Graduation Project Titles
Computer science Department

#	Project Title	Supervisor	Committes	Description	Students
1	**Steganography**	د. صحر عبد الرحمن	د. امل خليفة د. سعد صبير	***PROJECT ABSTRACT:*** People use cryptography to send secret messages to one another without a third party overseeing the message. Steganography is a type of cryptography in which the secret message is hidden in a text or multimedia (video, audio, image). The main feature of this technique is no one knows of the existence of the message only the sender and the receiver. The aim of this project is to hide and retrieve the secret message hidden in a text or multimedia (video, audio, image). . ***REQUIREMENTS (both hardware and software):*** ▪ Java language	• نورة مساعد الشعيبي • بشاير بدر العليوي • ريم عواض العتيبي • مها زكريا العقل • الاء عبد اللطيف البخاري
2	**Supervised Hyperspectral Image Classification**	د. صحر عبد الرحمن	د. محمد زعرور د. امل خليفة	***PROJECT ABSTRACT:*** Hyperspectral imaging is used in a wide array of application. Hyperspectral imaging data provide a wealth of information which can be used to address a variety of problems in list of applications. The common theme in all of these applications is the requirement for classification of a hyperspectral imaging data. Several techniques for classification of	▪ عبير راشد ولد علي ▪ غاده احمد الجاراش ▪ ندى ابراهيم الراشد ▪ منال ابراهيم المناع ▪ وتين عبدالله العياضي

				hyperspectral imaging have been used. In this project, we will experiment with **Supervised Hyperspectral Imaging Classification** algorithm. We will implement our algorithm by MicroMSI, Opticks or Envi that are applications that support the processing and analysis of hyperspectral data ***REQUIREMENTS (both hardware and software):*** ▪ ENVI software packages, MicroMSI, Opticks OR any applications that support the processing and analysis of hyperspectral data	
3	**Unsupervised Hyperspectral Image Classification**	د. صحر عبد الرحمن	د. عامر بن صفية د. احمد ابراهيم	***PROJECT ABSTRACT:*** Hyperspectral imaging is used in a wide array of application. Hyperspectral imaging data provide a wealth of information which can be used to address a variety of problems in list of applications. The common theme in all of these applications is the requirement for classification of a hyperspectral imaging data. Several techniques for classification of hyperspectral imaging have been used. In this project, we will experiment with **Unsupervised Hyperspectral Imaging Classification** algorithm. We will implement our algorithm by MicroMSI, Opticks or Envi that are applications that support the processing and analysis of hyperspectral data. ***REQUIREMENTS (both hardware and software):*** ▪ ENVI software packages, MicroMSI, Opticks OR any applications that support the processing and analysis of hyperspectral data	▪ بشاير محمد العتيبي ▪ نورة سعد عبد الله الحمود ▪ منيرة محمد المفرح ▪ غالية تركي الشمري ▪ ريم أبو ردحة

| 4 | **Developing a self-healing application** | د. عماد عبادي | د. عامر بن صفية
د:صحر عبد الرحمن | *PROJECT ABSTRACT:*
The complexity of enterprise infrastructures requires automating the process of managing the infrastructure. Human alone cannot reliably manage complex infrastructures. Therefore, automated management tools have been developed to help in this direction. Such tools are still immature and lots of efforts are spent in this direction especially with the emergency of Cloud computing. In Clouds the processes of managing user, virtual resources and software applications are called self-managed services.

