GE105
Introduction to Engineering Design
College of Engineering
King Saud University

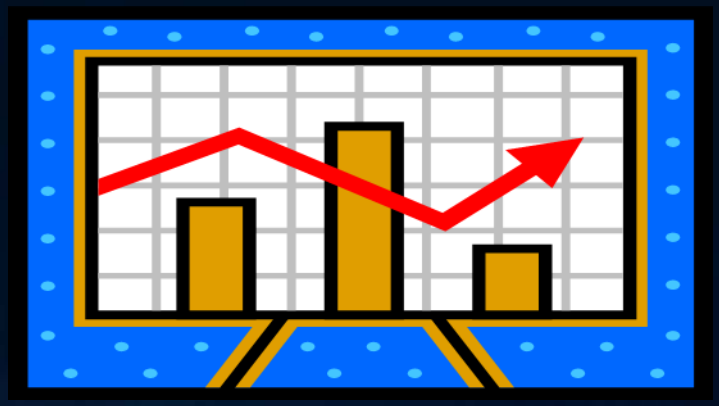
# Studio 10.

1. ***How to prepare Posters***
2. ***Concept Generation and Evaluation***

SPRING 2016

# Guide for Poster Design

- Size Ao (Portrait/Vertical)
- Can use Microsoft PowerPoint to design it
- Apply The 20-40-40 Rule
  - 20% Text
  - 40% Graphics
  - 40% White Space
- Use Heavy lines for ease in viewing
- Should be easy to read from more than one meter away



# Font Types, Use and Size

| Font Use | Font Size |
|---|---|
| Title | 96 pt |
| Authors | 72 pt |
| Affiliations | 36-48 pt |
| Section Header | 32 pt |
| Text | 24 pt |
| Acknowledgments | 18 pt |

**Suggested Font Type:**

**Tahoma** **Helvetica** **Palatino** **Arial** **Times New Roman**

# Poster Mandatory Contents

Your poster should include:

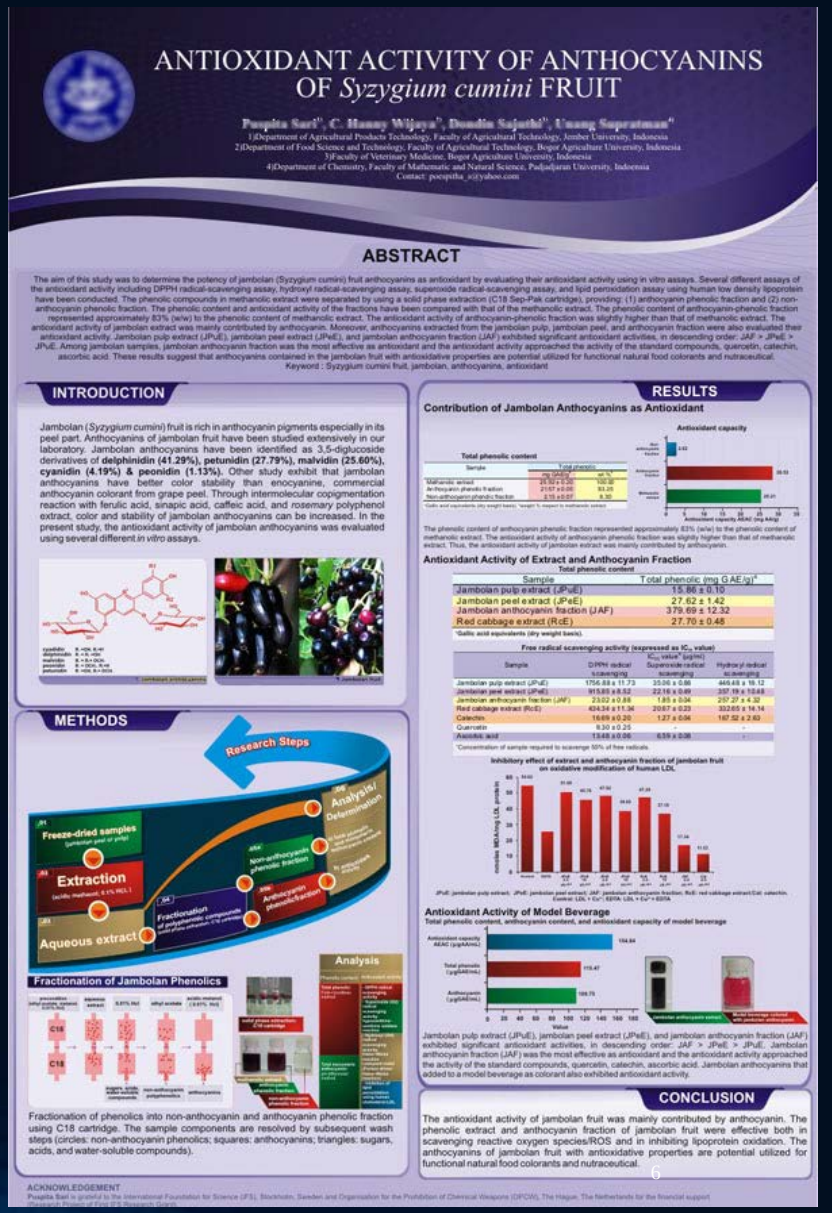
- A descriptive title
- Overview of the design project
- What? How? Why?
- Primary and secondary objectives
- Constraints and criteria
- Human factors
- Creative component
- Generated concepts
- Concept evaluation
- Conclusions
- Acknowledgements

