyst showed potential as catalyst for the OCM. The application of a hybrid catalytic DBD plasma reactor has the potential for the co-generation of higher hydrocarbons and synthesis gases from methane and carbon dioxide. Carbon dioxide as co-feed has significant effects on the carbon suppression. It can be concluded that three factors, i.e. CH_4/CO_2 feed ratio, total feed flow rate, and discharge voltage, in the DBD plasma reactor system have significant effects on the reactor performance. The hybrid catalytic DBD plasma reactor is more suitable for CO_2 OCM process than the conventional catalytic reactor over CaO-MnO/CeO_2 catalyst. Further innovation and improvement of current research on CH_4 and CO_2 are required to increase conversion and selectivity and to commercialize the process.

Nor Aishah Saidina Amin is a Professor at the Department of Chemical Engineering, Faculty of Chemical and Natural Resources Engineering, Universiti Teknologi Malaysia. She graduated with a B.Sc (Chemical Engineering) from California State University, U.S.A; M.Sc (Chemical Engineering) from University of Manchester Institute of Science & Technology (UMIST); and Ph.D in Chemical Engineering from Illinois Institute of Technology, U.S.A. She has published numerous articles in international and local refereed journals in the area of applied catalysis, chemical reactor, and reaction engineering. She has led a number of research projects involving conversions of methane and [illegible] to chemicals and fuels. Prof. Dr. Nor Aishah has also served as reviewer to many international refereed journals.

Istadi is an Assistant Professor of Chemical Engineering at Diponegoro University. He earned his B.Eng from Diponegoro University, Indonesia; M.Eng from Institut Teknologi Bandung, Indonesia; and Ph.D from Universiti Teknologi Malaysia. He has published numerous refereed articles in reputable international journals and a book published by Elsevier on utilization of carbon dioxide contented natural gas for fuels production with an emphasis on development of plasma reactor. He has also been appointed as reviewer for numerous reputable international journals.

Tang Chun Yaw is a Process Engineer at Titan Petrochemicals (M) Sdn. Bhd. in Pasir Gudang, Johor. He obtained his M.Eng from Universiti Teknologi Malaysia.

Rurina Isha is a lecturer at Universiti Malaysia Pahang. She obtained her M.Eng from Universiti Teknologi Malaysia

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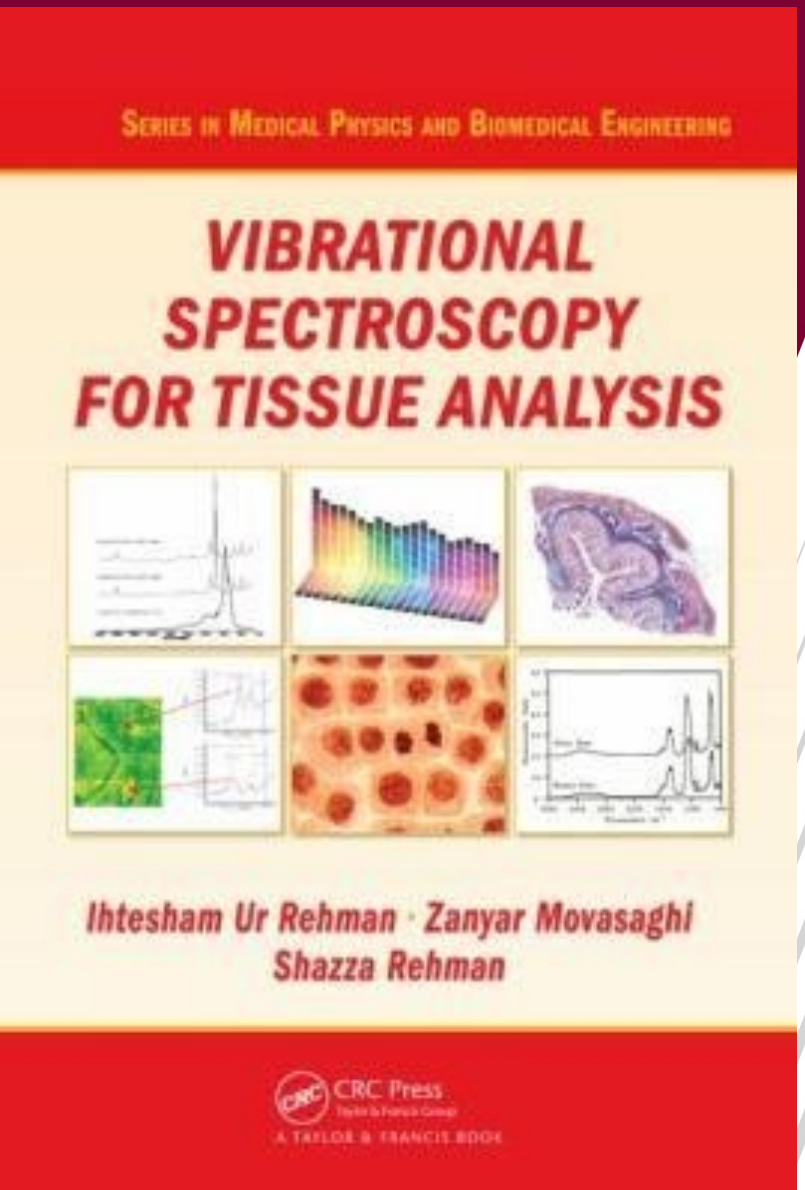
Sinopsis Buku



This book presents a variety of vibrational spectroscopic techniques, focusing on Raman and Fourier transform infrared (FTIR) spectroscopy and their use in noninvasive optical tissue diagnosis. It covers the most recent research in this area to create a unique database of different chemical bands and their assignments of spectral bands. The text explores the spectroscopic investigation of different tissues and samples, including breast tissue, lung tissue, and brain tissue. Based on their years of experience with various applications, the authors provide definitions of peak frequencies as well as other aspects of spectroscopy that could be helpful to a wide range of scientists.

