

PRODUCT MANAGEMENT FINAL EXAMINATION

1. Product development (PD) models and process modelling

- Different generations of PD based on McGrath's classification
- Definition of the concepts of new product development (NPD) and integrated product development (IPD)
- Comparison of the general project management life cycle approaches (predictive, iterative, incremental, agile) underlying NPD and IPD models
- Linear (technology push and market pull), iterative NPD (chain-linked model, interactive model) and IPD models (e.g. Olsson, Roozenburg-Eekels model)
- General purpose and PD relevance of process modelling

2. Ergonomics in product development

- Definition, aim, and history of ergonomics (ergonomics of “scales and handles”, system ergonomics, product ergonomics, cognitive ergonomics, user experience and the era of universal design)
- Different design strategies (Procrustes’s Bed, designing for the average, etc.)
- Applying ergonomics in the different phases of product development
- Characteristics of primary and secondary users and customers

3. General product management role and responsibilities

- Evolution of the product management role
- Value creation in product management (Ebert-Brinkkemper model)
- Responsibilities of the product manager (Eriksson’s Venn diagram and related activities)

4 Product management of software

- Evolution of software engineering (SE) (main milestones)
- Software development lifecycle (SDLC) models and agile development approach
- Evolution of human-computer interaction (HCI) (main milestones)
- Integration of SE and HCI

5. The essence and techniques of design thinking

- Definition and models of design thinking (e.g. double diamond, IDEO)
- Definition of persona, steps to creating it and its practical application
- Definition of the user journey, steps to creating it and its practical application

6 Product experience and service design

- Definition and relationship of different terms (shopping experience (SX), product experience (PX), user experience (UX), customer experience (CX))
- Description of perceptual modalities and related psychological foundations associated with PX (perception, sensation, emotions, social relations)
- Definition of service design and its practical application

7. 'Design for all' in product management

- Definition of user groups with special needs (e.g. people with disabilities, children, elderly)
- Gap theory and its product development relevance
- 'Design for all' strategies
- Organizational benefits of 'design for all'

8. Types and classification of ergonomic research methodologies

- Definition of qualitative and quantitative research methodologies
- Definitions and types of analytical methods (heuristic evaluation, cognitive inference, etc.)
- Definition and grouping of empirical methodologies (Rohrer's 'cloud' classification, Maguire's process approach)

9. Questionnaires, interviews and focus groups applied to understand user needs

- Application and characteristics of the methodologies (advantages and disadvantages)
- Principles for designing questionnaires, interviews and focus groups
- Different types of questionnaires, interviews and focus groups

- Typical mistakes related to questionnaires, interviews and focus groups and ways to avoid them
- Sampling method and sample size
- Methods of data evaluation

10. Additional research methodologies: projective techniques, Q-methodology, and affinity diagram

- Application of projective techniques, Q-methodology, and affinity diagram (advantages and disadvantages)
- Aspects related to the design, implementation and evaluation of projective techniques, Q-methodology, and affinity diagram
- Methods of idea generation (brainstorming, brainwriting, SCAMPER, 'Six Thinking Hats' method) and idea selection (4-category method, now-how-wow matrix)

11. Methodology for usability testing of low-fidelity products

- Definition and relevance of sketches and wireframes in product development
- Primary concept and applicability of paper prototype testing (advantages, disadvantages)

12. Methodology for usability testing of high-fidelity products

- Definition and relevance of mockups and working prototypes in product development
- Definition of usability and user experience (UX)
- Conducting usability testing and related moderation techniques
- The think-aloud technique and its types (continuous, retrospective versions) used in usability testing
- Metrics applied in usability testing
- Questionnaires in usability testing (e.g. SUS)
- Eye-tracking usability testing (advantages, disadvantages), additional psychophysiological measurement tools

13. Ergonomic assessment and design of industrial workplaces and offices

- Risk assessment methods and supporting CAAA software for industrial workplaces and offices
- Anthropometric measurements as a basis for risk assessment and ergonomic design methods to improve efficiency
- Ergonomic aspects of different postures, the phenomenon of RSI-CTD