The project helps students understand the foundations of self-managed services. Students are required to develop a simple management service called self-healing focusing on recovering an application on failure. Self-healing should automatically find the root-cause of the incident and then attempt to recover the failure. This could be done by parsing a selected application log file searching for certain keywords. The keywords would indicate the problem nature. Based on the nature studnets would then trigger an action plan to remedy the incident
REQUIREMENTS (both hardware and software):
   - Understanding of appropriate programming languages
   - Avery good understanding of system analysis.
   - Avery good understanding of Operating | ▪ خلود نايف المطيري

ناجية صنهات المطيري

نائلة صنهات المطيري

نجد عوض المطيري

سارة الشهري |

				system principles. - A fair understanding of network principles ▪	
5	**Provenance system design**	د. عماد عبادي i	د. صحر عبد الرحمن د. احمد ابراهيم	*PROJECT ABSTRACT:* Provenance helps in finding the derivative history of an event. Provenance is a key tool for forensic investigation and to support self-manageability. Developing an end-to-end provenance system is a complex project. To avoid complexities students are only required developing a simple provenance application on the assumption that the environment only has two PCs each running two simple applications. Provenance will trigger an action plan based on changes to the assumed environment. ***REQUIREMENTS (both hardware and software):*** Database management system (e.g. Oracle, SQLite) - At least 2 PCs connected via a network ▪ - An application development environment Database Management system: Oracle / MySql	▪ شجون عبدالله المطيري ▪ خولة خالد اليحيى ▪ وجدان ناصر الجريس ▪ منال سليمان العميريني ▪ روابي المطيري

6	**Secure backup and recovery solution**	د. عماد عبادي	د. سعد صبير د. امل خليفة	***PROJECT ABSTRACT:*** Students are required to develop an application that can provide a secure method for backing up and restoring data in a database management system. The developed system should be secure enough preventing intruders from accessing the backup itself whist processed and in storage. ***REQUIREMENTS (both hardware and software):*** Database management system (e.g. Oracle, SQLite) - An application development environment	1. ابرار الربيع 2. غدير حميد الحميد 3. بدرية راشد العبدالوهاب 4. الاء علي الدوسري الهنوف العتيبي
7	**Developing an editorial application**	د. عماد عبادي	د. محمد زعرور د. سعد الاحمري	***PROJECT ABSTRACT:*** The main purpose of this project is to help students use there acquired skills to better understand multi-tier application design and development. Students are required to develop an editorial application that could be accessed from a web-interface. The application would allow a newspaper to manage part of its production life cycle online. Specifically we focus on the editorial systwm which includes: creating, deleting, and editing articles, issues and pages; assign articles to a newspaper page,	▪ الجوهرة سعود العلي ▪ ريهام سعود العتيبي ▪ صيته شليه الحارثي ▪ زهراء الخريم صالحة المالكي

				and assign pages to an issue. Key non-functional requirements include: usability and performance *REQUIREMENTS (both hardware and software):* Database management system (e.g. Oracle, SQLite) - At least 2 PCs connected via a network ▪ - An application development environment	
8	**Developing a simple security authentication protocol**	د. عماد عبادي	. عامر بن صفية د. سعد صبير	*PROJECT ABSTRACT:* Nowadays all different companies are offering their Information security is one of the fundamental components since the development of the digital age. It is a key requirement and the major concern for businesses, governments and even end-users. Authentication is a method for binding entities (e.g. humans, software applications, etc) with identities. This is to enable access only to authorized entities. The main purpose of this project is to help students use there acquired skills to better understand information security principles. Students are required to develop a solution for securely storing a password and then verifying	▪ أسماء الشهري ▪ نوره الغملاس ▪ هدى العتيبي ▪ ابتسام محسن القحطاني الهنوف فهد الموكا