Examples

WILEY-VCH

Joel S. Miller is Distinguished Professor of Chemistry at the University of Utah. He received his PhD from the University of California, Los Angeles, and was a post-doctoral associate at Stanford University. After two decades of research at Industrial Laboratories, he joined the University of Utah in 1993. Professor Miller received the 2000 American Chemical Society Award for Chemistry of Materials and in 2004 the Utah Award from the Central Utah & Salt Lake Sections of the American Chemical Society. His current research interests are the magnetic, electrical, and optical properties of molecule-based materials.

Combining the latest knowled
meeting abstracts and proceed
prehensive overview of the ke
between theory and experimen
students and specialists to this
developing area of research. T
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correlations between electron
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Chemistry

Used primarily for characterizing polymers and biological systems, vibrational spectroscopy continues to uncover structural information pertinent to a growing number of applications. **Vibrational Spectroscopy of Biological and Polymeric Materials** compiles the latest developments in advanced infrared and Raman spectroscopic techniques that are applicable to both polymeric materials and biological compounds. It also presents instrumentation and experimental details that can be used by polymer chemists and biochemists in the design of their own experiments.

The book discusses static and dynamic FT-IR spectroscopies to liquid crystalline polyurethanes. It discusses the measurement of static and dynamic linear dichroism and stress or strain in both single and multiple fiber composite materials, the roles of vibrational spectroscopy, and the Langmuir-Blodgett technique in the study and preparation of high-quality ultrathin materials. The book also covers two-dimensional correlation spectroscopy, vibrational circular dichroism, focal-plane arrays, the use of ligand-gated FT-IR difference spectroscopy in neuropharmacology, and the application of time-resolved FT-IR spectroscopy to biological materials.

Features

- Demonstrates methods that take advantage of recently available mid-IR multichannel detectors
- Outlines the development of modeling methods, utilizing both small molecules and computations
- Describes imaging techniques that utilize molecular vibrational spectroscopy
- Offers techniques for identifying ligands and modes of ligand action for the large number of membrane receptors recently identified in the human genome
- Considers transmission and reflection measurements applied to a wide variety of thin films
- Includes advances in microscopic mid-IR multichannel detectors combined with interferometers
- Provides a detailed guide to the use of commercial step-scan instrumentation for examining sub-millisecond mechanistic details of photobiological processes

Written by eminent experts in these fields, **Vibrational Spectroscopy of Biological and Polymeric Materials** is an ideal and practical reference for the broad spectrum of researchers interested in the analysis and integration of biological and polymeric materials.

DK3415

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Sambungan

Persembahan mengikut gaya penerbitan.

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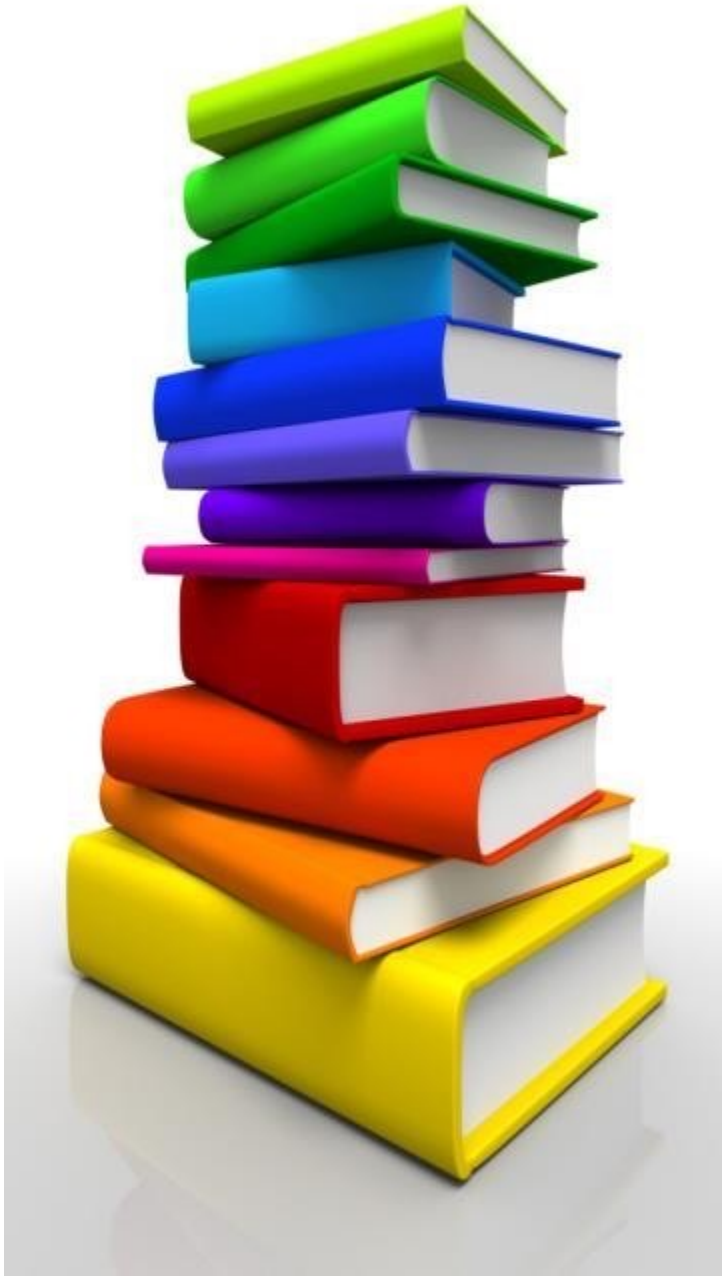
Surat izin hak cipta – bagi rajah, jadual, petikan, dsb.



