FACULTY OF COMPUTING
UTM Johor Bahru

UTM THESIS ABSTRACT GUIDELINES

This guideline is compiled by the Academic Team, Faculty of Computing

The abstract **must be bilingual**.

- For a thesis written in **English**, the abstract must first be written in **English**, followed by the **Bahasa Melayu** translation.
- For a thesis written in **Bahasa Melayu**, the abstract must first be written in **Bahasa Melayu**, followed by the **English** translation.

The abstract must be **brief**, written in **one paragraph**, and **must not exceed one (1) page**.

CONTENT OF THE ABSTRACT

An abstract should clearly and concisely include the following elements:

1. **Introduction**
2. **Problem Statement**
3. **Aim / Objectives**
4. **Methodology**
5. **Results and Achievements**
6. **Expectations / Implications**

GUIDELINES FOR THE ENGLISH ABSTRACT

- Write the English abstract (150–300 words) using **clear, coherent, and formal academic English**.
- Ensure that the use of **English is consistent**, adopting **either UK English (recommended, as it is commonly used in Malaysia)** or **US English**, and **not a mixture of both**.
- Abbreviations should be introduced **at the first mention of the full term** and used **consistently thereafter** throughout the abstract.
  - *Example:* Machine Learning (ML).
- Ensure that terminology used in the abstract is **consistent with the terminology used in the thesis**.
- All English abstracts may be pre-checked using grammar tools (e.g. Grammarly); however, **final responsibility for accuracy remains with the student and supervisor**.

GUIDELINES FOR THE MALAY ABSTRACT

- Write the Malay abstract (150–300 words) using **correct Bahasa Melayu grammar, spelling, punctuation, and academic style**.
- Ensure that all technical terms are **accurately translated into Bahasa Melayu**, with reference to **Dewan Bahasa dan Pustaka (DBP)** (https://prpm.dbp.gov.my/).
- Abbreviations must be **consistent with the English version**:
  - Retain the **English abbreviation** in both abstracts.
  - *Example:* Pembelajaran Mesin (ML).
- Avoid literal translations that may distort the intended meaning.
- Ensure that the **content and meaning are fully aligned** with the English abstract.

COMMON ISSUES TO AVOID

- Incorrect or missing abbreviation at first mention.
- Inconsistent terminology between English and Malay versions.
- Poor Malay grammar or incorrect technical translations.
- Over-reliance on AI-tools/machine translation without proper revision.

TENSE GUIDE FOR THESIS ABSTRACT

For a thesis abstract, you should use a **mix of tenses** depending on what you are describing:

Section of Abstract	Tense	Example
Background/problem statement	**Simple present**	*"Data quality remains a key challenge..."*
What the study does/aims	**Simple present**	*"This study investigates..."*
Methods used	**Simple past**	*"Data were collected from 200 respondents..."*
Results/findings	**Simple past**	*"The model achieved 94% accuracy..."*
Conclusions/implications	**Simple present**	*"The findings suggest that..."*

General Rules

- **Simple present** is used for facts, objectives, and conclusions; things that are still true at the time of reading.
- **Simple past** is used for specific actions you completed; data collection, experiments, analysis, since these happened at a definite point in time.
- **Avoid future tense** (e.g., "this study *will* examine...") in a completed thesis abstract, as the work is already done.
- **Avoid passive overuse** — while passive voice is acceptable in methods (*"interviews were conducted"*), active voice improves readability (*"this study proposes a framework"*).

Example

"Supply chain disruptions pose significant risks to manufacturing efficiency **(present)**. This study **examines** the application of machine learning for predictive analytics in supply chain management **(present)**. A dataset of 5,000 records from Malaysian SMEs **was collected** and analysed using a Random Forest algorithm **(past)**. Results **showed** that the proposed model **achieved** 91.3% prediction accuracy **(past)**. The findings **suggest** that integrating AI-based tools can significantly enhance supply chain resilience **(present)**."*

This mixed-tense approach is consistent with guidelines from major academic style guides including APA 7th Edition and is widely practised in computing and engineering theses.

SAMPLE

ABSTRACT

The scheduling problem in Flexible Manufacturing Systems (FMS) is considered dynamic, as new orders may arrive intermittently on a day-to-day basis. Consequently, a rescheduling process is required to accommodate newly arrived orders into the existing production schedule while maintaining efficiency and stability. However, frequent rescheduling may lead to instability and a lack of continuity in the current shop-floor plan. Therefore, this research aims to propose a practical and effective rescheduling approach that takes into account real FMS environments as well as desired manufacturing objectives. The proposed approach is designed to provide high-quality solutions not only in terms of efficiency but also stability. An enhanced Genetic Algorithm incorporating constrained chromosomes and appropriate genetic operators is employed to generate high-performance predictive schedules. Subsequently, both non-reshuffle-based and reshuffle-based genetic match-up approaches are applied to accommodate new orders by manipulating available machine idle times and resequencing allocated operations on machines, respectively. The efficiency and stability of schedules produced by the proposed (re)scheduling algorithms were investigated and compared. The rescheduling methodology was successfully tested using benchmark datasets and validated in a real FMS environment based on performance measures such as tardiness, earliness, flow time, and schedule stability. Experimental results demonstrate that the proposed algorithms are practical and effective in producing reasonably high-quality solutions that meet the desired manufacturing objectives.

SAMPLE

ABSTRAK

Masalah penjadualan dalam sistem pembuatan fleksibel (FMS) dianggap bersifat dinamik kerana pesanan baharu boleh diterima secara berselang dari hari ke hari. Oleh itu, satu proses penjadualan semula diperlukan bagi menyesuaikan pesanan baharu ke dalam jadual pengeluaran sedia ada sambil mengekalkan kecekapan dan kestabilan sistem. Walau bagaimanapun, penjadualan semula yang kerap boleh menyebabkan ketidakstabilan serta kekurangan kesinambungan dalam pelan operasi di aras bengkel. Sehubungan itu, kajian ini bertujuan untuk mencadangkan satu pendekatan penjadualan semula yang praktikal dan berkesan dengan mengambil kira persekitaran FMS sebenar serta objektif pembuatan yang diinginkan. Pendekatan yang dicadangkan direka bentuk untuk menghasilkan penyelesaian berkualiti tinggi bukan sahaja dari segi kecekapan tetapi juga kestabilan. Satu Algoritma Genetik yang dipertingkatkan dengan menggabungkan kromosom terkekang dan operator genetik yang bersesuaian digunakan bagi menjana jadual ramalan berprestasi tinggi. Seterusnya, pendekatan padanan genetik berasaskan kaedah tanpa pengacauan semula dan dengan pengacauan semula diaplikasikan untuk menyesuaikan pesanan baharu masing-masing melalui manipulasi masa lengah mesin yang tersedia serta penyusunan semula operasi yang telah diperuntukkan pada mesin. Kecekapan dan kestabilan jadual yang dihasilkan oleh algoritma (penjadualan semula) yang dicadangkan telah dikaji dan dibandingkan. Metodologi penjadualan semula ini telah berjaya diuji menggunakan set data penanda aras serta disahkan dalam persekitaran FMS sebenar berdasarkan ukuran prestasi seperti kelewatan, keawalan, masa aliran dan kestabilan jadual. Keputusan eksperimen menunjukkan bahawa algoritma yang dicadangkan adalah praktikal dan berkesan dalam menghasilkan penyelesaian berkualiti tinggi yang munasabah serta memenuhi objektif pembuatan yang ditetapkan.