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Technologie v AJ/ Technology in English

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TECHNICAL ENGLISH

Technical English

- Writing is doing science
- Writing well is hard
- The reader matters



Master the language

Academic English in Science

"All words are equal, but some words are more academic than the others"

- Clear, simple and precise
- Formal and impersonal
- Preferably single verbs
- No phrasal verbs

Reduce Informality of Each Sentence

- You should use these models to analyse the effects of different parameter changes.
- Researchers have come up with a number of models to describe the effect of sweet drinks on dental enamel erosion.

Writer's Strategy

- Readers read for:
 - structure
 - substance



Deliver a clear key message

Writer's Strategy

- These parts tend to be emphasized:
 - Main clause
 - End
 - Length
 - Repetition
 - Semantics

The Power of Structure

- Although Fred has not brought anything innovative, he is a determined researcher.
- Although Fred is a determined researcher, he has not brought anything innovative.
- Fred is a determined researcher, but he has not brought anything innovative.
- Fred has not brought anything innovative, but he is a determined researcher.

Data Commentary

- The art of the matter – to find the right strength of claim
- Two dangers:
 - repeat in words what you see in numbers
 - unjustified conclusions

Data Commentary - Hedging

- *The use of seat belts prevents physical injuries in car accidents.*
- prevents > reduces
- reduces > may reduce
- + in some circumstances
- + certain types of injuries
- + according to simulation studies



Me.me

Data Commentary – Dealing With Graphs



Which words describe:

- a rise
- a fall
- staying the same

Which words are nouns and/or verbs:

slump, remain steady, plummet, soar, fluctuate,
level off, creep up, decline, fall off, upward trend,
steep fall, peak, spike, low point, kink, local
maximum, minimum

Data Commentary – Location Elements

- Indicative verbs: provide, give, present, summarize, display
- Informative verbs: suggest
- Both: show, illustrate, reveal, demonstrate, indicate

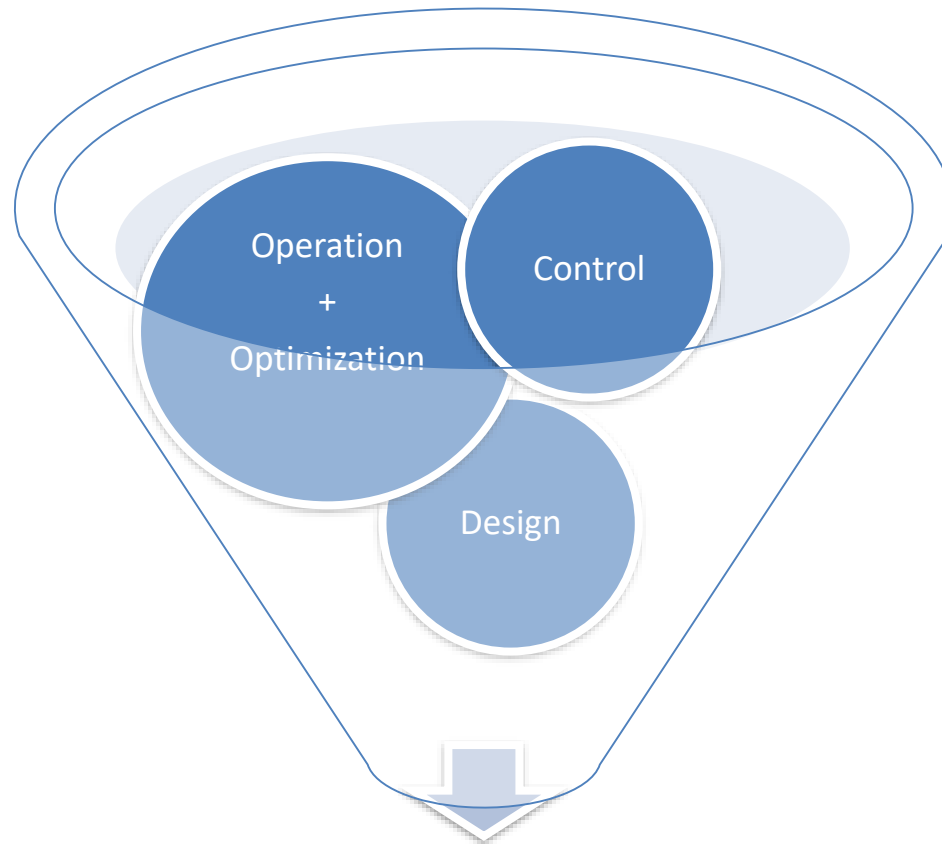
😊 *Table 5 provides demographic information.*