PROJECT PLANNING AND ORGANIZATION

1. Be sure that you have determined
   - the **topics** you want to cover
   - your **target readership**
   - the overall **format** of the work.
2. If more than one Volume Editor are involved, determine the specific responsibilities of each individual at an early stage.

PROJECT PLANNING AND ORGANIZATION cont'

3. Set firm deadlines for each stage of the project and agree on them with our Acquiring Editor at PUTM Press.
4. The datelines should be ahead of the deadlines communicated to the contributors,
   - include some extra time as contingency for inevitable delays, such as late delivery, additional editing, and other unforeseen difficulties.

PROJECT PLANNING AND ORGANIZATION cont'

5. Material supplied for multi-contributor volumes must be original and not be taken from previously published work. Penerbit UTM Press does not accept re-publication or adaptation of previous works.
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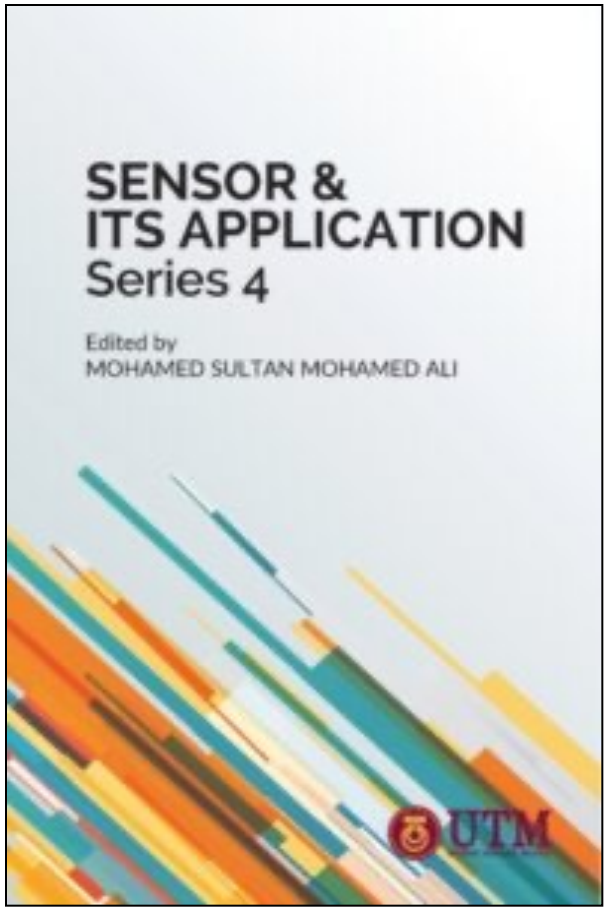


Contents

CHAPTER 1

CHAPTER 1

Aeronautical Engineering Research from a Higher Institution Perspective

Norazila Othman and Mastura Ab. Wahid

1.1 HISTORY PERSPECTIVES

Aviation history dated back since the 15th century. It started from a main three principle laws of motion by Sir Isaac Newton in 1687. He said "*first law is an inertial frame of reference, an object either remains at rest or continues to move at a constant velocity, unless acted upon by a force*", "*second law is an inertial frame of reference, the vector sum of the forces, F, on an object is equal to the mass m of that object multiplied by the acceleration a of the object F = ma*" and "*the third law is when one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction on the first body*". These three principle laws were first complied by Sir Isaac Newton in *Philisophie Naturalis Principia Mathematica* [1]. However, he was not the first person to apply these principles. Some evidence of the use of this principle was found about hundred years ago. This principle was utilised by ancient Egyptians and Chinese [2,3] but

Aeronautical Analysis via Experimental and Computational Approaches
Edited by Norazila Othman and Mastura Ab Wahid

they were no proper documentation to be shared to the people around the word at that time.

Pre-jet engines design started around the year 250BC by Egyptian mathematician and inventor named Hero of Alexandria. He built device called 'Aeolipile' that used steam as a propulsive gas – this is somewhat the same as a steam powered rocket. Figure 1.1 shows the aeolipile by Hero [4]. Research activities continue by Chinese people and they actively discovered gunpowder around AD 1000. The early Chinese were first people to discover the principle of the jet thrust (*see* Figure 1.2) [5]. In different field of design and modelling was obsessed by the idea of human flight. In the early stages of design, Leonardo Da Vinci was made over 35,000 pages and 500 sketches to produce the idea about flying between AD 1486 and AD 1490. One of the ornithopter designs illustrates human-powered flight by flapping wings [6-8] is shown in Figure 1.3(a). In addition around AD 1500, Da Vinci introduced his sketched for the reaction machine as shown in Figure 1.3(b). Da Vincci proved his sketches but not enough time to prove his concepts by testing his machine. Another invention is from Giovanni Branca, he is Italian engineer. In 1629 he invented the pressurized steam exited a boiler through a nozzle and impinged on the blades of a horizontally mounted turbine wheel. The turbine design was implemented using the aero-propulsion theory. His steam machine shows in Figure 1.4 [9].

