Level 3

N	Course Name	Evaluation Mechanism	Research Topics	Notes
1	**Advanced Project management [3IT, 3IS]**	Research Essay	1. Real-life case study for applying Big data science algorithms in data science algorithms in: a) data science algorithms in Surrounding the Covid-19. b) A complete health care system. c) Smart cities. d) Salesman problem (path planning). e) Recommendation systems for products targetting special customers. f) Predicting cancer for patients using test results	
2	**Human Computer Interaction [3IT]**	Research Essay	**Human computer interaction in healthcare** 1. [Water Reminder, Corona Virus, Electronic Medical Records] 2. Enhancing human-computer	**Evaluation mechanism** 1. **Research Project Title:** Clearly describes contents 2. **Team Members** 3. **Theme:** [Website/Mobile Application/Desktop Application]

				interaction design education
				3. HCI For disabilities people [Accessible Website / Mobile Application]
				4. Human computer interaction and child development
				5. HCI and Sports [Fitting exercises]
				6. Human computer interface evaluation for remotely operated vehicles
				7. Designing mobile applications to support mental health interventions
					4. **Platform**
					5. **Intended Users:** Show the individual differences [short-term and long term]when creating an interactive system
					6. **Input/output:** Choose a suitable combination of input and output devices to best support the intended interaction
					7. **Research Question: Abstract:** Describes what was done[research problem, your solution and its benefits]
					
					Introduction & Related Work [related to your project]
					• Clearly state the:
					  – Problem being investigated
					  – Background that explains the problem
					  – Reasons for conducting the research
					Summarize relevant research to provide context
					• State how your work differs from published work

				To find related and previous works, refer to the following conference proceedings; http://hcibib.org/conferences The most important conferences in HCI – listed in order - are: http://hcibib.org/archive/CHI http://hcibib.org/archive/UIST http://hcibib.org/archive/UbiComp http://hcibib.org/archive/CSCW - If there are papers which you cannot access, contact your TA and she will download them for you. Group papers in a single request to her. Note that even if you cannot access a paper, you have access to the abstract and list of papers referenced in that paper. - Citing websites or news articles is not acceptable. You must cite academic papers. - Minimum number of papers to cite is 10. **Proposed work [Detailed Design]:** Provide the reader enough details so they can understand

				and replicate your project research Explain how you studied the problem, identify the procedures you followed **How you can serve [Community / Special needs]:** Through your project answer in details For special needs, follow this standard: **https://www.w3.org/WAI/standards-guidelines/** **Evaluation of your design:** Walkthrough Evaluation [to all screens]
3	**Geographic information systems [3IS]**	Research Essay	1-The role of GIS analytics in aromac and medical plants investment 2-The role of gis analytics in pandamics 3-The role of gis analytics in sustainability development 2030	
4	**Computer Vision**	Research Essay	1. Location recognition 2. Human Identification 3. Face Detection and Recognition in Video 4. Human tracking (in Video) 5. OCR for Arabic/English 6. Activity Recognition (in Video) 7. Panoramas with image stitching	**Evaluation mechanism** o Abstract (20 points) o Introduction (20 points) o Problem statement and Objectives (20 points) o The proposed System and Results (20 points) o Conclusion (10 points) o References and citations (10 points) ✓ **If the report got at least 50 points (from 100 points),**

			8. Car Detection and Recognition. 9. Car Tracking (in Video). 10. Biometrics. 11. Image Retrieval. 12. Detection of possible cancer (medical imaging). 13. Object Recognition (at least 5 different objects). 14. Video Summarization. 15. Sport Identification (at least 5 different sports)	**all the students will pass, otherwise, they will fail.** ✓ **Rules:** o **Team members from 1 to 5 (Max) students from the third year only.** o **Submit your report by 1 June 2020 (Deadline)** o **The report should have 5 pages (min) and 10 pages (max).** o **One of the report' team send the report with all student names and student Ids to this email:** hzawbaa@fcis.bsu.edu.eg o **The report should contain the following section:** 1. **Abstract** 2. **Introduction** 3. **Problem statement and Objectives** 4. **The proposed System and Results** 5. **Conclusion** 6. **References and citations along the text.** **Note: try to avoid copy and paste as much as you can in the report.**
5	**Data mining** **[3IS, 4IS]**	Research Essay	1-Data mining and analytics in e-governments evaluation 2-Data mining and analytics in sustainability development 3-Data mining and analytics in investments	
6	**Software Development** **[3IS, 3IT, 3CS]**	Research Essay	1. Review of Agile development Methodology and its implementations/frameworks. 2. Review of Software Architecture Patterns. 3. Review of Software Design Patterns**.**	http://www.fci.bsu.edu.eg/Content.aspx?section_id=11791&cat_id=8

