APPENDIX 1

UPDATED CURRICULUM FOR INFORMATICS

(according to a module-based orientation of the digital literacy training for a general education course in the college - level training program)

Name of course: Informatics

Duration: 75 hours (theory: 15 hours; practice, discussions & assignments: 58 hours; exams: 2 hours).

I. Course position and description

1. Position: Informatics is a mandatory course in the general education category of the college study program.

2. Description: The course equips students with basic digital competences that can be applied in studying, working and lifelong learning in future.

II. Course Objectives

After completing this course, students will achieve basic digital competences, in particular:

1. Knowledge: Students can present and explicate basic knowledge about computers, information technology and media: digital devices; software; platforms; creating content, working and exploiting applications in digital environments. Understand security, safety and behavioral culture issues while participating in digital environments.

2. Skills:

- Be able to recognize and use computers and digital devices, and exploit application software in digital devices;

- Be able to study and work safely in digital environments, and exploit and apply online platforms;

- Be able to use word processing, spreadsheet and presentation software, and make use of them in studying and future administrative work;

- Be able to apply, share and exchange data and digital information in studying and working, and in handling electronic public and commercial services;

- Be able to recognize and apply protective measures to prevent different types of risks threatening data safety and potential dangers associated with social networking sites; apply safety and privacy measures to protect information;

- Be able to obey rules about culture and information safety and privacy; obey rules about labor safety and environment protection while using computers, digital devices and information technology applications.

3. Autonomy and responsibility:

- Be able to recognize the importance of and obey relevant laws, and make responsible use of computers, digital devices, information technology and media; and protect private information in everyday life, studying and vocational work;

- Be able to work independently or with teams while applying basic digital competence in studying, working and other activities.

III. Learning Outcomes

After completing the course, students can:

- LO1: Broadly understand technology to drive the development of digital competence and transformation;

- LO2: Operate digital devices and software;

- LO3: Exploit, collaborate and communicate in digital environments;

- LO4: Make use of application software, and create digital content;

- LO5: Apply skills in security, safety and culture in the digital world;

- LO6: Apply digital skills in studying and working in the future.

IV. Course Content

1. Content Overview and Structure

Seq.	Content	Total	Time (hour)		
			Theory	Practice, discussions, assignments	Exams
1	Lecture 1: Understanding digital competence	5	1	4	
2	Lecture 2: Operating digital devices and software	10	2	8	
3	Lecture 3: Working in digital environments	15	3	11	1
4	Lecture 4: Creating digital content	30	6	23	1

5	Lecture 5: Applying digital competence in vocational work	15	3	12	
	Total	**75**	**15**	**58**	**2**

2. Content Details:

LECTURE 1. UNDERSTANDING DIGITAL COMPETENCE

1. Objectives:

After completing this lecture, students will be able to:

- Present basic knowledge about the 4th industrial revolution or Industrial Revolution 4.0, and its impacts on human life; have a general grasp of digital competence and its role in studying and working;

- Analyze the context of digital transformation and the demand for digitally skilled human resources; understand the meaning and role of digital citizens at school and work today.

2. Content:

2.1. History of the Development of Industrial Revolutions

2.1.1. Mechanization with hydraulic and steam machines (1st Industrial Revolution)

2.1.2. Electronic engine and assembly line (2nd Industrial Revolution)

2.1.3. Computer and automation (3rd Industrial Revolution)

2.1.4. Systems linking the physical, digital and biological worlds (4th Industrial Revolution)

2.2. Core Technologies of the 4th Industrial Revolution

2.2.1. Artificial intelligence technology

2.2.2. Internet of Things (IoT) technology

2.2.3. Cloud computing technology

2.2.4. Virtual reality and blockchain technology

2.3. Impact of Industrial Revolution 4.0

2.3.1. Labor and employment

2.3.2. Health and education

2.3.3. Industry and agriculture

2.4. Overview of Digital Competence

2.4.1. Digital competence

2.4.2. Digital citizens

2.4.3. Digital transformation and the demand for digitally-skilled human resources

2.5. Recognizing Studying and Working Trends and Opportunities

2.5.1. Challenges and opportunities in employment in the digital era

2.5.2. Online training and open-source teaching materials

2.5.3. Access to online studying platforms and digital resources

LECTURE 2. OPERATING DIGITAL DEVICES AND SOFTWARE

1. Objectives:

After completing this lecture, students will be able to:

- Present basic knowledge about computers and digital devices;

- Use available functions of operating systems to fine-tune and personalize devices; use cloud services;

- Confidently access and use digital devices and software;

- Pay proper attention to the protection of personal data in digital and cloud devices.

