



2021
DIGITAL
TECHNOVA
ARENA
experience the world of technology



VENUE : MRSM TAIPING
DATE : 13-16 AUGUST 2021

ORGANISED BY:
BAHAGIAN PENDIDIKAN MENENGAH MARA (BPM)

GUIDEBOOK

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INTER-MRSM DIGITAL TECHNOVA ARENA 2021

ABOUT

Inter-MRSM Digital TechNova Arena 2021 is designed to encourage and create awareness around one of the fastest growing career fields: computing. Computing is at the cornerstone of most STEM (science, technology, engineering, and math) fields, and more career fields require students to develop computational thinking skills and computer science. This carnival helps to create excitement in MRSM's students for learning computational thinking skills and other skills related to technology, which can be cultivated in their life.

OBJECTIVE

1. To develop computational thinking skills and translate them into problem solving, designing, and creating new applications.
2. To strengthen problem-solving skills and skills through quizzes with elements of Higher-Level Thinking Skills (KBAT) and Cross-Curriculum Elements (EMK)
3. To stimulate and inculcate fun computer learning while providing a clearer career path and focusing on student interests and interests.
4. To develop the talent and potential within students to succeed in a fast-moving digital world.
5. To provide a platform of exposition, learning and exploration of new and current technologies, in line with STEM (Science, Technology, Engineering and Mathematic).

DETAILS OF THE PROGRAM

5 competitions are based on submission basis and 3 competition are online basis. Refer table 1 for details.

COMPETITION, MODE & NUMBER OF PARTICIPANTS

NO	COMPETITION	MODE	DATE	PARTICIPANTS	
				LOWER SECONDARY	UPPER SECONDARY
1	COMPUTER PROJECT (MOBILE APPS)	SUBMISSION	DUE 12 AUGUST 2021	3	
2	COMPUTER PROJECT (OPEN PLATFORM)				3
3	MINECRAFT BATTLE (INDIVIDUAL)			2	1
4	STOP MOTION ANIMATION (MRSM THEME)			3	
5	STOP MOTION ANIMATION (MDEC THEME)				3
6	MRSM CODEWAR (JUNIOR) INDIVIDUAL	ONLINE	14 AUGUST 2021 10:30 am – 12:30 pm (2 hours)	2	
7	MRSM CODEWAR (SENIOR) INDIVIDUAL		14 AUGUST 2021 10:30 am – 12:30 pm (2 hours)		2
8	e-SPORT (MOBILE LEGEND)		31 JULY – 16 AUGUST 2021	5 (4 MALE + 1 FEMALE)	

Table 1

REQUIREMENTS

1. Necessary software(s) for relevant categories for both training and competition purposes such as python IDLE. PC hardware specification suggested are as below:

NO.	ITEMS	SPESIFICATION
1	Operating system	Windows 10 Pro- 64 Bit
2	Processor	Intel i-Core i3 and above
3	Memory	4 GB and above
4	Storage	250 GB with 10GB minimum free space

2. Smart phone(s) that are well-suited for significant categories both for training and competition especially for Computer Project (Mobile Apps), Stop Motion Animation and e-sport: Mobile Legend.
3. Other relevant equipment and accessories related to any categories upon discussion and with principal's approvals.

COMPETITION RULES AND REGULATIONS

COMPUTER PROJECT (OPEN PLATFORM)

A. Participant:

- a. Upper Secondary (3 students)

B. Theme:

- a. Innovation leads to exceptional performance. (Inovasi dalam Penyampaian perkhidmatan)
 - i. It is a translation of creative and innovative ideas to transform the delivery of services in MRSM.
 - ii. It aims to increase productivity, efficiency, and effectiveness of service delivery towards a seamless and efficient services and to enhance customer satisfaction.
 - iii. It includes improvements to systems and procedures, methods and ways of working or introduction of technology.
 - iv. Examples of Service Innovation include School Management, Work Culture, Finance and Assets, Customer Relationship Management, Human Resource Management, Project Development Management or Information Technology and Communication Development.

C. Rules and Regulation:

- a. Participants must follow the given theme.
- b. The innovation **MUST** be the original idea or improvement of the existing project but **NEVER** competed before.
- c. The results of the innovation should provide significant and high value to the organizations and benefit the community.

D. Participants need to submit.

a. **POSTER**

- i. Dimension of poster: **A1 size** [Maximum 60cm (width) x 85cm (height)]
- ii. Poster must be in **PDF** Format.
- iii. The details of the poster should include the following:
 - Project Title
 - Introduction
 - Problem Statement
 - Innovation

- Significance
- Relevance
- Team Members name and picture & MRSM name
- Product Print Screen

b. **PITCHING VIDEO NOT EXCEED 3 MINUTES IN .MP4 FORMAT.**

c. **PRODUCT DEMO VIDEO.**

- Participants must at least complete the prototype development and have been tested in a relevant environment, physically ready with final specification.

