DEREE COLLEGE SYLLABUS FOR:

ITC 3161 VOICE USER INTERFACES **3/0/3**
(Previously: ITC 3261 VOICE USER INTERFACES) **UK LEVEL: 5**
(Updated Fall 2023) **UK CREDITS: 15**

PREREQUISITES:	ITC 2088 Introduction to Programming
COREQUISITES:	None.
CATALOG DESCRIPTION:	User interfaces; voice commands, conversational UI; chatbots; virtual assistants; methods, tools, and design; challenges and testing; case studies; the role of NLP; applications and services
RATIONALE:	The course exposes students to the interaction through voice interfaces, from simple voice commands to virtual assistants. Students have the opportunity to study virtual assistants, and their impact on user experience, and acquire practical experience with the development of chatbots.
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Demonstrate understanding of the attributes of an effective VUI. 2. Compare and contrast the types of voice UI implementations. 3. Interpret the impact of conversational UI in a given set of conditions. 4. Apply core principles and techniques for the design of chatbots.
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: • Classroom lectures, discussions, and review of real-world cases based on specific theoretical concepts. Laboratory practical sessions. • Office hours: Students are encouraged to make full use of the office hours of their instructor, where they can ask questions and go over lecture material. • Use of the Blackboard Learning platform, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.
ASSESSMENT:	**Summative:** 1st assessment: Midterm Exam Short essay questions and case problems — **30%** 2nd assessment: Portfolio of student work and oral assessment — **10%** Final assessment: Project chatbot prototype// report on design and testing — **60%** **Formative:** In-class groupwork activities, homework, case studies — **0%** The formative assessments aim to prepare students for the summative assessments and expose them to teamwork. The 1st summative assessment tests the LOs 1, 2. The 2nd summative assessment tests the LOs 1-4. The final summative assessment tests the LOs 1-4.

	*The final grade for this module will be determined by averaging all summative assessment grades, based on predetermined weights for each assessment. If students pass the **final summative assessment,** which tests all Learning Outcomes for this module, and the average grade for the module is 40 or above, students are not required to resit any failed assessments.*
INDICATIVE READING:	**REQUIRED READING:** 1. Pearl C. (2016). *Designing Voice User Interfaces: Principles of Conversational Experiences*. O'Reilly Media, Kindle edition available 2. Instructor's notes. **RECOMMENDED READING:** 1. Raj S. (2018). *Building Chatbots with Python*. Apress 2. Batsh R. (2018). *Voicebot and Chatbot Design: Flexible conversational interfaces with Amazon Alexa, Google Home, and Facebook Messenger*. Packt Publishing, Kindle edition available.
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL:** Chatbots vs Virtual Assistants https://chatbotslife.com/chatbots-vs-virtual-assistants-what-is-the-difference-f23287e32165 **RECOMMENDED MATERIAL:** Chatbots vs Virtual Assistants: Right Solution for Customer Engagement https://chatbotsjournal.com/chatbots-vs-virtual-assistants-right-solution-for-customer-engagement-17fd1b06f152
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS. Communication using proper written and oral English. Use of word processing and/or presentation graphics software for documentation of assignments.
SOFTWARE REQUIREMENTS:	MS-Office Python BotKit Rasa IBM Watson Assistant (Lite) Adobe Audition
WWW RESOURCES:	• https://www.interaction-design.org/ • http://jacm.acm.org/ • https://www.g2.com/products/ibm-watson-assistant/reviews • https://www.cedextech.com/blog/open-source-chatbot-tools/

INDICATIVE CONTENT:	1. The evolution of user interfaces (UI)
	2. Physical vs non-physical UI
	3. Voice UI (VUI)
	  ○ Early applications
	  ○ The impact on user experience – Employee and customer service
	4. Voice only
	  ○ Voice commands
	  ○ Identifying errors
	  ○ Scenarios

	5. Conversational UI and AI o Understanding software agents o Chatbot Design o Virtual Assistants – Mental models and competency levels 6. Testing 7. VUI with avatars and other visual representations 8. Concepts in Speech recognition 9. Advanced Virtual Assistants