

Human Interface

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The Course Outline

- **Course Title:** Preparation course for FE examination
- **Intended Participants:** University Students who are going to take ITPEC examinations
- **Course Duration:** 60 hours

The Lecture Plan

Lecture Plan: Morning Exam, Sec 3-Technological Elements, Chapter 1-Human Interface

Time	Learning Points/Keywords	Explanation Points	Method	Level
10 minutes	Human interface technology	Navigation, Usability, Accessibility, Interactive system, Voice recognition, Image recognition	Verbal Explanation	Medium
		Moving image recognition, Feature extraction, Selective perception		
		Non-verbal interface, Natural language interface, Window, Icon, Radio button (Radio box)		
		Checkbox, List box, Pull-down menu, Pop-up menu, Text box		
10 minutes	Interface design	Numeric check, Format check, Limit check, Combination check, Matching check	Verbal Explanation	Low
		Balance check, Check character, Form overlay, Sequence code, Block code		
		Group classification code, Mnemonic code, Synthetic code		
		Frame, Navigation, In-site search function, ISO 13407, WAI (Web Accessibility Initiative)		
		WCAG 1.0 (Web Content Accessibility Guidelines 1.0)		

1.1 Human interface technology**

- Understand the concept and purpose of information architecture, and apply them to associated matters.
- Understand the types and features of typical human interface technologies, and apply them to associated matters.
- Understand the features and components of GUI and points to be considered in GUI screen design, and apply them to associated matters.

1.1 Human interface technology**

- Navigation, Usability, Accessibility, Interactive system, Voice recognition, Image recognition, Moving image recognition, Feature extraction, Selective perception, Non-verbal interface, Natural language interface, Window, Icon, Radio button (Radio box), Checkbox, List box, Pull-down menu, Pop-up menu, Text box

1.2 Interface design

- Understand the concept and basic procedures of screen design, form design, and code design, and apply them to associated matters.
- Understand the desirable interface that is created by applying the concept of universal design and its basic techniques, and apply them to associated matters.

1.2 Interface design

- Numeric check, Format check, Limit check, Combination check, Matching check, Balance check, Check character, Form overlay, Sequence code, Block code (Classification code), Group classification code, Mnemonic code, Synthetic code, Frame, Navigation, In-site search function, ISO 13407, WAI (Web Accessibility Initiative), WCAG 1.0 (Web Content Accessibility Guidelines 1.0)

Analysis

Analyzation

- Analyzed 9 questions
- Covered the most recent years
 - 2021 Q1 Exam
 - 2021 Q2 Exam
 - 2020 Q2 Exam

Questions

Question 1

Q1. (q3-1) Which of the following is the explanation of accessibility?

- a. It is an approach to improving public services and streamlining administrative duties by managing the information of a basic resident register on a computer network.
- b. It is an approach to interoperability where computers of different specifications mutually access the database managed by the respective computer over a network.
- c. It is an ability to trace the history of all processes from the production stage to the final consumption or disposal stage for products and food items.
- d. It is the degree to which software products, information services, or Web sites are available to anyone including elderly people and people with disabilities.

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Theme: Human interface, Category: FE

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Question 1: Answer Explanation: Slide I

- **Accessibility** is a keyword that refers to the ease of using information systems, such as software, information services, and Web sites, on a user interface. Therefore, d) is the correct answer. The color combination of a screen, design including font size, provision of audio and speech functions, and the attachment of text descriptions of images and audio so that everybody including elderly people and people with disabilities can also adequately access the information systems is also “the degree of achieving universal design in information systems.” In addition, not only items standardized with barrier free design and functions, but it also includes equipment and software that allows independent setting and adjustment of these functions according to the physical characteristics of the user.

Question 1: Answer Explanation: Slide II

- a) This refers to the basic resident register network system. By connecting the administrative agencies and centers all over the country with local public agencies (prefectural and city governments, municipalities), this system makes it possible to share and use information about specific users to whom a resident register code is assigned (recorded in the basic resident register).
- b) This refers to interoperability.
- c) This refers to traceability.

