

KERTAS KERJA: BENGKEL *SMARTPHYSICS* 2.0

The Bengkel SmartPhysics 2.0 workshop represents an innovative approach to enhancing physics education at Kolej Matrikulasi Sarawak. Designed to prepare students for the challenging PSPM 2 Physics (SP025) examination, this intensive one-day program combined expert-led instruction with collaborative learning strategies. The workshop featured interactive sessions on effective study techniques, specialized exam answering methods, and focused revision of difficult topics, facilitated by the college's physics faculty. The initiative successfully boosted student confidence and examination readiness. The program's structured yet dynamic format, which moved beyond conventional classroom teaching methods, proved particularly effective in addressing knowledge gaps and improving problem-solving skills. Future developments could explore integrating digital learning tools to expand the workshop's reach and effectiveness. This initiative demonstrates the value of targeted, faculty-led interventions in improving STEM education outcomes at the matriculation level.

Keywords: Physics education, exam preparation, workshop-based learning, matriculation education, STEM pedagogy



**KOLEJ MATRIKULASI SARAWAK
KEMENTERIAN PELAJARAN MALAYSIA**

KERTAS KERJA

BENGKEL *SMARTPHYSICS* 2.0

TARIKH
14 APRIL 2023

ANJURAN
UNIT FIZIK

KERTAS KERJA

BENGKEL *SMARTPHYSICS*
KOLEJ MATRIKULASI SARAWAK

1.0 TUJUAN

Kertas kerja ini bertujuan untuk memohon kelulusan daripada Pengarah Kolej Matrikulasi Sarawak, Kementerian Pendidikan Malaysia bagi melaksanakan **BENGKEL *SMARTPHYSICS 2.0*** di Kolej Matrikulasi Sarawak (KMSw).

2.0 PENGENALAN

BENGKEL *SMARTPHYSICS 2.0* merupakan satu bengkel yang dijalankan sebagai persiapan bagi pelajar-pelajar KMSw menghadapi peperiksaan PSPM 2. Bengkel ini merupakan perkongsian teknik menjawab soalan peperiksaan bersama pensyarah-pensyarah Unit Fizik KMSw bagi meningkatkan pencapaian pelajar bagi kursus SP025 pada PSPM 2.

3.0 OBJEKTIF

Objektif bengkel ini adalah seperti berikut:

1. Meningkatkan motivasi pelajar untuk menghadapi PSPM.
2. Meningkatkan kemahiran teknik menjawab yang terkini bagi soalan SP025 di kalangan pelajar dan pensyarah KMSw.
3. Memperkenalkan teknik menjawab di luar norma kelas harian

4.0 TARIKH

14 April 2023

5.0 MASA

Sabtu : 8.00 pagi – 2.00 petang

6.0 TENTATIF PROGRAM

Tarikh : 14 April 2023

Masa : Ahad (8.00 pagi – 2.00 petang)

Masa	Aktiviti	Strategi	Penceramah / Fasilitator
08.00 am – 09.30 am	<i>Smart Study Tips</i>	<ul style="list-style-type: none">Perkongsian teknik pembelajaran yang baik	Pn. Mary Gwadoline Anak Yusus Pn. Misinah Mahamad Fadzil En. Shafiq bin Rasulan En. John Liew Keng Hong
09.30 am – 10.30 am	Perkongsian teknik menjawab soalan PSPM	<ul style="list-style-type: none">Tips persediaan akhir sebelum PSPM 1.	Pn. Mary Gwadoline Anak Yusus Pn. Misinah Mahamad Fadzil En. Shafiq bin Rasulan En. John Liew Keng Hong
9.30 am – 11.30 pm	Bengkel <i>SmartPhysics 2.0</i>	<ul style="list-style-type: none">Ulangkaji ringkas ke atas tajuk-tajuk terpilih yang sukar bagi meningkatkan keyakinan dan motivasi pelajar.	Pn. Mary Gwadoline Anak Yusus Pn. Misinah Mahamad Fadzil En. Shafiq bin Rasulan En. John Liew Keng Hong
12.30 pm – 02.00 pm	Makan tengahari		En. Shafiq bin Rasulan En. John Liew Keng Hong

7.0 ANGGARAN PERBELANJAAN

Bil.	Perkara	Jenis Akaun	Harga Seunit (RM)	Kuantiti	Jumlah (RM)
1	Makanan Pelajar	OS42000	14.00	92	1288.00
2	Hadiah Kategori Berkumpulan Individu (>5 orang)	Wang Amanah	120.00	1	120.00
3	Hadiah Kategori Berkumpulan Pertama (>5 orang)	Wang Amanah	100.00	1	100.00
4	Hadiah Kategori Berkumpulan Kedua (>5 orang)	Wang Amanah	80.00	1	80.00
	Jumlah Keseluruhan (RM)				1,588.00