E. Judging Criteria

- a. The project will be judge based on
- i. Inventiveness
 - ii. Impact & Applicability
 - iii. Commercial Potential
 - iv. Video Pitching
 - v. Poster

COMPUTER PROJECT (PLATFORM: MOBILE APPLICATION)**A. Participant:**

- a. Lower Secondary (3 Students)

B. Theme:

- a. Educational Apps
- b. Lifestyle Apps
- c. Games/Entertainment Apps
- d. Productivity Apps
- e. Social Media Apps

C. Rules and Regulation:

- a. Participants must **CHOOSE 1** from the themes given.
- b. The innovation **MUST** be the original idea or improvement of the existing project but **NEVER** competed before.
- c. The results of the innovation should provide significant and high value to the organizations and benefit the community.

D. Participants need to submit.**a. POSTER**

- i. Dimension of poster: **A1 size** [Maximum 60cm (width) x 85cm (height)]
- ii. Poster must be in **PDF** Format.
- iii. The details of the poster should include the following:

- Project Title
- Introduction
- Problem Statement
- Innovation
- Significance
- Relevance
- Team Members name and picture & MRSM name
- Product Print Screen

b. PITCHING VIDEO NOT EXCEED 3 MINUTES IN .MP4 FORMAT.**c. APPS FILE**

- Participants must at least complete the prototype development and have been tested in a relevant environment, physically ready with final specification.
- Microsoft teams will be use as a platform to submit the video and poster.

E. Mobile Application

- a. The design of mobile application can be run on smartphones, tablets, and other mobile devices.
- b. The operating system must be mobile based such as Android or IOS.
- c. Can build using any platform for mobile Application such as MIT App Inventor 2, Appybuilder, Appsheet, Thinkable, Android Studio or any suitable platform.

F. Judging Criteria:

- a. The project will be judge based on
 - i. Inventiveness
 - ii. Impact & Applicability
 - iii. Commercial Potential
 - iv. Video Pitching
 - v. Poster

MINECRAFT BATTLE

A. Participant:

- a. Individual - 2 Lower Secondary students + 1 Upper Secondary Student

B. Rubrics

- a. Use of the theme.
- b. Originality and creativity
- c. How the space supports a healthy environment for both human and animals was clearly described
- d. What the team learn as a part of their involvement was clearly describe.

C. Student next Steps;

- a. Download the world
- b. Submission **PowerPoint [template](#)**
- c. Build using Minecraft : Education Edition

D. Reference;

- a. [Minecraft Step-by-step](#)
- b. [Minecraft Handouts](#)

E. Equipment.

- a. Computer or Laptop

STOP MOTION ANIMATION [MRSM THEME]**A. Participant:**

- a. Lower Secondary (3 Students)

B. Theme:

- a. Moral and Civic
- b. Friendship
- c. Family

C. Rules and Regulation:

- a. Participants must **CHOOSE 1** from the themes given.
- b. The animation **MUST** be original idea or improvement of the existing project that **NEVER** competed before.

D. Participants need to.**a. WATCH**

- i. Provided [tutorial](#)
- ii. Learn from the video.

b. CREATE

- i. Stop motion animation based on the theme selected.
- ii. The details of the animation should include the following:

- Main actor/ subject
- Environment
- Transition
- Subtitle

c. VIDEO MUST NOT EXCEED 5 MINUTES IN .MP4 FORMAT.**d. SUBMISSION – YOUTUBE LINK****E. Reference;**

- a. [STOP MOTION VIDEO](#)

MDEC:STOP MOTION ANIMATION [MDEC THEME]**A. Participant:**

- a. Upper Secondary (3 Students)

B. Theme:

- a. Unity
- b. Colors of Malaysia
- c. Tell me you're Malaysian without telling me you're Malaysian

C. Rules and Regulation:

- a. Participants must **CHOOSE 1** from the themes given.
- b. The animation **MUST** be original idea or improvement of the existing project that **NEVER** competed before.