2. Content:

2.1. Introducing Digital Devices and Software

2.1.1. Digital devices

2.1.1.1. Definition

2.1.1.2. Classification

2.1.2. Application software and online platforms

2.1.2.1. System software

2.1.2.2. Application software

2.1.2.3. Utility software

2.1.2.4. Online platforms

2.1.3. Open-source software

2.2. Operating Digital Devices and Software

2.2.1. Manage files and folders on Windows Operating System

2.2.1.1. Select, copy, and move files and folders

2.2.1.2. Delete and restore files and folders

2.2.1.3. Search for files and folders

2.2.2. Manage files on cloud platforms (cloud storage)

2.2.2.1. Register for a cloud storage platform (free of charge, fees required)

2.2.2.2. Store and retrieve files

2.2.2.3. Share and secure files

2.2.3. Using utility software

2.2.3.1. Software to compress and decompress files

2.2.3.2. Compress a folder or file

2.2.3.3. Decompress folders and files

2.2.3.4. Anti-virus software

2.2.4. Manage hardware and software with Setting and Control Panel

2.2.4.1. Bluetooth, printer

2.2.4.2. Screen, sound, notification, electrical and battery sources

2.2.4.3. Personalize computer interfaces

2.2.4.4. Uninstall and fine-tune software

2.2.4.5. World wide web and the Internet

2.2.4.6. Privacy and maintenance

2.2.5. Software ecology

2.2.5.1. Definition, classification

2.2.5.2. Use major software ecologies (Windows, Google, Android)

LECTURE 3. WORKING IN DIGITAL ENVIRONMENTS

1. Objectives:

After completing this lecture, students will be able to:

-        Present basic knowledge about the Internet and digital environments;

-        Use basic software and online platforms in digital environments for studying, communication and working purposes;

-        Behave and communicate properly and responsibly while sharing and using information in digital environments;

-        Prevent and minimize damages caused by cyber threats in digital environments.

2. Content:

2.1. Basic knowledge about the Internet and Cyber-physical Environment

2.1.1. Internet

2.1.1.1. Overview

2.1.1.2. History of Development

2.1.2. Cyber-physical Environment

2.1.2.1. Definition

2.1.2.2. Compare cyber-physical and traditional working environments

2.1.2.3. Combining cyber-physical and traditional working environments

2.2. Introducing Major Online Platforms

2.2.1. Social Networks, media

    2.2.1.1. Zalo, Facebook, Google, Instagram

2.2.1.2. YouTube, Tiktok

2.2.2. Online services and applications

2.2.2.1. Entertainment (Spotify, Zings, Apple Music, Netflix, etc.)

2.2.2.2. E-Commerce (Tiki, Shopee, Grab, Amazon, Bestbuy, etc.)

2.2.2.3. Administration (public services, E-Identification, etc.)

 2.2.3. Studying, working

2.2.3.1. Managing work (Base.vn, Fastwork, Trello, Zalo, Google, etc.)

2.2.3.2. Meeting (MS Team, Google Meet, Zoom, etc.)

2.2.3.3. Collaborating for work (Office365, Google Space)

2.3. Culture in Cyberspace

2.3.1. Guidelines for behavior on social networks

2.3.2. Moral standards in society

2.4. Information Safety and Internet Security

2.4.1. Share and use information safely

2.4.2. Attacks in cyberspace and preventive measures

2.4.3. Techniques to protect information safety

LECTURE 4. CREATING DIGITAL CONTENT

1. Objectives:

After completing this lecture, students will be able to:

- Distinguish the different uses of various content creation software and applications;

- Use software and applications to create and edit content (texts, spreadsheets, presentations, personal data pages with such data as texts, images, sound, videos, etc.);

- Select, store, share and secure information and data.

2. Content:

2.1. Text Processing (MS Word)

2.1.1. Format texts

2.1.1.1.　　Format pages (Page Setup, Page Background, Style Set)

2.1.1.2.　　Format paragraphs (Paragraph, Styles, Column, Tab, Drop Cap)

2.1.2. Insert into texts

2.1.2.1.　　Tables

2.1.2.2.　　Illustrations

2.1.2.3.　　Links

2.1.2.4.　　Comments

2.1.2.5.　　Headers & Footers

2.1.2.6.　　Texts

2.1.2.7.　　Symbols

2.1.3. References, mailings

2.1.3.1.　　Create indexes

2.1.3.2.　　Create notes

2.1.3.3.　　Mail merge

2.1.4. Distribute texts

2.1.4.1.　　Save texts with different file formats

2.1.4.2.　　Save texts on the world wide web

2.1.4.3.　　Export files

2.1.4.4.　　Print

2.2. Spreadsheet Processing (MS Excel)

2.2.1. Enter Data

2.2.1.1.　　Different types of data

2.2.1.2.　　Enter and edit data

2.2.2. Format Data

2.2.2.1.　　Format data cells

2.2.2.2.　　Format data areas

2.2.2.3.　　Format data sheets

2.2.3. Process data

2.2.3.1.　　Use mathematical expressions (definition, creating simple arithmetic expressions, common mistakes)

2.2.3.2. Use mathematical functions (definition, syntax, how to enter functions; comparison operators; basic functions; conditioning functions; logical functions; date and month functions; chain functions; search functions; conditional functions)