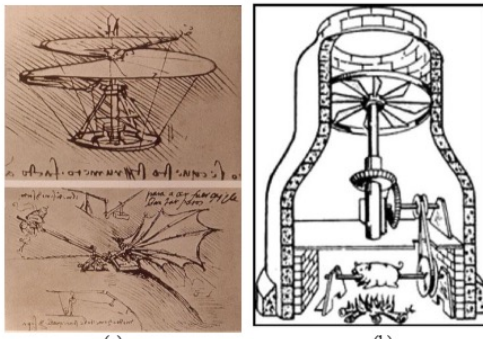
Figure 1.1 Aeolipile of Hero [2]

Then, in 20 years prior to the Wright brothers' successful flight, many individuals in the United States and Europe were working with gliders and unpiloted powered models. All the miscellaneous aero-vehicles' activities in the eighteenth and nineteenth centuries were under the research and development activities [2]. Figure 1.5 to 1.8 show the example of the air vehicles from Du Temple's Airplane, glider of Otto Lilienthal and Glider I and Flyers I of Wright brothers.

Most of the invention was done for the sake of implementing ideas until 1940s. The aero-engineering activities drastically change in 1941, when French Louis Bleroit designed XI monoplane during the time of war in 1914. By the time of war, airplanes had to be equipped with guns, bombs, and torpedoes. The Vickers Gunbus as shown in Figure 1.9 in England was a biplane, which was considered the first aircraft specially designed as a fighter for the Royal Flying Crops. Then before World War II in 1939, jet engines existed only as laboratory items for the test. But at the end of the war in 1945, it was clear that the future of aviation from research to developments were very crucial. The modern design for aviation activities may affect the contribution on World War. The aviation activities at that time was not only focus on engine design, and structure only, they also increase the capability about the aviation fuels, aviation flight mechanics and control and even performance. The documented aspects were important to ease the knowledge searching, policy, rules and establish the name of inventor. They highlight in aeronautics book and others publication [10].

Figure 1.2 Chinese fire arrows [5]

Cont..



(a) (b)

Figure 1.3 (a) Sketching by Leonardo da Vinci (b) Chimney jack of Leonardo da Vinci [1]

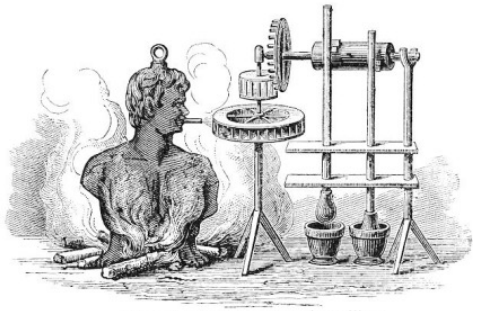


Figure 1.4 Branca's stamping mill [8]

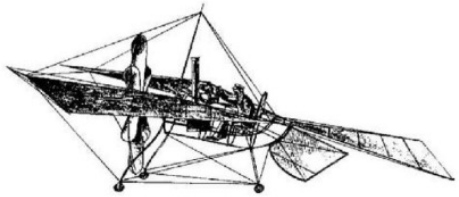


Figure 1.5 Du Temple's airplane [1]

Figure 1.6 Glider of Otto Lilienthal [1]

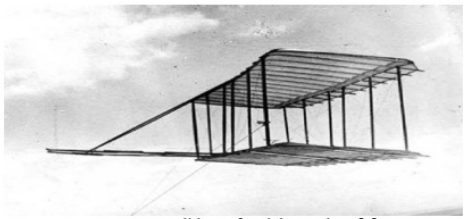


Figure 1.7 Glider I of Wright Brothers [1]

Figure 1.8 Flyer I of Wright Brothers [1]

Figure 1.9 Vickers gunbus [1]

All the previously mentioned inventions are experimental based. As the world developed new technological advancement, numerical method or analysis came into being. For example, the first flight simulator was developed by Edwin Albert Link in 1929 named The Link Trainer which changes the perspective of flying in aviation industry. In 1934, the Army Air Corps required pilots to deliver their mail, but they do not have enough trained pilots to employ. To get pilots in a short time is hard, and they tried to find alternatives to find pilots with pre-training before training them on real aircraft. They found the Link trainer and purchased them. By 1960s, the use

of the Flight Simulator became an integral part of all commercial airline operations and for both safety and training effectiveness. When analogue computers were invented during the World War II, the technology made available to solve the flight equations of motion of the aircraft thereby allowing simulation of the response to aerodynamic forces rather than empirical duplication of their effects. Many of the early generation analogue devices actually contained both forms of simulation; however certain devices were indeed true analogues, and these were certainly the direct ancestors of the modern flight simulator [11]. After the war, competition from Curtiss-Wright stimulated Link to develop their own electronic simulators using analogue computation and this was used in their C-11 Jet Trainer for which a contract was awarded by the U.S. Air Force in 1949 [12].

For the aircraft manufacturer such as Boeing and Airbus, the industries have invested in Computational Fluid Dynamics (CFD) to design their aircraft for over about 50 years ago. Since1973, an estimated 100 to 200 computer runs simulating flows about vehicles were made at Boeing Commercial Airplanes. It was said that through Boeing experience, but using computational approach or CFD analysis, the wind tunnel testing was reduced to 50% usage. As for Airbus view, its' major objective is the reduction of aircraft development lead-time and the provision of robust solutions with highly improved quality. They tried to exploit the capability of numerical simulation tools, such as high fidelity multi-disciplinary Computational Fluid Dynamics (CFD) and powerful High Performance Computing (HPC) capabilities to simulate the aircraft aerodynamics, design optimization and virtual flight test [13].

