UNIVERSITI TEKNOLOGI MARA

ADE623: INDUSTRIAL PRODUCT DESIGN

Course Name (English)	INDUSTRIAL PRODUCT DESIGN APPROVED
Course Code	ADE623
MQF Credit	3
Course Description	This course provides an understanding of industrial and product design and the development of an idea from the initial conception to the final solution. Student design and develop an innovative and sustainable products/ranges discover how to combine art and science. through an application of skills such as sketching, computer-aided design and manufacturing techniques to strategically plan and design, and explore business studies, new technologies, professional practice, design psychology, consumer knowledge, applied research, sustainability and design ethics. Communicating ideas through industry-standard software and prototyping.
Transferable Skills	3D Model making and prototyping, Design and Technology, Product Design, Problem Solving
Teaching Methodologies	Studio, Demonstrations, Problem Based Learning (PBL), Workshop, Small Group Sessions , Computer Aided Learning, Industrial Talk, Project-based Learning
CLO	CLO1 Produce sketches, photo document imaged based research and appropriately present it through visual expression. CLO2 Plan, measure, and build a prototype and finished product through a project portfolio that explains it's function and justifies its existence CLO3 Exhibit industrial and product through effective use of display, lighting, visual merchandising considerations and technology.
Pre-Requisite Courses	No course recommendations

Topics
1. Industrial Design Studies 1.1) Product designers 1.2) Design Entrepreneurship
2. Materials & Processing 2.1) Product Development Process and Organization
3. Design Media two- and three-dimension drawings, renderings 3.1) Robust Design 3.2) Patents and Intellectual Property
4. User Centered Design 4.1) Design for Environment 4.2) ?Design for Manufacturing and Supply Chain
5. Contextual Design 5.1) Concept Generation 5.2) Concept Selection 5.3) Concept Testing
6. Design Project 6.1) Product Specifications
7. Manufacturing & Production 7.1) Identifying Customer Needs
8. Visualization Tools applied 2-D –digital media & 3-D Animation 8.1) Prototyping

9. Visualization Tools applied 3-D modelling 9.1) The Functional Use of the Product. 9.2) The Outward Appearance Design. 9.3) The Quality Delivered to Your Customers.
10. Management & Commercialization for Technical Projects 10.1) Patents and Intellectual Property
11. Interaction Design 11.1) Service Design 11.2) Product Development Economics
12. Final Design Project 12.1) Exhibition Design

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Project One and project Two	60%	CLO2
Individual Project	Process-based Assessment	25%	CLO1
Visual Asssessment	Product Design Exhibition	15%	CLO3

Reading List

Recommended Text

- **Ulrich, Karl T., Eppinger, Steve D., and Yang, Maria C., 2020, *Product Design and Development*, 7th edition Ed., 3, McGraw-Hill Education USA**

Article/Paper List

Recommended Article/Paper Resources

- **Marion, T. J., & Meyer, M. H 2011, Applying Industrial Design and Cost Engineering to New Product Development in Early?Stage Firms, *Journal of Product Innovation Management*, 28(5), 773-7**
- **Hsu, Y. 2011, Design innovation and marketing strategy in successful product competition, *Journal of Business & Industrial Marketing*, 26(4), 223-2**
- **Wang, Y., & Tseng, M. M. 2011, Integrating comprehensive customer requirements into product design., *CIRP Annals-Manufacturing Technology*, 60(1), 175**
- **Wormald, P. W. 2011, Positioning industrial design students to operate at the 'fuzzy front end': investigating a new arena of university design education, *International Journal of Technology and Design Education*, 21(4), 425**

Other References

- **website Evans, J. W., & Evans, J. Y. (Eds.). 2011, *Product integrity and reliability in design* , Springer Science & Business Media**
- **BOOK Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., & Wensveen, S. 2011, *Design research through practice: From the lab, field, and showroom.* , Elsevier.**
- **BOOK Pruitt, J., & Adlin, T. 2010, *The persona lifecycle: keeping people in mind throughout product design* , Morgan Kaufmann**
- **BOOK Buxton, B. 2010, *Sketching user experiences: getting the design right and the right design: getting the design right and the right design.* , . Morgan Kaufmann.**
- **BOOK Cross, N. 2001, *Designerly ways of knowing: Design discipline versus design science* , Design issues,, 17(3), 49-55.**
- **BOOK Fiksel, J. 1995, *Design for environment*, McGraw-Hill Professional Publishing.**
- **BOOK Emami, A. 2014, *360° Industrial Design*, Sulgen.**
- **BOOK Palm, B. S. 2015, *). Introduction to AutoCAD 2016: 2D and 3D Design.* , London: Routledge**
- **BOOK Morris, R. 2016, *The Fundamentals of Product Design*, . London.**
- **BOOK Peter, C. F. 2016, *). Industrial Design A- Z.*, Taschen**