SCHEME OF WORK

MASTERS IN INFORMATION TECHNOLOGY (CS770)
SCHOOL OF COMPUTING SCIENCES
COLLEGE OF COMPUTING, INFORMATICS AND MATHEMATICS
UNIVERSITI TEKNOLOGI MARA

SESSION: OCTOBER 2025 – FEBRUARY 2026

ICT703 – HUMAN CENTERED INFORMATICS

LECTURER: **Afdallyna F. Harun (Dr)**
ROOM: **T2-10, CS2 Building, FSKM**
EMAIL: **afdallyna@tmsk.uitm.edu.my**

COURSE DESCRIPTION

Human centered informatics is about nurturing the ability to analyze and comprehend complex human, organizational and technological contexts of ICT-systems use to enable the design, recreation and change both the ICT-system and their context of use. This course focuses on the use and design of information technology and offers a macro perspective study on the design and use of information communication technology by humans. Five broad areas covered are: Human–computer interaction (HCI) which involves the study, planning, and design of the interaction between people (users) and computers; human centered computing (HCC) which is concerned with the development, evaluation, and dissemination of technology that is intended to amplify and extend the human capabilities to perceive, understand, reason, decide, collaborate and conduct cognitive work to achieve, maintain and exercise expertise; human information interaction (HII) which is the study of how humans recognize, process, remember, synthesize, visualize, and comprehend information; personal informatics which represents an area of study on the emerging technologies that help people systematically collect, make sense of and act on data about their own lives within social, behavioral and technical challenges; HCI study in MIS which is concerned with the ways humans interact with information, technologies, and tasks, especially in business, managerial, organizational, and cultural contexts.

LEARNING OUTCOMES

At the end of the course, students should be able to:

- Analyze the principles of social, cognitive, and physiological factors that influences interaction between human and informatics (C4)
- Display social skills in handling user-centered design elements and evaluation techniques in technological solution (A5)
- Demonstrate User-Centered Information Management Skills in IT artefact design societal sustainability (P5)

SCHEME OF WORK

Week	Topic	Hours	Checklist
1 (12/10/2024)	Lecture 1: Intellectual Foundation of Informatics	3	Complete Entrance Survey Group Management
2 (19/10/25)	Lecture 2: Theoretical and Methodological Aspects of Information and Communication Technology	3	
3 (26/10/25)	Lecture 3: Human Centered Technology	3	
4 (02/11/25)	Lecture 4: Human Centered Computing	3	
5 (09/11/25)	Lecture 5: Theoretical Framework of Human Computer Interaction	3	Assessment 2: Case Study (20%)
6 (16/11/25)	Lecture 6: Human Computer Interaction Methods	3	
7 (23/11/25)	Lecture 7: Design Perspectives in Human Computer Interaction	3	
MID TERM BREAK : 24 – 30 NOV 2025			
8 (07/12/25)	Lecture 8: Human Information Interaction Project Update	3	Assessment 1: Group Workshop (10%)
9 (14/12/25)	Lecture 9: Personal Informatics	3	
10 (21/12/25)	Lecture 10: HCI in Organizational Context	3	
SPECIAL FESTIVE BREAK: 22 DEC – 28 DEC 2025 ***25 Dec 2025: Christmas***			
11 (04/01/26)	Project Update	3	
12 (11/01/26)	Project Update	3	
13 (18/01/26)	Project Update	3	
14 (25/01/25)	Project Update	3	**Assessment 4: Take Home Test (30%)** 48 hours
REVISION WEEK: 26 JAN – 01 FEB 2026 ***29 – 30 Jan: Chinese New Year***			
FINAL EXAMINATION: 02 FEB – 22 FEB 2026 ***11 Feb: Thaipusam***			
15	**Assessment 4: Project Presentation** **See Appendix for project description**	3	**Assessment 3: Class Project (40%) – F2F** 07 Feb 2026 (9:00 – 12:00pm) Project Presentation + QnA 10 Feb 2025 Report and Prototype Video Demo Submission Complete Exit Survey and SuFo

Reading Materials

1. Bardzell, J., & Bardzell, S., Humanistic HCI: Synthesis Lectures on Human Centered Informatics, Morgan & Claypool, 2015
2. Edmonds, E., The Art of Interaction: what HCI can learn from interactive art, Morgan & Claypool, 2017
3. Lewis, C., Representation, Inclusion, and Innovation: Multidisciplinary Explorations, Morgan & Claypool, 2017
4. Grudin, J., From tool to partner: The evolution of human-computer interaction, Morgan & Claypool, 2017

5. Louis Rosenfeld,Peter Morville,Jorge Arango, Information Architecture for the World Wide Web, O'Reilly Media, 2015, ISBN: 1491911689