😞 *Table 5 provides that most study participants were over age 45.*

Selected chapters

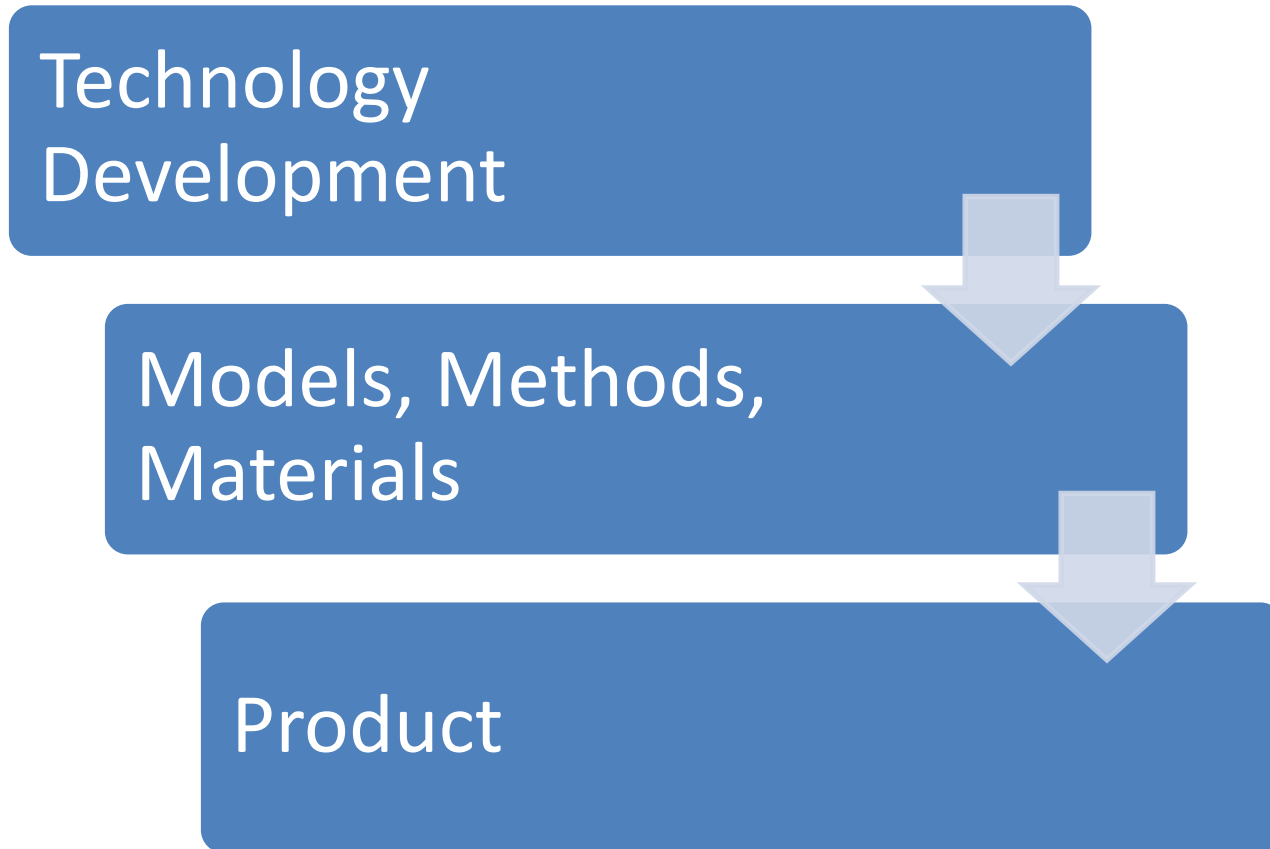
TECHNOLOGY IN ENGLISH