				the entered password using a simple web interface. Key non-functional requirement: security and usability ***REQUIREMENTS (both hardware and software):*** ▪ Could require database management system based on the design (e.g. Oracle, SQLite)	
9	**Cloud scheduling algorithm design and development**	د. عماد عبادي	د. محمد زعرور د. احمد ابراهيم	***PROJECT ABSTRACT:*** Students are required to develop a simulation of a Cloud scheduling algorithm for managing the hosting of Clouds virtual machines on physical platforms by considering both user requirements and infrastructure properties development) ***REQUIREMENTS (both hardware and software):*** Database management system (e.g. Oracle, SQLite) - At least 2 PCs connected via a network ▪ - An application development environment	▪ تهاني معزي المطيري ▪ الجوهرة سعد السليمان ▪ روان عبدالعزيز المبايع ▪ حنان سعود العتيبي ▪ أشواق عواض المطيري
10	**Friends1(communication tool for children)**	د. احمد ابراهيم	د. عماد عبادي د:صحر عبدالرحمن	***PROJECT ABSTRACT:*** **Communication is a tool with which we exercise our influence on others, bring out changes in our and others' attitudes, motivate the people around us and establish and maintain relationships with them"** [1]. This project aims to help people	▪ ايمان احمد الصقور ▪ سلمى عبدالعزيز الوليعي ▪ بشاير سعد القحطاني ▪ الجازي عبيد الحربي ▪ سهام سعد البقمي

		د. احمد ابراهيم		communicate with each other as the Facebook works. In this project students will learn how to analyze data, design and implement the website and database. Moreover, to choose the right style for the task at hand. In addition, it is an online social networking project. The website should be fun, for children groups **REQUIREMENTS (both hardware and software):** - Good knowledge of database. - Good knowledge of a programming language C#, PHP, and ASP ".NET". ▪ - Good knowledge of data analysis	
11	**Friends2(communication tool for adults)**	د. احمد ابراهيم	د. عماد عبادي د. محمد زعرور	*PROJECT ABSTRACT:* **Communication is a tool with which we exercise our influence on others, bring out changes in our and others' attitudes, motivate the people around us and establish and maintain relationships with them**" [1]. This project aims to help people communicate with each other as the Facebook works. In this project students will learn how to analyze data, design and implement the website and database. Moreover, to choose the right style for the task at hand. In addition, it is an online social networking project. The website should be fun, for adults *REQUIREMENTS (both hardware and software):* Good knowledge of database. - Good knowledge of a programming language C#, PHP, and ASP ".NET". ▪ - Good knowledge of data analysis ▪	▪ نهى عثمان العواد ▪ منيره علي الصويلح ▪ مها عبدالعزيز العبيد ▪ وعد الحميدي السهلي ▪ غاده محمد غواء

12	**Learning computer programming (C#) by tools**	د .احمد ابراهيم	. عماد عبادي د. سعد صبير	***PROJECT ABSTRACT:*** This project aims to help beginners to learn C#. In this project students will learn how to write visual programming tools (GUI components) that will facilitate programming tasks for users . Moreover, to choose the style that is right for the task at hand. Furthermore, this could be developed as an electronic website that teaches programming language as **C#.** The website will be fun, rather than hard programming effort. ***REQUIREMENTS (both hardware and software):*** Good knowledge of database. - Good knowledge of a programming language C#. ▪	▪ انتصار منور الروقي ▪ آلاء سالم الشمري ▪ افتنان صالح الدخيل ▪ هياء حمد العجلان ▪ ريم سليمان الشمري
13	**Offline Signature Verification System**	د. عامر بن صفية	عماد عبادي د. امل خليفة	***PROJECT ABSTRACT:*** We want to develop an offline Automatic Signature Verification System. The system will take in its input an image file (unknown scanned signature) and a pretend identity (for example his name). The system will retrieve in it database the registered signature of the pretended identity and compare it to the entered one. At the end the system will say if the two signatures are identical or not. This can be done according to three steps : **Data pre-processing**: collect a set of some signature images. These images have to be scanned and binarized. For each signature we will collect 5 samples: 3 will be used for the	▪ ميمونة محمد الدغيثر ▪ أشواق الحربي ▪ حنان عباس عامق العنزي ▪ فصايل علي دغفق العنزي ▪ نوال عبد الله علي العنزي