Assessment Rules

- For all assessments, the following rules applies:
    - Penalty for late submission:
        - Please note that every day of the week will be considered as counting towards a late penalty; this rule will apply to all holidays (public and University) and includes weekends, with Saturday and Sunday each counting as one day.
        - Work submitted so late (7 days after deadline) will be awarded a mark of 0
        - All assignments must be submitted, even after the above condition. Failure to do so may lead to the automatic failure of this module.
    - Extensions will only be granted under exceptional circumstances. **Being busy is not one of them.** Kindly inform me of any circumstances that are liable to affect your ability to submit work on time as early as possible. Provide the necessary documentations as well.
- Attendance is highly regarded for this course following UiTM's academic rules (*Peraturan Akademik Universiti Teknologi MARA 2019, petikan para 2.13.2*). **Students who failed to achieve attendance of at least 80% without substantial justification or written permission from FSKM/Centre of Studies/Top Management, would be penalized where the student would not be able to sit for final exams.**
- Plagiarism **WILL NOT BE TOLERATED! Penalty as according to UiTM Act is applicable upon identification of plagiarism.**

Description of Assessments

	Item	Description
Assessment 1(10%) Practical	• **Group Workshop (10%)**	Each group build a composite persona by combining single personas from the case study assignment. Propose features (relevant to the pursued project theme) that can address the composite persona needs. Deliverable: Video of low-fi mockup (sketches) + justification of how the proposed feature will address the problem via informed, context-aware planning. The video should be no longer than 5 minutes long
Assessment 2 (20%) Case Study	• **Individual Case Study (20%)**	Each member of the group must interview one person to gather insight on user's needs. Example Personas: • Family with kids (seeks convenience, avoids traffic, cares about safety). • Solo backpacker (wants authentic experiences, less concerned about crowds). • Retired couple (prefers comfort, seasonal weather awareness, cultural activities). • Business traveler (needs reliable schedules, avoids disruptions). • Local resident (may want to plan a staycation during off-peak periods). Each student produces a persona + reflection on how cognitive informatics could improve their holiday planning. To help with your work, you should also build an understanding of cognitive cities by providing a short review (2 pages at most, 500 – 600 words, Arial, 12-point font, 1.5 spacing). Additionally, the points below can be used to draft your interview questions (the class should plan on standard interview questions): 1. Cognitive Cities a. Define the concept of cognitive cities (i.e. key characteristics), ability to leverage data, AI and IoT to optimize urban operations and improve quality of life. b. Potential impacts of cognitive cities on various aspects of urban life and Sustainable Development Goals (i.e. logistics, healthcare, education, sustainability, governance, etc). 2. Human-Centric Cognitive Cities a. Identify and critically analyse the challenges associated with integrating human-centric data within cognitive cities. b. Discuss issues related to data privacy, security, equity, and accessibility, and their implications for ensuring that cognitive cities prioritize the well-being and interests of all citizens. c. Discuss Malaysia's readiness in employing Cognitive Cities. Make association to relevant policies, blueprints and initiatives where you argue the feasibility and the possible setbacks. You need to have at least 10 reputable references to support your arguments. The referred papers must be attached.

Assessment 3 (40%) Group Project	• **Mid-Fidelity Prototype (20%)**	• Working prototype that demonstrate how features would work via live demo using suitable scenario • Video demo should be included as part of report submission
	• **Report (10%)**	Produce a report that documents the problem you have chosen to address. See project description
	• **Presentation (5%)**	The prototype must be presented to show its functionality. All members must be present. Absent from presentation will result in 0 marks for the missing member and risk of course failure
	• **Peer Review (5%)**	You will review your members contribution in all group assignments
Assessment 4 (30%) Test	• **Individual Test (30%)**	A take home test. The answer script must arrive at the set deadline. Late submission will not be entertained, and 0 marks will be awarded for late answers

Anchor Project: Smart Holiday Retreat Planning Platform

Planning a holiday retreat often focuses on booking hotels, flights, or attractions — but travellers frequently overlook crucial contextual factors such as local festivals, heavy traffic, seasonal weather, or limited availability. These factors can ruin a trip or conversely, more rewarding.

The Smart Holiday Retreat Planning Platform is envisioned as a cognitive travel planning website that helps individuals and groups make informed, context-aware decisions. Each group will design and prototype one major feature module. All groups' outputs will integrate into the anchor platform to demonstrate a holistic system. Most importantly, the output should showcase its role in cognitive cities/smart tourism (how such a system could integrate with real-world data sources like traffic APIs, hotel booking systems, local government calendars).