Process Engineering

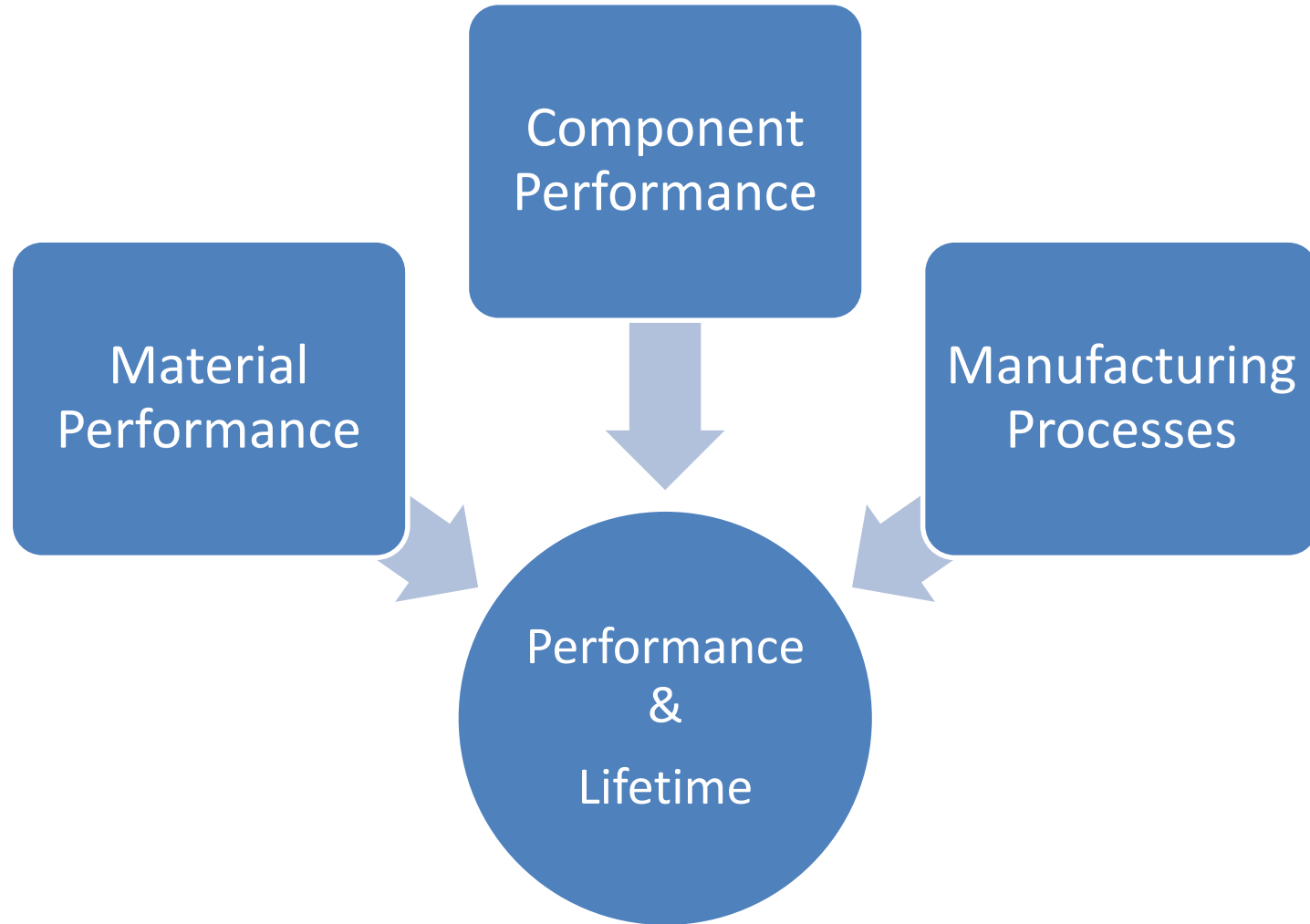


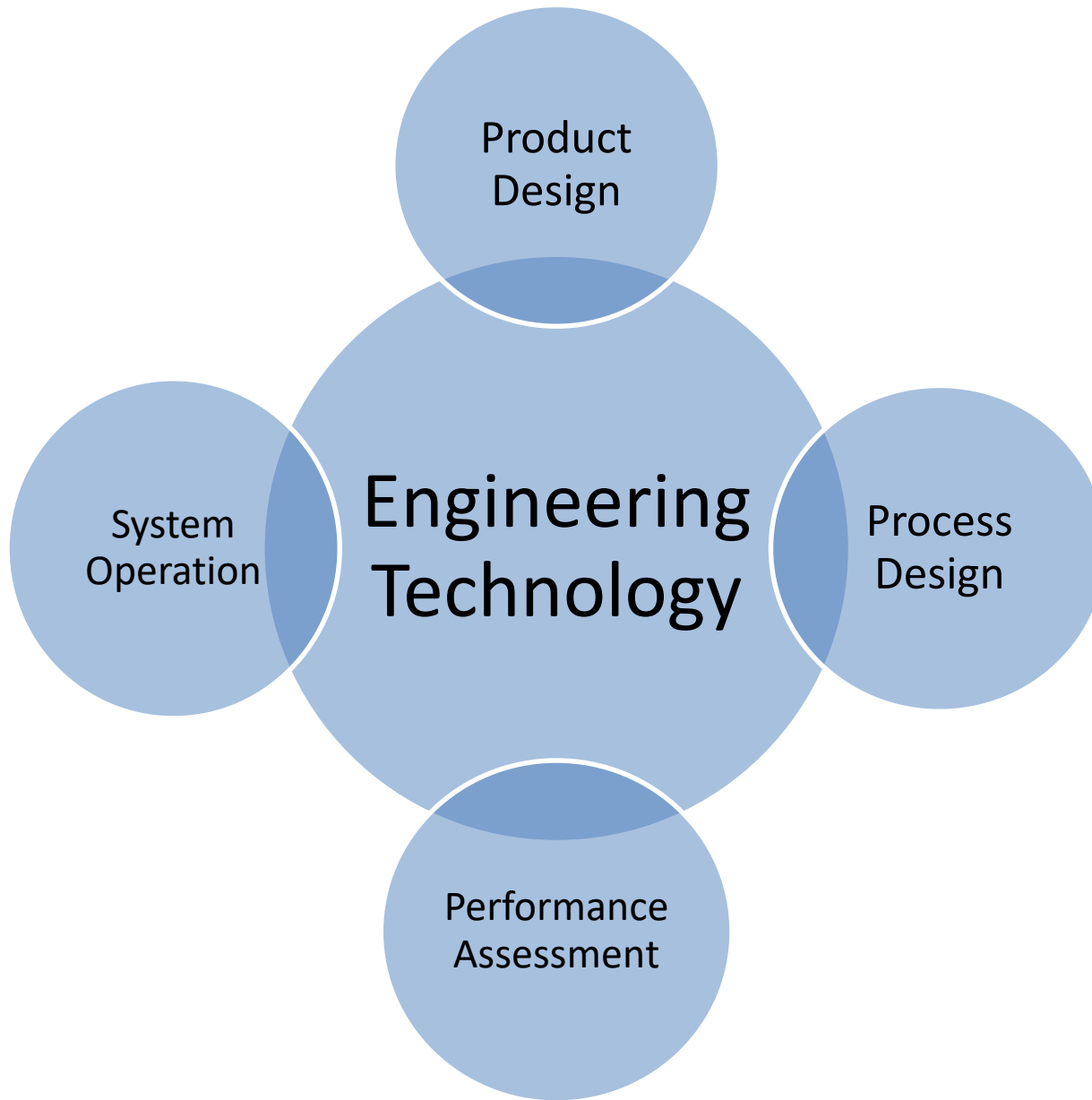
Multidisciplinary approach

Process Engineering



Process Engineering





Product Design

- Innovative
- Based on CAD/CAM software



What different types software do you know?