				training and the 2 last samples to test the system **Features extraction**: During this step we will determine which features have to be used in order to compare the signatures between them: height? Width? Occlusions? … **Classification**: In this step we will train the system to make the decision, in other words to decide when to say if the two signatures are identical or not. ***REQUIREMENTS (both hardware and software):*** • Good programming skills in C++ ………………………..……………………………… • Scanner……………………………………. ………………………………..…………… • OpenCV	
14	**Arabic Handwriting words segmentation**	د. عامر بن صفية	د. صحر عبد الرحمن د. سعد الاحمري	***PROJECT ABSTRACT:*** Arabic Handwriting recognition is the ability of a computer to receive and interpret intelligible handwritten input from sources such as paper documents, photographs, touch-screens and other devices. The image of the written text may be sensed "off line" from a piece of paper by optical scanning (optical character recognition) or intelligent word recognition. Handwriting recognition principally entails optical character recognition. However, a complete handwriting recognition system also handles formatting, performs correct segmentation into characters and finds the most plausible words.	▪ وفاء سيف صالح الدلبحي ▪ مرام زيد عبدالله الشكره ▪ مي صالح الغنيمي ▪ نورة إبراهيم السكران ▪ اروى الكثيري

				In this project we want to focus in the most critical step in the recognition process which is the segmentation : How to segment (split) a handwriting word in it exact characters ?. For this purpose the students are requested to make a survey on a different techniques and propose a segmentation algorithm that they need to implemented and test it with a database, that they are also requested to construct. ***REQUIREMENTS (both hardware and software):*** ▪ Good programming skills in C++ ……………………..………………………… ▪ Scanner…………………………………. …………………………..…………… ▪ OpenCV library	
15	**Mobile Medical App for PNU Hospital**	د. سعد صبير	د. محمد زعرور د. سعد الاحمري	***PROJECT ABSTRACT:*** This project aims to help Doctors and Nurses to communicate with PNU hospital medical system records. In this project students will learn how to analyze medical and hospital data, design and implement the necessary databases. In this project, students will learn how to connect their app to the PNU hospital database. This app will save a considerable time and effort of the hospital practioners. The project will be a challenging work for PNU students who will try android programming for the first time. The project is also expected to be a tempting work for the students ***REQUIREMENTS (both hardware and software):*** Knowledge of database concepts and implementation.	1. نجود بريك العصيمي 2. الهنوف علي الجردان 3. اشواق سعود الحميدي 4. ندى ساير العتيبي 5. ايمان مبارك الدوسري

			- Knowledge of JAVA programming language. - Understanding of XML - Understanding of UNIX OS. - Understanding of Mobile devices capabilities		
16	**Mobile banking system**	د. سعد صبير	د. محمد زعرور د. امل خليفة	***PROJECT ABSTRACT:*** This project aims to help customer to communicate with their banks and make necessary banking transactions. In this project students will learn how to analyze banking data, design and implement the necessary banking databases. In this project, students will learn how to connect their app to bank database. Having all these banking transaction in your mobile device will save a considerable time and effort. The project will be a challenging work for ONU students who will try android programming for the first time. The project is also expected to be a tempting work for the students. One of the above mentioned groups will choose this project ***REQUIREMENTS (both hardware and software):*** Knowledge of database concepts and implementation. - Knowledge of JAVA programming language. - Understanding of XML - Understanding of UNIX OS. ▪ - Understanding of Mobile devices capabilities	▪ منيرة سلمان التميمي ▪ آلاء عبدالمحسن حمد اليحيا ▪ ريم بندر فهد السويلم ▪ هند عبدالله محمد الغميجان ▪ الجوهرة احمد ابراهيم الملحم
17	**Mobile Airport**	د. سعد صبير	د. عامر بن صفية	***PROJECT ABSTRACT:***	▪ نورة فهد منصور المنصور