# Some Advices:

- Photographs as backgrounds lose quality when enlarged (use 150-300 dpi resolution)
- Dark backgrounds are easier on the eye but use more ink
- Colored backgrounds can often break the monotony of white posters, thus attracting a viewer
- Use light backgrounds with dark photos and vice versa
- Neutral/gray backgrounds enhance color photos while white backgrounds reduce their impact.

# Be creative…


Marine Mammal Observer Association
"Setting the Standard for Marine Mammal Observation Worldwide"
Who We Are
Who We Work With
MMOA aims to works with industry, government agencies, non-government organisations and academics to improve the profession's effectiveness.
MMOA Aims
•Developing professional competency
•Improving collection and use of data
•Assimilating field experience and knowledge of MMOs
•Providing a collective voice for MMOs
•Providing constructive feedback on the implementation of mitigation guidelines to regional regulatory bodies
•Promoting the MMO profession in the offshore industry
•Improving protection for marine mammals
Membership Type
FULL
Open to qualified and experienced MMOs and PAM Operators
Benefits include:
•Recognised as competent professionals
•Access to a MMO Forum to share knowledge and experience
•Access to the Information Directory
•Influence the future development of the profession
•Contribute to the aims and objectives of the MMOA
•Full voting rights on the Association
ASSOCIATE
Open to students, prospective MMOs, newly qualified MMOs, company employees and individuals with an interest in MMO issues
Benefits include:
•Access to the Information Directory
•Influence the future development of the profession
•Contribute to the aims and objectives of the MMOA
•Invited to comment on MMO issues
Corporate Sponsorship
This is welcomed to help achieve the aims and objectives of the MMOA. Corporate sponsors will have their company logo displayed on the website.
Please visit our website for further information www.MMO-Association.org
Marine Mammal Observer Association

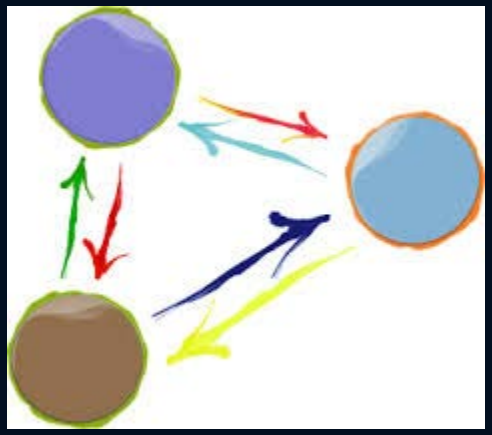

ANTIOXIDANT ACTIVITY OF ANTHOCYANINS OF Syzygium cumini FRUIT
ABSTRACT
INTRODUCTION
METHODS
RESULTS
Contribution of Jambolan Anthocyanins as Antioxidant
Antioxidant Activity of Extract and Anthocyanin Fraction
Antioxidant Activity of Model Beverage
CONCLUSION
Research Steps
Freeze-dried samples
Extraction
Aqueous extract
Fractionation
Analysis/ Determination
Fractionation of Jambolan Phenolics
Analysis

END of part one

....next

(concept generation and evaluation)

## Reminder: Morphological Analysis



- The problem is divided into smaller sub-problems.
- Concepts are generated to satisfy each smaller problem.
- A four-step process
  1. list the functions and features required
  2. Identify as many ways as possible for each feature or function
  3. Draw a table with functions listed vertically and features or concepts listed horizontally
  4. Identify all practical combinations

# Reminder: Morphological Analysis (Example)

## Design a means of transportation for disabled persons

| Feature | Concept 1 | Concept 2 | Concept 3 | Concept 4 |
|---|---|---|---|---|
| Body Support | armchair | under arm | leg support | sofa |
| Ground Support | rollers | tracks | wheels | skids |
| Power Supply | Battery | solar | human | air |
| Speed Control | automatic | manual | on-off | - |
| Direction Control | side thrust | one side lock | reverse | Steering |

