Course Code	CS 4XX/6XX
Title of the Course	Assisted Living Computing Systems
Course Category	Department Elective
Credit Structure	L-T-P–Credits 2-1-0-3
Concerned Department	Computer Science and Engineering
Pre-requisite	Computer Programming CS 101
Objectives	1. To learn how to develop assisted living systems with secure HCI, accessibility standards, and integrated hardware/software. 2. To learn modeling, simulation, and verification for compliant, fault-tolerant architectures aligned with HIPAA, GDPR, and WCAG.
Course Outcome	1. Ability to Design accessible, secure computing solutions for assisted living needs. 2. Ability to analyze an develop assisted living systems that incorporate responsibility.
Course Syllabus	• **Assisted Living Systems Computing Foundations:** Overview, Computing for elderly and disabled support, Privacy, data handling, and system-level challenges • **Design for Accessibility and Security:** User-centered design principles, Assistive and accessibility Standards, HCI techniques and secure interface design • **Contextual Factors and modelling:** Ethical models, system evaluation, Motor constraints, Intervention technology, Comparative assisted living technologies • **Industry Standards:** Legal, Regulatory, Compliance frameworks (e.g., HIPAA, GDPR), Industry-aligned system requirements • **System Architecture and Development Lifecycle:** Technical specifications and constraints, System modeling, simulation, verification, and validation, Architecture design (hardware, software, network)
Suggested Books	1. Rashmi Gupta, Xiomara Patricia Blanco Valencia, Lalit Mohan Goyal, Jeetendra K, **“Ambient Assisted Living (AAL) Technologies Transitioning from Healthcare 4.0 to Healthcare 5.0”**, CRC Press, USA, 2025, ISBN 9781032858593. 2. Joost van Hoof, George Demiris, Eveline J.M. Wouters,**”Handbook of Smart Homes, Health Care and Well-Being”**, Springer Cham, Switzerland, 2016, ISBN 978-3-319-01582-8