Based on the history of aviation presented, the knowledge and exploration in aviation engineering are endless. As the world kept developing new technological advancement, there are more and more aviation issues to be solve such as developing aerodynamically optimized wing for fuel saving, reducing or recycling composite waste, developing a new reconnaissance UAV with vertical take-off capability and testing new control algorithm to improve aircraft trajectory. The examples given are only a fraction of real world

aviation issues. Therefore, continuous research and development activities involving modelling, design, and technical analysis is needed to solve the issues in this field. Variety of method have been tried to solve in aeronautics issues that requires both experimental and computational approaches.

1.2 MOTIVATION ON RESEARCH DEVELOPMENT IN AERONAUTICS FIELD IN MALAYSIA

The Aviation Sector whether it is Maintenance Repair Overhaul (MRO), Airline, Aviation Design and Research sector in Malaysia are many and can be seen in Figure 1.10. The list is not the complete list of Aviation Company in Malaysia. These different sectors, can share, learnt different knowledge and help one another.

- Aerolab Universiti Teknologi Malaysia,Skudai
- Universiti Sains Malaysia Engineering Campus
- Faculty of Engineering, Universiti Putra Malaysia
- Kulliyyah of Engineering
- Airbus Helicopters Malaysia Sdn Bhd
- AirAsia RedQ
- Engineering Complex Malaysia Airlines Berhad
- Airod Sdn Bhd
- AgustaWestland Malaysia Sdn Bhd
- BHIC AeroServices Sdn Bhd
- Sapura Aero (AMEC)
- Sunsero Asia
- Sepang Aircraft Engineering Sdn Bhd
- CTRM Aero Composites Sdn Bhd
- IAC Manufacturing (Malaysia) Sdn Bhd
- Safran Landing Systems Malaysia Sdn. Bhd.
- GE Engine Services Malaysia Sdn. Bhd.
- Airbil Services Sdn. Bhd.
- Honeywell Aerospace
- HONEYWELL
- GHN Aerospace
- Layang-Layang Aerospace Sdn Bhd
- MASwings
- Aerospace Composites Malaysia Sdn Bhd
- Weststar Aviation Services Sdn. Bhd.

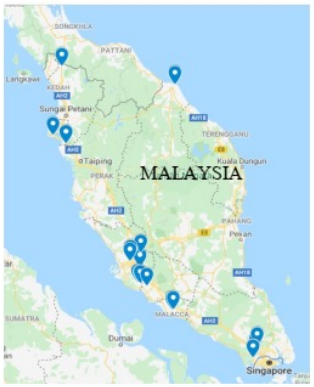


Figure 1.10 Aviation Sectors in Malaysia

In the perspective of a university as a research centre, our aim is to share new technic of experiment, new knowledge and new skills to the general and future generation. The results and findings are properly documented for distribution to the general public and future generation. In this book, the development from problem statement to solution proposal and implementation is discussed and we believe that it is suitable as a platform for beginner of aeronautical designers to read and understand the analysis process for a specific problem such as plasma actuator design, helicopter effect phenomenon and flight test scheme. In addition, both researchers and students also can use this book as reference book for their work regarding the aeronautics problem. The readers of this book will be exposed on the option to perform aeronautical engineering research either through experiment and simulation. They should be aware of the key elements in any of the methods and how one can implement different solution to solve ones' problem.

Therefore, by having the high motivation to publish this book we target the objective is to establish the aeronautics engineering method such as aircraft design and modelling, structural analysis and control through experiment or simulation. The second objective is to share the information of the aeronautic engineering knowledge to the audience who is not familiar in this field. We hope that, by having this book in the local market of Malaysia, aeronautics field can be one of the familiar programmes and it will benefit Malaysian and aviation industry. We also hope that the aviation industry will trust our researchers in aeronautical field to help solve their problem.

1.3 CONTRIBUTION OF KNOWLEDGE

Aeronautical analysis is concerned about the making decisions based on details analysis, which directly impact the aeronautics application being designed. Many application of aeronautics involve the design for unmanned aerial vehicle, helicopter and conventional aircraft. To accomplish this, aeronautics engineers typically engage

in a great deal of analysis to understand the background to their decisions.

The way of gaining this desire is by increasing their insight into the problems being studied via two main approaches, i) experimental and ii) computational. Experimental approach basically the exact solution for the real application analysis in aeronautical field but we need to spend high cost and operation and computational approach is basically the prediction analysis that we believe from this approach we can reduce the experimental cost. Even, when we successful develop the optimise computational, we also can reduce the computational time and cost. By establishing the knowledge in aeronautics field, the aviation industry such as Design Engineering, UAV builders, Automobile designer and engineering students may understand the needs in order to improve the industry and their own knowledge. Even in the design department of airline industry also needs to understand about the decision rule during design, modelling and testing activities in this field.

1.4 OVERVIEW OF EDITED BOOK

This book is divided into two parts. The first part gathered the research on experimental approach and the second part is computational approach to analyse the performance of aeronautical analysis. In Chapter 1, this book tries to share the information knowledge regarding the history perspective for development in Aeronautics field, then continue with the motivation of producing this book to share the knowledge about the current research and development from our local researchers in the aeronautics field. In addition, in chapter 1, we show how the research from local expertise in aeronautics may contribute to nation by transfer of knowledge to the aviation industry and other organisations.