Question 2

Q2. (q3-2) Which of the following is the user interface that enables frequently-used operations to be performed efficiently?

- a. Undo function (Return to original)
- b. Online help
- c. Shortcut key
- d. Progress bar

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Question 3

Q3. (q3-3) Which of the following is an appropriate case where the method of choosing from a list of options is adopted as the input method for the GUI screen?

- a. Each item needs to be checked and modified individually.
- b. There are only a few types of input data and the content of data is fixed.
- c. The input data can take many values.
- d. A large amount of data, such as sentences, is entered.

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Question 4

Q4. (q3-4) Which of the following is appropriate as a data checking method?

- a. A check digit test appends one digit to a numeric item, performs a certain calculation by using the other digits, and checks that the calculation result does not exceed the value of the appended digit.
- b. A balance check takes two or more totals that are supposed to be equal, such as the debit and credit amounts on a journal book, and checks that the two numbers are actually equal when they are calculated separately.
- c. A format check determines whether all mandatory information is entered.
- d. A limit check determines the maximum or minimum value of data elements in a file.

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Question 5

Q5. (q3-5) Which of the following is the most appropriate design principle of data entry screens?

- a. For incorrect input, the reason for the error is displayed together with a message stating that the subsequent processes cannot be performed, and then the program is terminated.
- b. Too much explanation on the screen makes the user feel cumbersome, so a help function for the input items that need explanation is provided to keep the screen simple.
- c. Irrespective of the layout of input form, the input items are sorted in their processing sequence in the program, and are arranged from top to bottom, and left to right.
- d. Users are familiar with operations such as registration, updating, or canceling of input data, so the checking of input data is omitted to improve operability.

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Q6. (q3-7) Which of the following is the appropriate description of usability of Web contents?

- a. It refers to the design that allows use by anyone irrespective of disability, age, gender, or nationality.
- b. It refers to the function that lets people with disabilities and elderly people use and operate a service without any trouble.
- c. It refers to the design that does not place any burden on people with disabilities and elderly people.
- d. It refers to the extent to which users can achieve their target requirements without feeling stressed.

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Question 6: Answer Explanation

- Usability refers to “ease of use.” The concept of usability is not only for people with disabilities or elderly people, but it is a term that expresses general ease of use in a broader sense. Therefore, d) is appropriate for the usability of Web contents. In addition, in the international standard ISO 9241-11, “Guidance on usability” is provided as a principle for ergonomically measuring the ease of use of visual display terminals in offices. In this guidance, usability is defined as **“the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.”**
- a) This is the concept of universal design.
- b), c) Both are the concepts of barrier free design.

Question 7

Q7. (2021 S FE AM-q23) Which of the following is an appropriate purpose of check digit?

- a. To detect an error that an alphabet or a symbol is contained in a numeric item field
- b. To detect an error that the number of digits of an entered code is incorrect
- c. To detect an error that the value of an entered code is incorrect
- d. To detect an error that the value of an entered data is not within a specified range

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Question 8

Q8. (2021 S FE AM-q24) Which of the following explains a drawing software?

- a. It can create a picture on a screen using the mouse as a brush that can be saved to a bitmap image file.
- b. It can create a scenario-based content by editing and arranging several materials, such as text, images, video, and sound.
- c. It can create a simple movie from a series of still images by gradually changing the differences among images.
- d. It can create vector graphics composed of lines and curves defined mathematically with geometric characteristics that can then be transformed or combined.

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Question 9

Q9. (2020 S FE AM-q24) Among GUI components, which of the following is an appropriate use of a radio button?

- a. To select one item from a list of items or type a new item in a text box
- b. To select one item from a list of items that appears when activated
- c. To select one item from a group of mutually exclusive items
- d. To select one or more items from a group of items

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Any Questions?



IT Fundamentals (New FE Textbook Vol. 1)