Catholic Kwandong University 2026 Curriculum
AI-Healthcare Major

1. Educational Goals

To cultivate interdisciplinary professionals who understand people and health through AI and software technologies.
The program emphasizes human-centered AI and software that transforms everyday life.

Talent Types:

• AI Service Front/Data Engineer
• Digital Therapeutics and Medical Device Development Contributor

Core Competencies:
• Front-end and service development
• Data collection, preprocessing, and visualization
• AI service utilization
• Data literacy and ethics
• Industry practical capability
• Medical and biosignal fundamentals
• AI and healthcare data technologies
• Digital therapeutics development process
• Multidisciplinary collaboration

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2. Roadmap by Academic Year

Year 1:
Students explore AI, data science, and healthcare broadly while overcoming fear of coding and building confidence.

Year 2:
Students acquire foundational major knowledge.
Computer Software Track: Web, data, and software engineering fundamentals.
AI-Healthcare Track: Medical systems, bioscience, and healthcare data fundamentals.

Years 3–4:
Advanced specialization and capstone design.
Students develop healthcare solutions and AI software services through team-based industry projects, internships, and collaboration with hospitals and regional organizations.

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3. Specialized Education Areas

AI Service Front & Data Engineering:
• React/Vue front-end development
• Backend APIs and databases
• Cloud deployment and Docker basics

• Python, Pandas, visualization dashboards
• AI model/API integration into services

Digital Healthcare & Therapeutics:
• Human physiology and medical systems
• Healthcare regulations and digital therapeutics
• Medical AI modeling
• UX/UI and patient journey design
• Collaborative healthcare projects

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4. Major Competencies

MC1 – AI & Data Literacy:
Understanding AI principles, data collection, and analysis processes.

MC2 – Convergence Problem Solving:
Designing creative software-based solutions for healthcare and community problems.

MC3 – Collaborative Communication & Ethics:
Communicating effectively with multidisciplinary teams while respecting ethical responsibilities.

MC4 – Medical Domain Insight:
Understanding physiology, disease mechanisms, medical law, and hospital systems.

MC5 – Bio-Health Data Analytics:
Analyzing genomic, medical image, and lifelog healthcare data using AI and statistics.

MC6 – Digital Health Service Planning:
Planning and validating digital therapeutics and healthcare platforms.

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5. Educational Tracks

1) AI Service Development Track
Students build and deploy practical AI web/mobile services using front-end and backend technologies.

2) Data Engineering Track
Students design data pipelines, dashboards, ETL systems, and data infrastructures.

3) Digital Healthcare Service Track
Students plan healthcare services centered on patient experience and medical systems.

4) Digital Therapeutics & Medical AI Track
Students study medical AI models, regulations, digital therapeutics, and research methodology.

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6. Representative Courses

• Fundamentals of Programming
• Data Literacy and Basic Statistics
• Data Literacy Practice using Python
• Introduction to AI and Software
• Digital Health and Society

• AI Ethics and Digital Citizenship
• Software Development using Generative AI
• Fundamentals of Database (Theory)
• Medical Data and Healthcare Systems
• Medical AI Modeling and Applications
• Digital Health UX and Patient Experience Design
• Healthcare Device Design
• Capstone Design
• Industry Internship and Field Practice

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7. Career Paths

Graduates may work as:
• AI service developers
• Front-end / backend / full-stack developers
• Data engineers
• Digital healthcare planners
• Medical AI researchers
• Healthcare startup planners
• Hospital digital transformation specialists
• Public healthcare data analysts