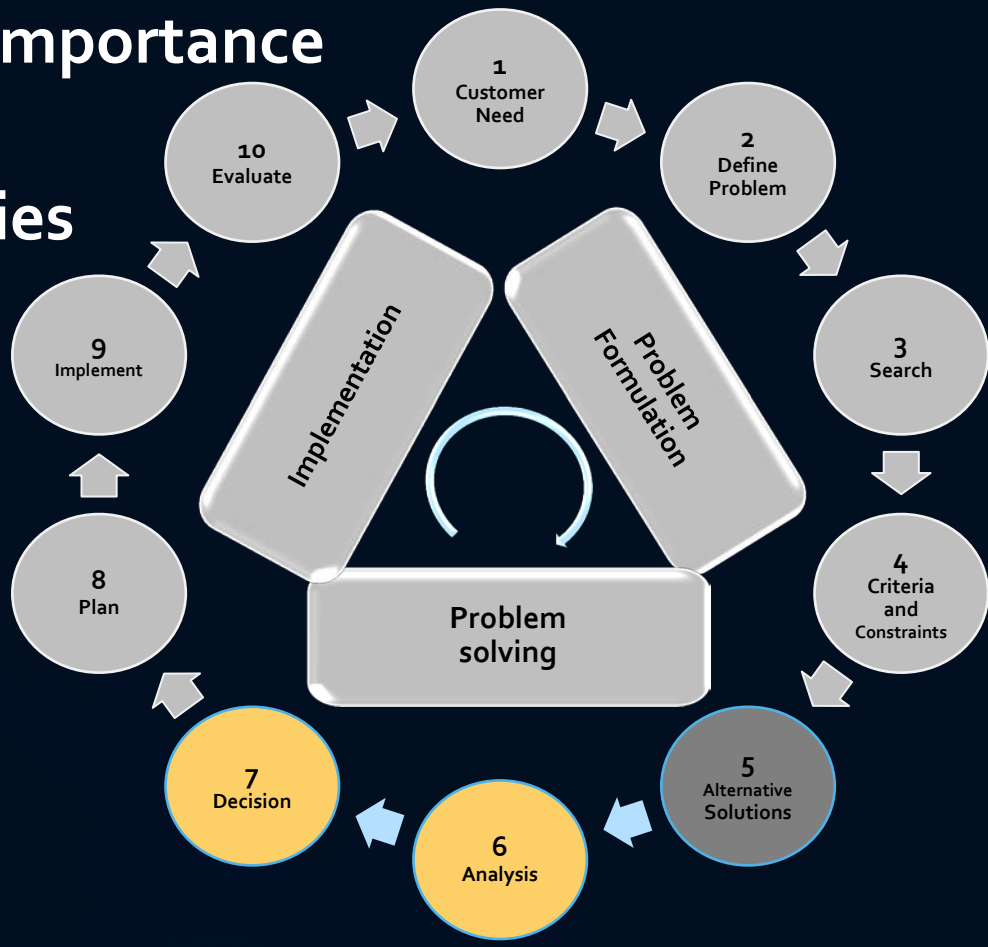
Design 1: Armchair + Rollers + Solar + Automatic + Side-thrust

Design2: Armchair + Wheels + Human + Manual + Steering

# Reminder: Concept Evaluation

- Characteristics of Engineering Decisions
  - Multiple criteria
  - Criteria are of different importance
  - Criteria are conflicting
  - Multiple interested parties

- Use a Decision Matrix:
  A simple decision approach to weigh pros and cons applying weight and rate concept (multiply and sum)



# Weights

- To determine the importance of each attribute, we use a simple approach based on weights that sum to 100

| | Direct Energy | Manufacturability | Flexibility | Holding Energy in Oven | Total Weight |
|---|---|---|---|---|---|
| Scenario 1: Compromise | 25 | 25 | 25 | 25 | 100% |
| Scenario 2: Most light in | 40 | 5 | 15 | 40 | 100% |
| Scenario 3: Easy to make | 20 | 40 | 20 | 20 | 100% |

# Rating the Concepts

- This scenario uses weights (40,5,15,40)

| | Direct Energy | Manufacturability | Flexibility | Holding Energy in Oven | Score |
|---|---|---|---|---|---|
| Weights→ | 40 | 5 | 15 | 40 | |
| Concept 1: No reflector Big window | 1 | 10 | 5 | 3 | 285 |
| | 40 | 50 | 75 | 120 | |
| Concept 2: 1 reflector Small window | 4 | 8 | 7 | 6 | 545 |
| | 160 | 40 | 105 | 240 | |
| Concept 3: Parabolic | 9 | 2 | 4 | 4 | 590 ★ |
| | 360 | 10 | 60 | 160 | |

# Group Activity

- **Part 1: 40minutes**
- Each group generates concepts for their final design project using morphological analysis
- At least three alternatives must be generated

- **Part 2: 20minutes**
- Use the weight-and-rate to evaluate your concepts

- **Part 3: 15minutes**
- Present your work to the Instructor and your peers in class