D. Participants need to.**a. WATCH**

- i. Provided [tutorial](#)
- ii. Learn from the video.

b. CREATE

- i. Stop motion animation based on the theme selected.
- ii. The details of the animation should include the following:
 - Main actor/ subject
 - Environment
 - Transition
 - Subtitle

c. VIDEO MUST NOT EXCEED 5 MINUTES IN .MP4 FORMAT.**d. SUBMISSION – YOUTUBE LINK****E. Reference;**

- a. [STOP MOTION VIDEO](#)

MRSM CODEWAR (SENIOR) INDIVIDUAL

A. Participant:

- a. 2 Upper Secondary students

B. Rules and Regulation:

- a. The Questions will be given on the day of the competition through <https://www.hackerrank.com/2021mcw-senior>
- b. Questions are based on Python Programming (direct and HOTS).
- c. The problems are in an open book exam format. Participants can bring their notes/ reference books to accomplish the task provided.
- d. The problems may involve input- output function, error detection, loop etc. as covered in the syllabus.
- e. The problems are to be solved within **2 hours** on **14 AUGUST 2021**
- f. The projects are assessed on the number, accuracy, functionality of task completed and agility.
- g. Participants can use the Internet during this section

C. Equipment

- a. Computer or Laptop

D. Scoring

- a. Each challenge has a pre-determined score.
- b. A participant's score depends on the number of test cases a participant's code submission successfully passes.
- c. If a participant submits more than one solution per challenge, then the participant's score will reflect the highest score achieved. In a game challenge, the participant's score will reflect the last code submission.

- d. Participants are ranked by score. If two or more participants achieve the same score, then the tie is broken by the total time taken to submit the last solution resulting in a higher score

E. Reference;

- a. Book : *Siri 1 - Konsep Asas Python & Pengenalan Kepada HackeRank*
- b. Website : <https://www.ppkomp.com.my>
- c. Telegram Group : <https://t.me/PPKomp>

MRSM CODEWAR (JUNIOR) INDIVIDUAL

A. Participant:

- a. 2 Lower Secondary students

B. Rules and Regulation:

- a. The Questions will be given on the day of the competition through <https://www.hackerrank.com/2021mcw-junior>
- b. Questions are based on Python Programming (direct and HOTS).
- c. The problems are in an open book exam format. Participants can bring their notes/ reference books to accomplish the task provided.
- d. The problems may involve input- output function, error detection, loop etc. as covered in the syllabus.
- e. The problems are to be solved within **2 hours** on **14 AUGUST 2021**
- f. The projects are assessed on the number, accuracy, functionality of task completed and agility.
- g. Participants can use the Internet during this section

C. Equipment

- a. Computer or Laptop.

D. Scoring

- a. Each challenge has a pre-determined score.
- b. A participant's score depends on the number of test cases a participant's code submission successfully passes.
- c. If a participant submits more than one solution per challenge, then the participant's score will reflect the highest score achieved. In a game challenge, the participant's score will reflect the last code submission.

- d. Participants are ranked by score. If two or more participants achieve the same score, then the tie is broken by the total time taken to submit the last solution resulting in a higher score

E. Reference;

- a. Book : *Siri 1 - Konsep Asas Python & Pengenalan Kepada HackeRank*
- b. Website : <https://www.ppkomp.com.my>
- c. Telegram Group : <https://t.me/PPKomp>

E-SPORT

A. Participant:

- a. 5 students (must include at least 1 lower form student and 1 girl participant)

B. Rules and Regulation:

- a. Game: Mobile Legend
- b. Objective of the game is to destroy main Turret.
- c. Selection will be made by Zone
- d. Each MRSM will compete every MRSM in the same Zone.
- e. 1 win will yield 1 point.
- f. Top 2 from each zone will represent the zone.
- g. The game will be held on **31st July – 16th August 2021**
- h. Game host will contact the participants before **31st July 2021**.

C. Equipment

- a. Computers, laptop, or phone

SUBMISSION

Submission link will be provided on **9 August 2021(Monday)**

NO	COMPETITION	DOCUMENTS TO SUBMIT
1	COMPUTER PROJECT (MOBILE APPS)	1. Apps file (File Upload-No specific file type) 2. Poster/Screenshot (PDF/Image File) 3. 1 Minute Pitching video (YouTube link)
2	COMPUTER PROJECT (OPEN PLATFORM)	1. Poster (File upload - PDF) 2. 1 Minute Pitching video (YouTube link) 3. Product Demo video (YouTube link)
3	MINECRAFT BATTLE (INDIVIDUAL)	1. File Upload - PowerPoint template
4	STOP MOTION ANIMATION (MRSM THEME)	1. Video (YouTube Link)
5	STOP MOTION ANIMATION (MDEC THEME)	1. Video (YouTube Link)

ENQUIRY

If you have any enquiry, please contact:

- | | |
|--|--------------------------|
| a. Office | : 05 - 8073022 / 8084228 |
| b. Fax | : 05 – 8077627 |
| c. Comp. Science KPP (Shuhaimi) | : 013 – 9672771 |
| d. Event Coordinator (Pn. Haziah) | : 012 – 2203177 |
| e. Computer Science Teacher (Pn. Izatul) | : 012 – 6531475 |
| f. Computer Science Teacher (En. Akram) | : 012 - 4882765 |