In the Chapter 2, we highlighted about the synthetic jet actuators methodology that is important to help the advanced research in aeronautics analysis using the wind tunnel system. First we describe about the fundamental of synthetic jet actuators using the schematic diagram to ease the understanding of the jet actuators

formation. Then, we extend the explanation about this experim based on the parameter of the synthetic jet actuators that can aff it performances.

Chapter 3 describes the famous lifting surface body call blended wing body. We show the importance of wind tunnel testi for aeronautical application for blended wing body. Before we st the experiment, we need to fulfil the procedure of experimen setup. In this chapter, we describe about the sizing of the local ma of blended wing body that we produce in our Aeronaut Laboratory in Universiti Teknologi Malaysia. We would like share our capability in order to prepare this model. Then, we pl the test configuration of the blended wing body. As usual, we sha the knowledge about the finding of blended wing body experimen performance. Last but not least, in this chapter we summarize h important we need to establish this research in aeronautics field the airline industry.

Chapter 4 explains about the phenomenon of the helicopter t shake. Starting with the introduction of the phenomenon, we ho that the reader will be aware about this situation. In order to visual the phenomenon and to measure the value characteristics effect this phenomenon the wind tunnel system could design to perfo the aerodynamics characteristics on helicopter tail shake. As blended wing body, helicopter model is also prepared for the mo of wind tunnel based. The sizing and testing parameter w prepared. Then the effects to the phenomenon were collected as t new finding for this phenomenon. In summary, we establish t knowledge about the helicopter tail shake phenomenon that believe can help the aviation industry especially for helicop purpose.

Chapter 5 describes about the flight testing activities aeronautics field. This is one of the important activities in order know the aircraft performance during flying. The different types aircraft will give the different flying performance. Therefore, sharing the knowledge about the flight testing will help the begin in aeronautics field about the designing small aircraft or unmann aerial vehicle. Here we describe the procedure and control item t

we need to prepare before we go through the flight testing. In summary, this chapter is important to other aeronautics beginner in order to make their small airplane.

Chapter 6 is the first chapter in the computational and numerical theme. Here it explains the design process on designing an unmanned aerial vehicle (UAV) with the vertical take-off and landing capability. Here, it explains about the conceptual design from parametric study, obtaining the aerodynamic characteristic to performance analysis. The readers can get the overall design perspective from this chapter and understand important parameters to take into account when design UAV.

Chapter 7 starts with the sharing knowledge about the computational approach based PID and LQR controller applied in MATLAB Simulink. In chapter 6, the development of UAV is done, in order to fly the aircraft, a controller is required. The usage of the PID and LQR controller is important in order to capture the motion of any uncontrollable situation to be stable and to ensure the aircraft follows the right command. MATLAB is powerful solver to solve the aeronautics problem application. In this topic we also describe the Simulink process development from the fundamental perspective views until solving the problem. The result also shows the methodology to design the controller and what can be changed to improve the performance of the controller.

In Chapter 8, we try to explain about the stability augmentation system (SAS) – a more advance control compared to the one presented in Chapter 6. In addition, this topic tries to elaborate the relationship between stability augmentation systems with the optimal and fuzzy controller theory for high manoeuvrability aircraft. In order to make sure this theory can be used for the aeronautics application and aircraft design purposely, we test for the F-16 aircraft. Successful theory based on SAS using optimal and fuzzy control theory is shown using the good results and explain how it will use in future study especially in aeronautics field.

Chapter 9 explains about the hyperbolic lifting surface in harmonic oscillations. In this chapter, we try to convince the audience, how important the analysis of lifting surface in

aeronautics field. The theory behind the application is well described in order to make sure the audience able to understand. In addition, from theory of lifting surface, the effect to the harmonic oscillations was described in details. Then the computational steps also were shared to share the experience to handle this application in aeronautics field.

Last but not least, chapter 10 explains about the finite element theory is used to solve the structural aeronautics applications. In conclusion the making of decisions based on the computational approach is important to support the experiment approach for predicted value before experiment approach is implemented. The computational power needed to support advanced decision making based on automated calculations of big data and processes of the familiar analysis tools.

