

School of Mechanical Engineering

Course Code : BTME 3060

Course Name: Computer Aided Design

BTME 3060 Computer Aided Design Lecture 2

2nd Year

III Semester

Galgotias University

2020-21

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Name of the Faculty: Pramod Kumar

Program Name: B.Tech

Unit I: Introduction to CAD

- Syllabus

- **Product Development Cycle**

- Introduction to CAD, Hardware and software requirement of CAD;
 - Graphics input devices- cursor control devices, Digitizers, Scanners, speech oriented devices and touch panels,
 - Graphics display devices- Refresh cathode ray tubes, Raster-scan displays, Random-scan displays, CRT Monitors;
 - Input devices- keyboard, joy-stick, mouse, scanner;
 - DVST, Flat- panel display, Hard copy devices - Printers and Plotters, dot matrix, inkjet, laser printers,
 - Graphics Standards – Neutral File formats –IGES, STEP,
 - Graphics software, Graphics functions,
 - output primitives- Bresenham’s Algorithm and DDA.

Product Development Cycle

- The product development cycle is a part of the product life cycle.
- There is difference-
 - The product development cycle focuses on the planning, development and evaluation of a product.
 - But, the product life cycle looks at the performance of the product in the market, and it's market share.
- The product development cycle consist of the following stages
 - Plan
 - Develop
 - Evaluate,
 - Launch,
 - Assess,
 - Iterate or Kill.

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Objective of the lecture

- Understanding of the product life cycle and its stages
- How the product passes through the stages
- Understanding about the markets survey

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Plan

- The planning stage consist of work that needs to be done before any development commences
- a solid strategic plan to give your startup the best chance of success.
- To begin Market Research and Competitive Analysis should be carried out
- This research will need to answer questions such as
 - Who are your target audience?
 - Is there a need for the product?
 - Can it be validated by thing like surveys, customer interview or consumer spending figures?
 - Who are the competitors in the market and how will the product be able to compete with them?
 - What is the potential market share for the product?

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- research should also look at cost of production and the price points of the product
- a product Roadmap and Strategic Plan need to be written at this stage
- look at the product in the long term,
- they are both 'live documents', as they may change over time depending on the market, your competitors and business goals.

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Develop

- The product needs to be broken down into features, with specification and user stories for each feature.
- Once the features have been defined with user stories and specification, they should be ranked by difficulty and priority.
- This will help identify what features are needed most, and how difficult — time consuming it will be to create a minimum viable product.
- The first release is likely to be an MVP (minimum viable product) containing the core features necessary for the product to be of use to your customers and succeed in the market.
- This will ensure a great product release, and will enable you to evaluate the product and its features quickly, once it is live.

Evaluate

- Early feedback is key to test the assumption made during the Plan stage
- There is no need to wait until the product is completed to perfection before you start evaluating it's features
- the sooner features can be validated the better.
- If the feedback from the evaluation is some features need changing then tweak them.
- Key performance indicators as metrics to measure the success of the product.

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Key Metrics Measure For Product Success

- Cost of Acquisition
- Revenue
- Rate of Revenue Growth
- AARRR Metrics:
 - Acquisition
 - Activation
 - Retention
 - Referral
 - Revenue

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Launch

- This stage is very much the same as the Introduction stage of the Product Life Cycle.
- Launching the product involves letting your target audience the product is live.
- This can be done with Press Announcement & Interviews, advertising, creating public launch events etc.
- Soon after launch, you should assess your performance.

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Assess

- Assessing the product entails collecting metrics and analysing them, to gather insight in to the performance of the product.
- A/B testing, challenging how to improve a return on investment, testing what makes a returning customer are a few possibilities for assess and analysis.
- each feature of the product will need to be tested and evaluated to see if a feature worth keeping and iterated on or being doped from the product completely.
- This is done by assessing what effect advertising, social media and CRM (Customer relationship management)

Iterate and Kill

- Once assessment and evaluation of the product features is complete, a decision needs to be made on which features to keep and upgrade and which to remove.
- For the features that prove not useful for the customer, and don't generate engagement or revenue, those should be removed.
- This should be done in a well planned manor, with customers should be informed of the removal of features.
- For the features that are kept, they will need to be iterated on and upgraded, to ensure competitiveness.
- This involves starting the Product Development Cycle all over again.

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- Following the Product Development Cycle and Product Life Cycle will ensure your product can build a strong market share, and fend off competition, by continuously innovating.

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Questions

- Describe the product cycle stages
- How this stages will affect the markets



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Text books

- Product Lifecycle Management by John Stark
- Product Lifecycle Management: Terminology and Applications by Razvan Udriou, Paul Bere

The logo for Galgotias University, featuring a stylized circular emblem with a spiral design in shades of yellow, orange, and blue. Below the emblem, the words "GALGOTIAS" and "UNIVERSITY" are written in a large, light grey, serif font, stacked on two lines.

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- Thank you



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