7	Computer Networks	Research Essay	1. Computer network design for faculty of computers and artificial intelligence 2. Traffic monitoring system for faculty of computers and artificial intelligence network 3. Online Chatbot System for faculty of computers and artificial intelligence 4. Live chat system for Beni suef university **5.** Network Protocols, schemes, and mechanisms for modern networks 6. Performance Evaluation of the faculty of computers and artificial intelligence network 7. Voice over IP systems	**Evaluation mechanism** Abstract 20 marks Introduction 20 marks Proposed system 20 marks Results 20 marks Conclusion 10 marks References 10 marks **Rules:** • You can work in groups • Maximum number of members per group is 5 • The Submission deadline is 1st June 2020 • The research should have 5 pages (min) and 10 pages (max) • Try to avoid copy and paste as much as you can • The pass mark is 50%
8	**Operating Systems [3IT, 3MM, 3CS]**	Research Essay	1.Write about OS , Process management, and Interprocess communication **2.** Write about OS , and different CPU Scheduling algorithms	

			3. Write about OS , memory management, and different algorithms for memory management	
9	**Neural Networks [3CS]**	Research Essay	**1. Review of Deep Learning Algorithms and Architectures 2. -A Review on Support Vector Machine for Data Classification 3. Review on artificial neural network** .	
10	**Artificial Intelligence [3CS]**	Research Essay	**1. A review of deep machine learning 2. Reinforcement learning survey 3. knowledge representation learning review**	
11	**Automata and Language Theory [3CS]**	Research Essay	**1. State-Machine-Driven Lexical Analyzers 2. Computer Languages Representation 3. Regular Expressions and A nondeterministic finite automata 4. Top-Down Parsing**	
12	**Web Programming**	Research Essay	Student management system Bus ticket booking management system Railways ticket booking management system Air ticket booking Restaurant automation system HR management system **Hotel** management system	Evaluation mechanism o **Abstract (20 points)** o **Introduction (20 points)** o **Problem statement** and **Framework diagram (20 points)** o **Objectives and**

			Hospital management system Insurance management system Parking management system Learning website E-banking system **E-commerce product system** **News website**	**Functions (20 points)** o **Conclusion (10 points)** o **References (10 points)** ✓ **If the report got at least 50 points (from 100 points), all the students will pass, otherwise, they will fail.** ✓ **Rules:** o **Team members from 1 to 5 (Max) students.** o **Submit the report by 1 June 2020 (Deadline)** o **The report should have 5 pages (min) and 10 pages (max).** o **One of the report' team send the report with all student names and student Ids to this email:** hzawbaa@fcis.bsu.edu.eg o **The report should contain the following section:** 1. **Abstract** 2. **Introduction** 3. **Problem statement and Framework diagram** 4. **Objectives and Main Functions** 5. **Conclusion** 6. **References** **Note: try to avoid copy and paste as much as you can in the report.**
13	**Virtual Reality [3IT, 3MM]**	Research Essay	1. Illumination 2. Shading 3. Augmented Reality 4. Perceptual Models and Processes in Virtual Reality	**Evaluation mechanism** Abstract 20 marks Introduction 20 marks Proposed system 20 marks Results 20 marks Conclusion 10 marks References 10 marks **Rules:** • You can work in groups

			5. Visual Rendering 6. Tracking systems for VR 7. Environment Modeling in Virtual Reality	• Maximum number of members per group is 5 • The Submission deadline is 1st June 2020 • The research should have 5 pages (min) and 10 pages (max) • Try to avoid copy and paste as much as you can • The pass mark is 50%
13	**Speech Processing [3MM, 4IT]**	Research Essay		**Evaluation mechanism** o **Abstract (20 points)** o **Introduction (20 points)** o **Problem statement and Objectives (20 1points)** o **The proposed System (20 points)** o **Conclusion (10 points)** o **References and citations (10 points)** **If the report got at least 50 points (from 100 points), all the students will pass, otherwise, they will fail.** **Rules:** o **Team members from 1 to 5 (Max) students from the third year only.** o **Submit the report by 1 June 2020 (Deadline)** o **The report should have 5 pages (min) and 10 pages (max).** o **One of the report' team send the report with all student names and student Ids to this email:** hzawbaa@fcis.bsu.edu.eg

				○ **The report should contain the following section:** 1. **Abstract** 2. **Introduction** 3. **Problem statement and Objectives** 4. **The proposed System** 5. **Conclusion** 6. **References and citations along the text.** **Note: try to avoid copy and paste as much as you can in the report.**
			Speech Recognition for English language	**at least 10 different words**
			Speech Recognition for Arabic language	**at least 10 different words**
			Speech Recognition for English alphabets	
			Speech Recognition for Arabic alphabets	
			Speaker Verification and Identification - English.	**at least 3 different speakers**
			Speaker Verification and Identification - Arabic	
			Implement speech chatbot.	
			Voice Control System for Smart Home	
			Speech Machine learning model for human speech using English language words.	

				Speech Machine learning model for human speech using Arabic language words.	
				Speech Deep learning model for human speech using English language words.	
				Speech Deep learning model for human speech using Arabic language words.	
				Deep learning model for human speech using English language sentences	
				Deep learning model for human speech using Arabic language sentences.	