What are their benefits and limits?

What type of components are they suitable for?

Process Design

- Configuration layout
- Requirements for specific properties



What shape of conveyor system for what specific types of configuration would you find suitable?

Performance Assessment

- Local and global performance indicators
- Event simulation to assess the performance of the configuration



Do you know any suitable software available to assess the performance?

System Operation

- Strategic and operational indicators
- Ergonomic indicators
- Multi-criteria decision making



What analytic tools could be used to configure systems?

Friction in Material

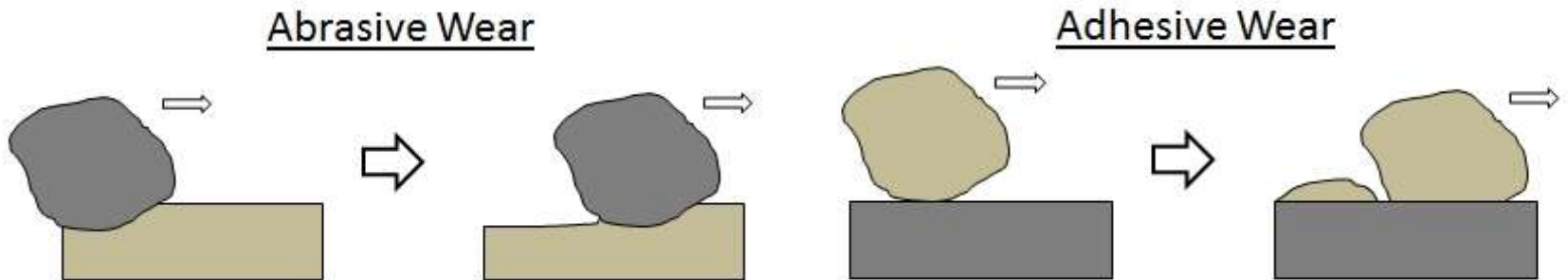
- Two non-interacting components:
 - adhesion and deformation
- Real contact area
- Two-level model of contact



What effect on friction could have:
load / sliding velocity / temperature

Material Wear

- Wear models
- Abrasive wear
- Adhesion wear
- Fatigue wear



<http://faculty2.ucmerced.edu/amartini/tribology.shtml>

Surface Treatment

- Render adhered surfaces receptive to strong, durable adhesive joints
- Technique varies with the type of material
- Bond strength and durability may affect:
 - joint design
 - type of the adhesive
 - processing and treatment

Surface Treatment



Surface Preparation

- Cleaning
- Degreasing
- Alignment



Surface Treatment

- Mechanical methods
- Chemical methods
- Physical methods



Surface Post-treatment

- Primers
- Adhesion promoters
- Activators

CNC Machines

- NC = numerical control
- CNC = computerized numerical control
- Grinding, milling, machining, drilling or cutting CNC machines
- CNC cutter, bending or engraving machines
- For various types of materials
- X-axis CNC machines

CNC Machines Applications

- Automotive and food industry
- Tendency to apply robotics in other industries as well
- Development of reconfigurable CNC machines

Composite Materials

- Combination of two or more materials
- Enhanced properties of a composite



What different types of composite materials could you name?

Composite Materials Applications

- Electronics
- Building industry
- Marine, air, rail, space transport
- General mechanical application
- Sport equipment



What specific examples of composite application can you think of?

Solid Wastes as Construction Materials

- Organic waste (agriculture)
- Inorganic waste (industrial)
- Mining waste
- Non-hazardous waste
- Hazardous waste



Alternative construction materials

Solid Wastes as Construction Materials

- Rigorous quality control



- Good mechanical properties
- Significant durability performance

Metrology

- Science of measurement
- Overlapping fields of study:
 - Scientific
 - Applied, technical and industrial
 - Legal
- “The Big Seven”
- Everyday application

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