8.0 TETAMU JEMPUTAN

Tiada

9.0 AHLI JAWATANKUASA

Penaung:

Pengerusi:

Penyelaras:

Setiausaha:

AJK Pelaksana:

Tn. Khairudin bin Nozari

Pn. Misinah Binti Mahamad Fadzil

Pn. Mary Gwadoline Anak Yusus

En. Shafiq Rasulan

Pn. Mary Gwadoline Anak Yusus

En. Shafiq Rasulan

Pn. Misinah Binti Mahamad Fadzil

En. John Liew Keng Hong

10.0 IMPLIKASI KEWANGAN

Pelaksanaan Bengkel *Smartphysics* 2.0 Kolej Matrikulasi Sarawak akan melibatkan perbelanjaan sebanyak **RM 1,588.00** dengan **RM 300.00** menggunakan peruntukan di bawah Wang Amanah dan **RM 1,288.00** menggunakan peruntukan OS42000.

11.0 KESIMPULAN

Kejayaan mencapai objektif program ini akan dapat meningkatkan lagi prestasi dan motivasi pelajar dalam mata pelajaran Fizik.

12.0 SYOR

Kertas ini dikemukakan untuk pertimbangan dan kelulusan Pengarah Kolej Matrikulasi Sarawak, Kementerian Pendidikan Malaysia.

Disediakan oleh:

MARY GWADOLINE ANAK YUSUS

Ketua Unit Fizik

Tarikh:

Disemak oleh:

MISINAH BINTI MAHAMAD FADZIL

Ketua Jabatan Sains

Tarikh:

ULASAN PENOLONG AKAUNTAN

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KELULUSAN

KERTAS CADANGAN INI DILULUSKAN / TIDAK DILULUSKAN

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KHAIRUDIN BIN NOZARI

Pengarah

Kolej Matrikulasi Sarawak

Tarikh:

Student Feedback

Introduction

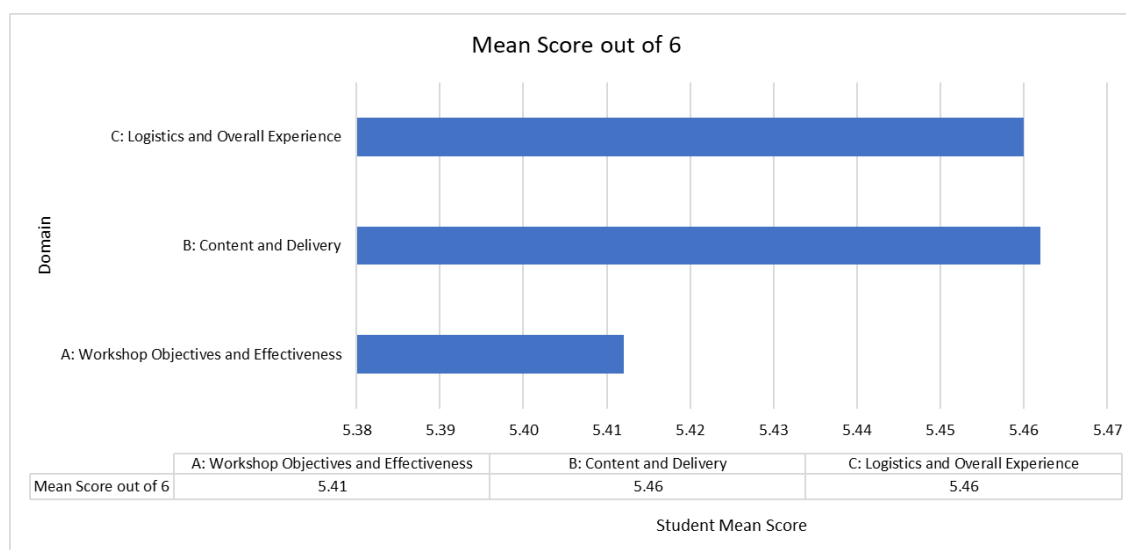
A post-programme questionnaire was administered to 80 student respondents to gather feedback on the "Bengkel SmartPhysics 2.0" workshop. The survey comprised 14 items categorized into three domains: Workshop Objectives and Effectiveness, Content and Delivery, and Logistics and Overall Experience. Participants rated each item on a 6-point Likert scale, with higher scores indicating greater agreement or satisfaction. The mean score for each item was calculated to provide an aggregate measure of student perceptions. This quantitative approach allowed for the evaluation of specific aspects of the workshop and identified areas for potential improvement.

