

Hong Kong Diploma of Secondary Education Examination 2022
DESIGN AND APPLIED TECHNOLOGY

SBA Project – Suggested Titles

Candidates are required to choose ONE contextual challenge from the following and complete the SBA project:

Contextual Challenges

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| 1 | An enclosed table-top ball catching game machine | Children’s hand-eye coordination and motor skills can be improved through playing mechanical game devices. Design an enclosed table-top ball catching game machine for children to play on their own in children centres. The game machine should release balls of different sizes and be equipped with ball collectors that have to be controlled by a mechanism. The machine should also automatically increase the level of difficulty of the game in one round, display the score calculated and automatically reset all balls to the starting position when preparing for the next game. |
| 2 | A universal touch-free dispensing device | Typically, automatic dispensers can only achieve optimal flow with a particular liquid soap or sanitiser. Design a universal touch-free dispensing device that works with the pump heads of most liquid soaps and sanitiser pump bottles available on the market and can directly drive the pump head to pump out the liquid in the bottle. The device should allow users to adjust the amount of liquid dispensed. Tools should not be needed when replacing bottles. The device should be able to operate properly in humid and wet conditions. |
| 3 | A portable door locking device to be used for travel | When travelling, travellers may still worry about security even if the doors of rented guest rooms are equipped with key locks. Design a door locking device that is portable for travel and can provide extra security when staying in the rented guest rooms. The device should be compatible with different door types, be used, installed and removed without damaging the door and the room, and ensure that the door cannot be opened without the user’s permission no matter whether he/she is inside or outside the room. |

Notes for submission:

- Candidates should submit the following two items:
 - a working physical model/prototype, or a virtual 3D model plus a partial working physical model;
 - an A4 or A3 size portfolio.

- ‘Prototype’ refers to all working solutions including products, models and systems that are sufficiently developed to be tested and evaluated. A final prototype could be a highly finished product made as ‘proof of concept’ prior to manufacture, a scaled working model or a functioning system where a full-sized product would be impractical.
- The physical model/prototype produced by the candidates as the final solution for the project should be able to perform proper testing and evaluation in the environment it is intended for. The main body of the final physical model/prototype should be made from raw materials and not be directly built using commercially available kits. However, commercially available mechanical components, control components and programming devices are permitted. Solely using computer modelling and simulation in lieu of physical model/prototype are not considered as appropriate alternatives in this regard.
- For details of the requirements and assessment criteria of this subject applicable to the SBA projects starting from 2021 HKDSE, please refer to:
http://www.hkeaa.edu.hk/DocLibrary/SBA/HKDSE/DAT-2021-Draft_Assess_Criteria-0318-E.pdf

Remarks:

The HKDSE Examination Regulations stipulate that a candidate may be liable to disqualification from part or the whole of the Examination or suffer a mark or grade penalty for breaching the regulations. For details, please refer to the SBA Teachers’ Handbook for Design and Applied Technology:
http://www.hkeaa.edu.hk/en/sba/sub_info_sba/dse_subject.html?10