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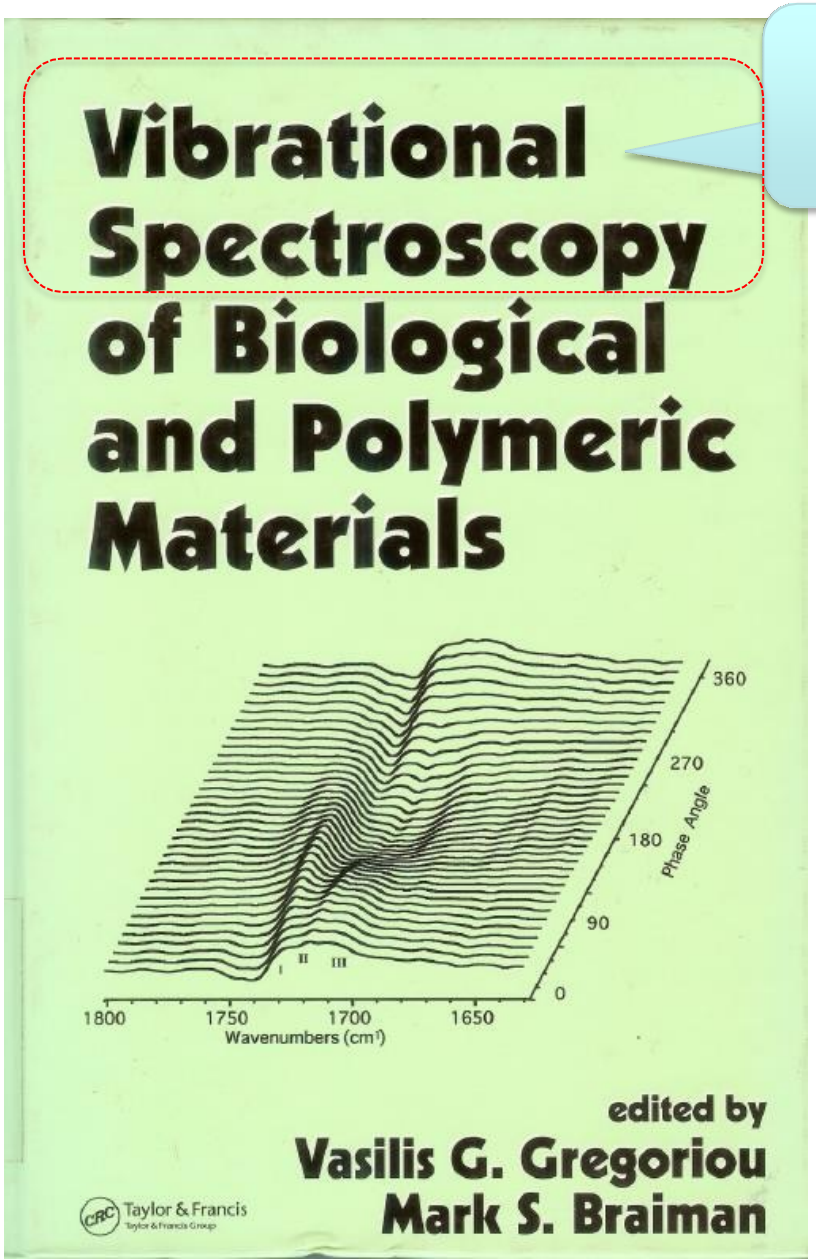
INDEX

Index

Ciri-ciri Khusus - Bab dalam Buku *Edited Book*

1. Terdiri daripada bab-bab yang berasingan tetapi diikat oleh satu tema yang sama.
2. Disusun dengan rapi.
3. Hasil sumbangan beberapa orang penulis dan disunting.
4. Diberi pengantar oleh seorang atau beberapa orang Editor.
5. Menggambarkan kesarjanaan dan kecemerlangan penyelidikan.

Theme of this book?



Theme

Table of Contents

Guideline for Edited Book Application

GENERAL CRITERIA:

1. The minimum number of chapters in an edited book is **10 chapters.**
2. Each chapter must have **not more than four (4) authors. At least one author must be an academic staff of UTM.**
3. **The number of pages** of each chapter must be proportional with regards to other chapters.
4. The book is organized by a **maximum of two (2) editors.**
5. Organizing editors may contribute to a **maximum of three (3) chapters only** including the **introductory chapter** that covers all chapters in the book.
6. The title of the edited book may not exceed seven (7) words and must **embody all topics** covered by all chapters in the book.
7. Each chapter in the book must undergo a plagiarism check using the Turnitin application. The permitted similarity must be less than **20%** only or **7%** for each chapter.

Source: https://penerbit.utm.my/editedbook

Kriteria Karya Suntingan *(Edited Books)*

Bilangan Bab

- Sekurang-kurangnya mengandungi **10 bab.**
- Setiap bab hendaklah mempunyai **tidak lebih daripada empat (4) penulis. Salah seorang penulis mesti terdiri daripada staf akademik UTM.**
- **Bilangan halaman** bagi setiap bab mestilah seimbang antara bab-bab yang lain.

kriteria…

Bab Pengenalan NEW!

- Dalam setiap naskhah karya suntingan (*edited books)*, bab 1 akan dijadikan sebagai bab pengenalan.
- Ciri-ciri bab pengenalan:
  - Disumbangkan oleh editor penyelenggara.
  - Menyorot perkembangan ilmu dalam bidang tajuk buku.
  - Merangkumkan kesemua bab yang ada dalam buku.
  - Meringkaskan kesemua topik mengikut kacamata editor penyelenggara dan menyatakan sumbangannya terhadap pembangunan bidang ilmu.

kriteria…

Editor Penyelenggara

- Buku diselenggara sepenuhnya oleh maksimum **2 orang editor penyelenggara.**
- Editor penyelenggara boleh menyumbang **maksimum 3 bab sahaja** berserta dengan **bab pengenalan** yang merangkumkan semua bab-bab yang terkandung dalam buku.

kriteria…

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- Manuskrip lengkap mestilah dihantar ke Penerbit UTM *Press* dalam **tempoh masa 9 bulan** selepas kelulusan Panel Karya Suntingan (*Edited Books*).
- Manuskrip karya suntingan (*edited books*) yang mahu diterbitkan dalam tahun semasa perlu sampai ke Penerbit UTM *Press* **sebelum 31 Ogos**.

Pemantauan Kualiti NEW!

Plagiarism

- Setiap bab dalam buku mesti melalui proses semakan plagiarism menggunakan aplikasi Turnitin.
- Peratusan persamaan yang dibenarkan adalah **<20%** sahaja atau **7%** untuk setiap bab.

