**Universiti Teknologi Malaysia**

**IJAZAH DOKTOR KEJURUTERAAN INDUSTRI/PENDIDIKAN KEJURUTERAAN**

***(DEGREE OF DOCTOR OF ENGINEERING/INDUSTRIAL/ENGINEERING EDUCATION)***

**LAPORAN PEMERIKSAAN TESIS/DISERTASI KEJURUTERAAN INDUSTRI/PENDIDIKAN KEJURUTERAAN**

***(EXAMINER’S REPORT ON DOCTOR OF ENGINEERING/INDUSTRIAL/ENGINEERING EDUCATION)***

|  |  |  |  |
| --- | --- | --- | --- |
| Nama Calon :  *(Name of Candidate)*  Fakulti/Pusat :  *(Faculty/Centre)* | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | Tajuk Tesis /Disertasi :  *(Title of thesis/ dissertation)* | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

|  |  |
| --- | --- |
| Nama Pemeriksa dan Institusi :  *(Name of Examiner and Institution)* | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

# Sila tandatangan di dalam ruang yang disediakan UNTUK PERAKUAN tandatangan

(*Please initial in space provided for the recommendation*) (*INITIAL)*

1. **Perakuan *(Recommendation)***

Setelah memeriksa tesis/disertasi, saya perakukan *(After examining the thesis/dissertation, I recommend that)*

a) Calon dianugerahkan ijazah Doktor Kejuruteraan/Doktor Falsafah *(The candidate be awarded the degree of Doctor of Engineering/Doctor of Philosophy ………………………………………………………………………. \_\_\_\_\_\_\_\_*

atau *(or)* b1) Calon dianugerahkan ijazah Doktor Kejuruteraan/Doktor Falsafah setelah membuat pembetulan kecil *(The candidate be awarded the degree of Doctor of Engineering/Doctor of Philosophy subject to minor corrections)*;*………………………………... \_\_\_\_\_\_\_\_*

atau *(or)* b2) Calon dianugerahkan ijazah Doktor Kejuruteraan/Doktor Falsafah setelah membuat pindaan/pembetulan kepada tesis/disertasi seperti yang disenaraikan dalam laporan ini dan disahkan telah berbuat demikian oleh Pemeriksa Dalam/Luar berkenaan; *(The candidate be awarded the degree of Doctor of Engineering/Doctor of Philosophy subject to the amendments/corrections as listed elsewhere in this report being made in the thesis/dissertation to the satisfaction of the Internal/External Examiner(s))…………………………………… … \_\_\_\_\_\_\_\_*

atau *(or)* c) Calon tidak dianugerahkan ijazah Doktor Kejuruteraan/Doktor Falsafah tetapi dibenarkan menghantar semula tesis/disertasi untuk pemeriksaan setelah menjalani kajian dan penyelidikan lanjutan. *(The candidate not be awarded the degree of Doctor of Engineering/Doctor of Philosophy but be permitted to resubmit the tesis/ dissertation for further examination in a revised form after a further period of study and research)*; *………….. \_\_\_\_\_\_\_\_\_*

atau *(or)* d) Pencapaian calon tidak memuaskan untuk ijazah Doktor Kejuruteraan/Doktor Falsafah tetapi dicadangkan satu ijazah yang lebih rendah. *(The candidate not be awarded the degree of Doctor of Engineering/Doctor of Philosophy but a lower degree)*; *\_\_\_\_\_\_\_\_\_*

atau *(or)* e) Calon tidak dianugerahkan ijazah Doktor Kejuruteraan/Doktor Falsafah *(The candidate not be awarded the degree of Doctor of Engineering/Doctor of Philosophy)………….…………………………………………………… \_\_\_\_\_\_\_\_\_*

2. **Pendapat *(Opinion)***

Saya berpendapat *(In my opinion)*

1. Tesis/Disertasi ini mengandungi banyak sumbangan kepada (*Thesis / dissertation has substantial contribution to*)
   1. industri/organisasi (*industry/organization*)…………………………………………..………… \_\_\_\_\_\_\_\_
   2. inovasi (*innovation*)…………………………………………..………… \_\_\_\_\_\_\_\_
   3. pembangunan ilmu (*knowledge development*)…………………………………………..………… \_\_\_\_\_\_\_\_

b) Keaslian tesis/disertasi dibuktikan dengan penemuan fakta-fakta baru *(Thesis/dissertation affords evidence of originality/novelty by the discovery of new facts)*; \_\_\_\_\_\_\_\_

c) Keaslian tesis/disertasi dibuktikan dengan kebolehan memberi kritikan yang bernas dan jelas *(Thesis/ dissertation affords evidence of originality/novelty by exercising of independent critical ability)* \_\_\_\_\_\_\_\_

d) Tesis/Disertasi ini memuaskan dari segi penyampaian *(Thesis/dissertation is satisfactory with regards to literary presentation;)* \_\_\_\_\_\_\_\_

e) Terdapat hasil kajian dalam tesis/disertasi ini sesuai untuk diterbitkan *(A significant amount of findings in the thesis/dissertation are worthy of publication;)* \_\_\_\_\_\_\_\_

3. **Merit**(*Merit*)

Calon layak dianugerahkan ‘merit’ sekiranya keputusan pemeriksaan tesis pada Bahagian 1 diatas adalah A dan B1 */The candidate may be awarded with ‘merit’ provided that the result of thesis examination in Part 1 is A or B1*).

Dalam membuat perakuan di atas, saya sahkan calon adalah cemerlang untuk ijazah ini dan dianugerahkan ijazah dengan **merit**. (*In making the above recommendation, I consider that the candidate is outstanding for this degree and should be awarded the degree with m****erit****) …………………………………………………………………………… \_\_\_\_\_\_\_\_* Tandatangan *(Signature):*……………………………………………. Tarikh *(Date)*: …………………………..

4. Sila berikan ulasan terhadap perkara berikut untuk dijadikan asas perakuan **(*Please* *comment on the following aspects as the grounds for recommendation*)**

4.1 Tajuk tesis/disertasi *(The title of thesis/ dissertation)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.2 Abstrak *(Abstract*)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.3 Pengenalan, Masalah Penyelidikan, Objektif, Skop dll. *(Introduction, Research Problem, Objective, Scope etc.)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.4 Kajian Literatur *(Literature Review)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.5 Methodologi *(Methodology)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………

4.6 Analisis *(Analysis)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………...

4.7 Keputusan dan perbincangan *(Results and discussions)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.8 Kepentingan sumbangan kepada (*Significance of contribution to*)

(i) industri/organisasi (*industry/organization*)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

(ii) inovasi (*innovation*)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

(iii) pembangunan ilmu (*knowledge development*)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.9 Kekuatan Tesis/Disertasi *(Strength of thesis/dissertation)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.10 Kelemahan Tesis/Disertasi *(Weakness of thesis/dissertation)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.11 Kepentingan Kajian *(Significance of the study)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.12 Perakuan penganugerahan *(Recommendation for the award)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

4.13 Lain-lain ulasan *(Other comments)*

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………