2.2.3.3. Sort and filter data

2.2.4. Draw charts

2.2.4.1. Types of charts

2.2.4.2. Create and correct charts

2.2.5. Distribute spreadsheets

2.2.5.1. Save spreadsheets with different file formats

2.2.5.2. Secure data, and set passwords to protect spreadsheets

2.2.5.3. Save spreadsheets on the world wide web

2.2.5.4. Design spreadsheets for printing

2.2.5.5. Print spreadsheets

2.3. Presentation Processing (MS PowerPoint)

2.3.1. Notes on designing presentations

2.3.1.1. Factors affecting presentations

2.3.1.2. Use available presentation templates

2.3.2. Basic steps in creating presentations

2.3.2.1. Create slides

2.3.2.2. Create texts and formats

2.3.2.3. Insert into slides (Pictures, Shape, WordArt, Textbox, Table, Chart, SmartArt, Audio, Video, Link)

2.3.3. Effects for presentations

2.3.3.1. Create animation effects for objects

2.3.3.2. Create slide transition effects

2.3.3.3. Install presentations

2.3.4. Distribute presentations

2.3.4.1. Save presentations with different file formats

2.3.4.2. Save presentations in cloud storage services

2.3.4.3. Print presentations

LECTURE 5. APPLYING DIGITAL COMPETENCE IN VOCATIONAL WORK

1. Objectives:

After completing this lecture, students will be able to:

\- Explain the uses of online office applications;

\- Use online office applications to communicate and collaborate in studying and working in line with proper behavioral culture and morality;

\- Search for required data on the Internet and verify data sources/copyrights prior to use.

2. Content:

2.1. Organize, Store and Share Data (Google Drive/OneDrive)

2.1.1.   Create an account

2.1.2.   Organize and store data

2.1.3.   Share data

2.2. Manage Work by Calendar (Calendar)

2.2.1.   Create task reminders

2.2.2.   Create appointment schedules

2.2.3.   Create events

2.3. Create and Manage Online Meetings (Meeting Online)

2.3.1.   Select online meeting applications

2.3.2.   Create instant and planned meetings

2.3.3.   Manage meetings

2.4. Collaborate to Create Content (Microsoft Office 365/Google G- Suite/Canva)

2.4.1.   Create accounts in the apps

2.4.2.   Create content files (create completely new files or upload available ones)

2.4.3.   Share files with partners

2.4.4.   Work on shared files

2.4.5.   Manage shared data

2.5. Creating Personal Data Pages (Google Site/Adobe/Padlet/ Bookcreator)

2.5.1.   What is a personal data page?

2.5.2.   Introduce some applications for creating personal data pages

2.5.3.   Create a personal data page (create page structure and content)

2.5.4.   Manage a personal data page

V. Course implementation conditions

1. Computer Lab:

- The lab needs to have an appropriate configuration, and is equipped with adequate lighting and air-conditioning;
- Desks and chairs for students (one desk is set up with 1 computer);
- Instructor's desk and chair, board and board marker, projector;
- Digital devices in media and telecommunications (if available).

2. Equipment:

- Computers installed with Windows Operating System, Microsoft Office (Microsoft Word, Microsoft Excel, Microsoft PowerPoint) and utility software, and connected with the Internet;
- Computer hardware devices include: Mainboard, CPU, Ram, Hard Disk Drive, Display Card, Sound Card, Network Card, PC Case, Computer Source, Monitor, Keyboard, Mouse, Speaker; basic devices: Bridge, Repeater, Hub, Switch, Router and Gateway;
- One server with a LAN connection to manage all associated computers, and one computer for instructors.

3. Teaching Materials, Tools and Other Materials: Textbook, Course Curriculum/Detailed Lesson Plan, Assignment/e-Portfolio/Project, Slides, Reference Materials, Implementation Instructions.

4. Other Conditions:

- Learning Management System – LMS;
- A studio to record online lectures with the following equipment: camera, spotlights, wall lights, green screen, wireless microphone, desktop computer, television, desk and chair for instructor to record lectures;
- Devices for editing online lectures: computer; Adobe Premiere, Adobe Audition, Adobe After Effect and Articulate Storyline software.

VI. Assessment Methods

The assessment of students' learning results is carried out in accordance with Circular 04/2022/TT-BLĐTBXH approved on 30/3/2022 by the Minister of Labor, War Invalids & Social Affairs on the organization of training of intermediate and college curricula according to year-based or module, or credit-based format.

The assessment method for the Informatics course based on the digital competency framework is implemented specifically as follows:

- On-going assessments: multiple-choices, reports, essays, direct or indirect practice on LMS;

- Regular exams based on assessment of skill practice;

- Final exam based on the project that structures course content as a Portfolio (in print, pdf, video, online). The instructor informs and assign this final project to students right at the beginning of the course.

VII. Instructions on Course Implementation: See APPENDIX 2

Informatics is developed as a mandatory course for college students in the TVET. The course curriculum is designed in accordance with the international digital competence frameworks established by such organizations as UNESCO and the European Commission. The course's target is to enable students upon course completion to meet the requirements set out by the Digital Transformation Project approved by the Prime Minister according to Decision No. 2222/QĐ-TTg on the Digital Transformation Program in Vocational Education for 2021 - 2025, with a Vision to 2030.

VIII. References

1. Decision No. 2222/QD-TTg dated December 30, 2021 of the Prime Minister on the approval of the Digital Transformation Program in Vocational Education for 2021-2025, with a Vision to 2030

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