Data Collected

Domain	No.	Item	Mean Score (Out of 6)
A: Workshop Objectives and Effectiveness	1	The workshop helped increase my motivation to face the PSPM 2 examination.	5.29
	2	The workshop improved my skills in answering SP025 exam questions.	5.54
	3	The workshop introduced new exam answering techniques beyond regular classroom methods.	5.48
	4	I feel more confident in my preparation for the PSPM 2 Physics examination after attending this workshop.	5.40
	5	The workshop enhanced my problem-solving skills in Physics.	5.35
B: Content and Delivery	6	The "Smart Study Tips" session was helpful and relevant.	5.44
	7	The session on exam answering techniques for PSPM was clear and easy to understand.	5.44
	8	The focused revision on difficult topics was beneficial for my understanding.	5.41
	9	The content of the workshop was relevant to the SP025 (Physics II) course.	5.48
	10	The lecturers/facilitators were knowledgeable and effective in their delivery.	5.54
C: Logistic	11	The duration of the workshop (8.00 am - 2.00 pm) was appropriate.	5.61

12	The workshop environment was conducive to learning and collaboration.	5.35
13	I would recommend this workshop to other Physics II students.	5.35
14	Overall, I am satisfied with my experience at Bengkel SmartPhysics 2.0.	5.53

Note: Data Collected from 80 respondents



The student feedback for "Bengkel SmartPhysics 2.0" consistently indicates a high degree of program effectiveness and participant satisfaction, with all mean scores exceeding 5.29 on a 6-point Likert scale. This robust positive reception underscores the workshop's success in achieving its stated objectives.

Workshop Objectives and Effectiveness:

The data strongly supports the achievement of the workshop's core pedagogical aims. Participants reported a notable increase in motivation for the PSPM 2 examination (mean score: 5.29). Furthermore, a significant improvement was observed in students' ability to apply effective

techniques for answering SP025 exam questions (mean score: 5.54), coupled with the successful introduction of novel exam answering methodologies distinct from conventional classroom instruction (mean score: 5.48). The workshop demonstrably contributed to enhanced student confidence in their PSPM 2 Physics examination preparation (mean score: 5.40) and fostered a discernible improvement in problem-solving skills within the Physics domain (mean score: 5.33). These outcomes directly align with the workshop's strategic intent to bolster student readiness and confidence for a high-stakes examination.

Content and Delivery:

The content and its pedagogical delivery were evaluated as highly effective. The "Smart Study Tips" session was perceived as both helpful and relevant (mean score: 5.44). Clarity and comprehensibility were hallmarks of the PSPM exam answering techniques session (mean score: 5.48). Targeted revision on challenging topics was widely regarded as beneficial for conceptual understanding (mean score: 5.4). The content's direct relevance to the SP025 (Physics II) course was affirmed (mean score: 5.48), and the expertise and instructional efficacy of the lecturers/facilitators were consistently rated highly (mean score: 5.54). This demonstrates the successful implementation of expert-led instruction and targeted content within the workshop framework.

Logistics and Overall Experience:

Operational aspects and the overarching participant experience were also favorably assessed. The workshop's duration (8:00 am - 2:00 pm) was deemed appropriate by the participants (mean score:

5.6). The learning environment was conducive to both individual learning and collaborative engagement (mean score: 5.33). A strong indicator of overall satisfaction and perceived value is the high propensity of students to recommend the workshop to their peers in Physics II (mean score: 5.33). Overall satisfaction with Bengkel SmartPhysics 2.0 was markedly high (mean score: 5.52), reinforcing the program's successful execution and positive impact on student experience.

Future Recommendations

Based on the highly positive student feedback, the following practical and concise recommendations are proposed:

- ✓ **Sustain and Expand:**

Continue "Bengkel SmartPhysics 2.0" annually due to its proven effectiveness. Explore options for expanding capacity or offering multiple sessions to reach more students.

- ✓ **Integrate Digital Tools:**

Investigate incorporating digital learning tools (e.g., online modules, interactive simulations) to extend the workshop's reach and impact.

- ✓ **Share Best Practices:**

Disseminate the workshop's successful model, particularly regarding exam skill enhancement, as a best practice for other departments within KMSw.

✓ Data-Driven Content Refinement:

Utilize future PSPM 2 results to identify specific challenging topics, allowing for minor, targeted adjustments to the revision content.