

Pre-Requisite Modules code(s)	Co-Requisite Modules code(s)	ECTS Credits	Module Code	Module Title
		5	CMPU3046	Universal Design and Assistive ICT

8.5.6. Universal Design and Assistive ICT

Module author:

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Module Description:

This module embraces the paradigm of Assistive Technology. Its subject matter ranges from Disability Awareness, an overview of technology, the legal social and economic imperative of Accessible IT, Human Computer Interaction, Universal Design, Accessible Software and Accessible Web Design. It is intended to provide the learner with the necessary understanding and skills to develop Accessible User interfaces to Application Software and Accessible Web pages. The learner should understand the challenges of developing Inclusive IT solutions and be able to critique available solutions.

Module aim

The aim of this module is to:

- Describe the context of Disability and explore the issues involved in Assistive Technology.
- To investigate the specific challenges of an inclusive Information Technology society.
- To demonstrate the relevance of the learners own IT skills to facilitating an inclusive Information Technology society.

Learning Outcomes:

On completion of this module, the learner will be able to:

- Describe the social and legal imperatives with regard to Assistive Technology.
- Appreciate the environmental constraints of people with disability.
- Describe the various technologies and specialised interfaces to assist people with disability.
- Describe principles of user interaction and identify various disabilities that impact the Human Computer Interface.
- Assess the accessibility of software within a universal design framework.
- Design and implement software interfaces with improved accessibility.
- Design and construct inclusive Web sites.

Learning and Teaching Methods:

This module will be delivered using a combination of Lectures, Practicals, Case Studies, Role Playing, Discussions, and Thinking Skills. The main theoretical material will be delivered in lectures. The

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practical work to assess the accessibility of software, and design and implement accessible software interfaces evaluate accessibility, and inclusivity of Web sites will be carried out in laboratory sessions.

Module content:

- *Disability Awareness:* Overview of different conditions. Analysis of requirements imposed by these conditions. Social, Legal and Economic Models of Disability. Service Delivery Models.
- *Technical Overview:* Relevant Technologies. Product Review. Software Support Systems. Hardware Overview. Specialized Interfaces. Augmentative Alternative Communication: Switch Access: Voice Recognition: Text to Speech Computer Vision: Environmental Control and Independent Living.
- *Specialized Interface design:* Analysis of Requirements. Technical Constraints. Design Issues. Universal Design, Challenging the HCI user Model. Enhanced models of HCI.
- *Inclusive IT Universal Design* Access issues, Matching Person and Technologies, Frameworks, Accessible Databases, Web Access. Usability, Technical Support.
- *The Education Paradigm* Connecting to Learn, Education and Technology, Learning Styles, Individual Education Plans.

Module Assessment

Written Examination 70%; Practical 30%

Essential Reading:

Cook and Hussey (2007), Assistive Technology Principles and Practice, (3rd Ed), Mosby.

Supplemental Reading:

- Scherer, Marcia J. (2003) Connecting To Learn, Educational and Assistive Technology for People With Disabilities, American Psychology Association
- Web references, journals and other:
National Disability Authority WWW.NDA.IE
Web Access Initiative www.w3.org/wai
Higher Education Disability Site www.Ahead.ie
Central Remedial Clinic www.crc.ie

Further Details:

Duration one semester: 2 Lectures 1 Practical per Week.

Date of Academic Council approval