Group 1 – Context-Aware Planning Assistant (Human-Centered Computing)

Problem Statement: Travelers often book without awareness of hidden contextual issues such as local events, traffic jams, or cultural holidays. This leads to poor experiences (e.g., being stuck in gridlock on the way to a resort).

Scope:

- Design an AI assistant / chatbot that helps travellers plan smarter.
- Provide "what-if" scenarios: compare travel on alternative dates or routes.
- Proactively surface warnings ("expect traffic due to festival parade") and opportunities ("your visit coincides with a cultural fair").

In designing your solution, consider:

- Effectiveness of interaction design.
- Ability to enhance human decision-making without overload.
- Consideration of ethical issues (bias, misinformation).

Group 2 – Interactive Travel Information Dashboard (Human Information Interaction)

Problem Statement: It is difficult for travellers to make sense of fragmented travel information across dates, maps, and events. Poor visualization leads to misinformed choices.

Scope:

- Design a dashboard interface that integrates timelines, maps, and availability data.
- Show local events alongside user itinerary.
- Visualize comparisons (e.g., budget vs. convenience vs. crowding).

In designing your solution, consider:

- Clarity and usability of visualizations.
- How well the design supports cognitive tasks (planning, comparing, synthesizing).
- Trade-offs between detail and simplicity.

Group 3 – Personal Travel Informatics (Personal Informatics)

Problem Statement: Travelers often repeat mistakes (overbudget, late bookings, poor choices) because they lack tools to learn from past experiences and reflect on their travel behaviour.

Scope:

- Design a personal travel dashboard to help individuals set goals, track budgets, and reflect on past trips.
- Provide nudges ("you tend to overspend on last-minute bookings", "you tend to plan too much activities on a short trip").
- Enable custom preferences (comfort vs. cost, nature vs. city).

In designing your solution, consider:

- Balance between personalization and user control.
- Ethical handling of sensitive travel/finance data.
- Design for reflection and behaviour change.

Group 4 – Social & Community Knowledge Layer (Community Engagement)

Problem Statement: Travelers often miss authentic experiences or fail to anticipate local conditions because they rely only on official booking platforms, not community wisdom. But unmoderated peer advice can be unreliable.

Scope:

- Create a social knowledge-sharing feature (local tips, community forums, story-sharing).
- Develop a trust/reputation system for contributions (e.g., verified locals, frequent travellers).
- Show contextual tags ("best during hot season", "avoid summer weekends").

In designing your solution, consider:

- Effectiveness of mechanisms for trust, moderation, and authenticity.
- Usability of contribution and consumption flows.
- Cultural sensitivity in representing local voices.

Group 5 – Predictive & Collective Analytics (Collective Informatics)

Problem Statement: Travelers face uncertainty about crowding, availability, and costs. Local communities also struggle with tourism pressure. Without predictive insights, planning is reactive and often frustrating.

Scope:

- Design a predictive analytics module that models hotel occupancy, attraction congestion, and traffic peaks.
- Provide a sustainability dashboard showing tourism impact on local resources.
- Offer recommendations for "best travel window" balancing price, availability, and crowd levels.

In designing your solution, consider:

- How predictive insights are communicated (accuracy vs. uncertainty).
- Balance between individual traveller needs and collective/community needs.
- Reflection on long-term sustainability and cognitive city implications.

Classwide Integration

At the end of the course, all groups' prototypes will be presented together as modules of a single Smart Holiday Retreat Planning Platform. Each group's work will be evaluated individually, but the collective presentation will show how human-centered informatics approaches combine into a coherent cognitive city service. Nevertheless, the nudges provided in the description are to be received as suggestions, not obligations. You are very much welcome to add and refine the ideas accordingly

Report Format

Each group is required to produce a report that covers the following:

A. Cover Page
B. Introduction
    a. Cognitive Cities
    b. The importance of human-centric data in Cognitive Cities
    c. Problem Discussion
C. Project Idea
    a. The Idea (describe your solution idea)
    b. Objectives (describe the aim, purpose and objectives of your project)
D. The Thought Process
    a. Empathize and define – the process involved in exploring the problem with users, their feedback, and stating the problems/challenges faced by them
    b. Ideate – the process involved in designing the solution. This would include the brainstorming process, conceptual design/sketches, and any user feedback process undertaken to refine the design
    c. Prototype – the process involved in prototyping the solution. Provide the technical documentation on the prototype build up (the UI, the coding, etc). List all the software/components involved in producing the prototype
    d. User Testing – discuss how user feedback was gathered with the final product and provide documentation on their feedback
    e. For all the above, relation to HCI concepts is very much expected. Also please provide the necessary evidence, images, etc to support the content
E. Conclusion
    a. Project limitations
    b. Future Work
F. References and Citations
    a. Please follow APA format
    b. A minimum of 15 reputable references is expected