Pemantauan Kualiti

Topik

- Judul karya suntingan (*edited books*) yang ringkas dan tidak sempit membolehkan lebih banyak pelbagai topik dalam tujahan bidang yang sama dapat dimuatkan dalam buku tersebut.
- Bab-bab dalam karya suntingan (*edited books*) boleh dibahagikan kepada beberapa segmen/*parts* mengikut kesesuaian topik.

Pemantauan Kualiti

Contents

Pemantauan Kualiti

Penggunaan bahasa ilmiah

- Bahasa yang digunakan sama ada Bahasa Malaysia atau bahasa Inggeris haruslah menepati piawai penerbitan.
- Cara penulisan dan lenggok bahasa yang digunakan mencerminkan kewibawaan penulis/editor penyelenggara.

Diindeks dalam Scopus Books

- Untuk meningkatkan *citation index* dan *visibility* karya ilmiah penyelidik UTM, Penerbit UTM *Press* bercadang untuk menghantar naskhah karya suntingan (*edited books*) terbitan UTM *Press* untuk diindeks dalam *Scopus Books*.
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  3. Meningkatkan keupayaan dan kecekapan staf dalam penerbitan digital .

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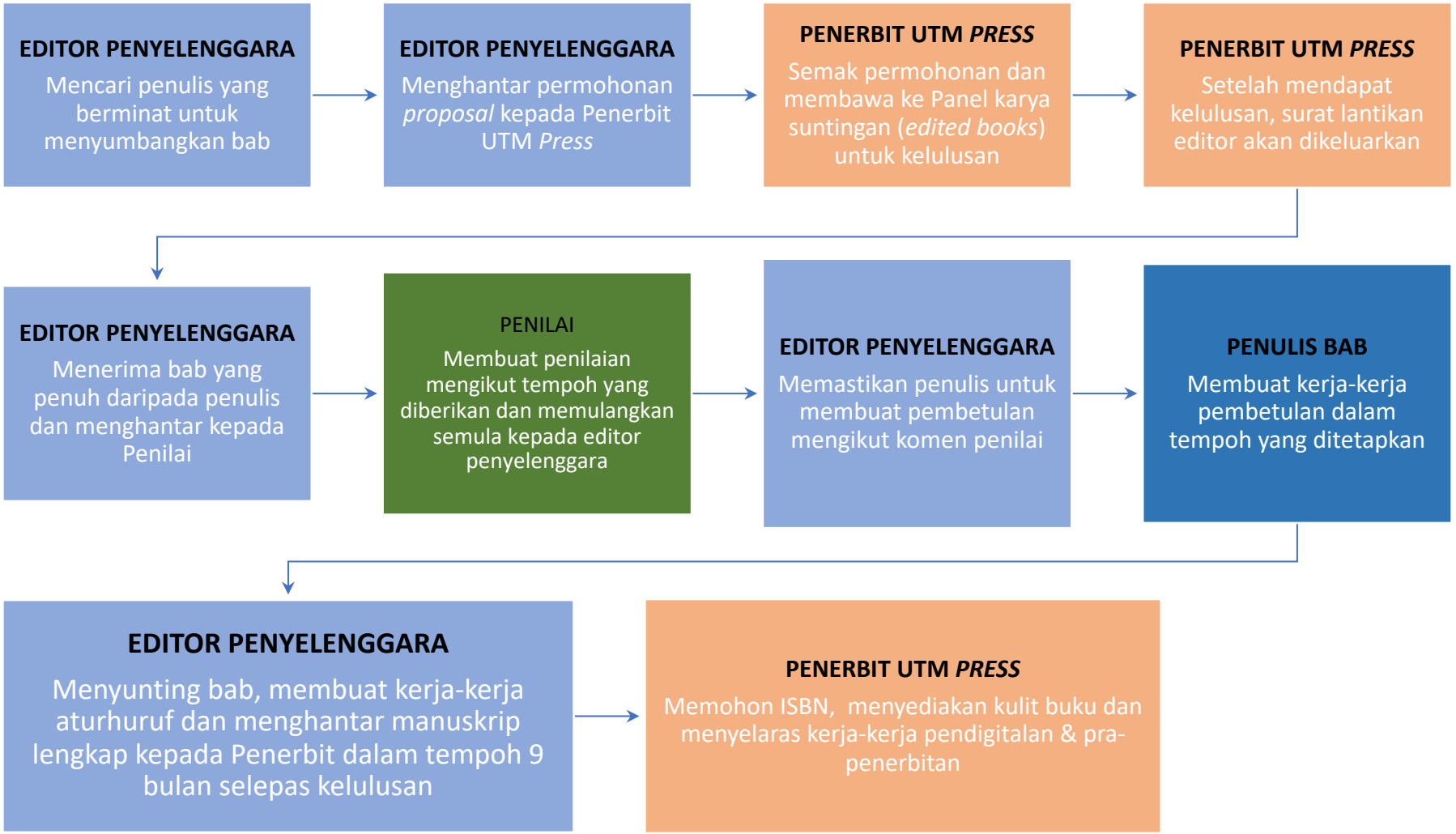

Proses Permohonan Karya Suntingan *Edited Books*

- Isi Borang Cadangan Permohonan Karya Suntingan (*Edited Books*) - perlu dapat sokongan Dekan Fakulti.
- Sertakan:
- Abstrak bagi setiap bab.
- CV Editor penyelenggara.
- CV penilai *(Reviewers)*

Proses Penghantaran Manuskrip Lengkap (CRC)

Borang ***Manuscript Submission Checklist & Editor Verification***

Borang ***Permission Verification***

Laporan Turnitin

Salinan Borang ***REVIEW FORM*** daripada penilai

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