	Information Systems App		د. احمد ابراهيم	This project aims to help customer to communicate with the airports to get information about departures and arrivals of the flight.. In this project students will learn how to analyze airport data, design and implement the necessary databases. In this project, students will learn how to connect their app to the airport database. Having all the airport data in your mobile device will save a considerable time and effort. The project will be a challenging work for PNU students who will try android programming for the first time. The project is also expected to be a tempting work for the students. **_REQUIREMENTS (both hardware and software)_** Knowledge of database concepts and implementation. - Knowledge of JAVA programming language. - Understanding of XML - Understanding of UNIX OS. - Understanding of Mobile devices capabilities	▪ وفاء سعد عبدالله الجميعة ▪ هيفاء فوزي العريفي ▪ أسماء إبراهيم ناصر القطامي ▪ نوال فهد عليان العنزي
18	**Online Events Registration System**	د. محمد زعرور	د. امل خليفة د. سعد الاحمري	**_PROJECT ABSTRACT:_** This project helps any institute whether training centers, schools, universities…etc. that announces their own events (training courses, webinars, lectures…) to make registration online. The events could be paid or free of charge. Any person may register more than one event at a time; the system must insure that these registered events do not conflict with each other for each person. The system must be able to produce several reports **_REQUIREMENTS (both hardware and software)_** Good knowledge of database.	▪ **ساره ذعار مجلاد السبيعي** ▪ مشاعل ابراهيم العبيد العتيبي ▪ بشرى علي سعيد الشمراني ▪ تهاني سماح المطيري ▪ حنان يحيى نرعي القحطاني

			- Good knowledge of programming languages - Good knowledge of web development. - Good knowledge of project management tools. - PC or laptop with reasonable features		

19	**English for Kids**	د. محمد زعرور	د. سعد الاحمري
			د. سعد صبير
				PROJECT ABSTRACT:
				
				English for Kids is a program that teaches English for kids in a funny and amusing way. The system will teach kids the letters, how to pronounce words and spelling them. During the project students may decide to add some other functionality to enrich the contents of the new system. This project allows students to practice the knowledge they have studied in developing applications as well as learn new tools to make animations and using flashes. The system will be developed as a stand-alone application, but also a mobile phone App could also be created for this project
				REQUIREMENTS (both hardware and software)
				      Good knowledge of programming languages
				      - Good knowledge of project management tools.
				      - Good knowledge of flash design and tools
				      - PC or laptop with reasonable features
					▪ اشواق محمد العمري
					▪ سماح مسفر الدوسري
					▪ مروة سعد الشهراني
					▪ اسماء عبدالله الحربي
					▪ سارة الشلالي

20	**Fire Extinguisher Maintenance System**	د. محمد زعرور	د. عماد عبادي د. سعد الاحمري	*PROJECT ABSTRACT* Civil defense worldwide requires that fire extinguishers are used in every public and private institute as the first step to help in fighting fires. As we know that fire extinguishers have different types and	▪ نوف الربيع ▪ رباب المباركي ▪ شروق المطيري ▪ مي القحطاني ▪ منيره القحطاني

			should be maintained from time to time. This system will help in following up the fire extinguishers system in an institute (school, university, hospital, company…etc.) The system will record the type and place for each fire extinguisher in the building and also will record all check-ups done for each fire extinguisher. Moreover the system will alarm the responsible department in the institute about the next check-up time for each fire extinguisher. The system can be implemented as mobile web application where the maintainer can login directly and record the fire extinguisher follow-up details while he is in the location using his mobile ***REQUIREMENTS (both hardware and software*** Good knowledge of database. - Good knowledge of programming languages - Good knowledge of web development. - Good knowledge of project management tools. - PC or laptop with reasonable features, Android mobile phone.	▪
21	**Developing a dashboard for web-service evaluation**	د. سعد الاحمري	د. صحر عبد الرحمن د. عامر بن صفية	***PROJECT ABSTRACT*** This project aims to provide a simple dashboard to evaluate web-services. In this project students will chose a service quality attribute such as maintainability that will be used to build a base theory for web-service evaluation ***REQUIREMENTS (both hardware and software*** Good knowledge of a programming language	▪ **هيفاء مرضي البرغش** ▪ **ساره عائض العتيبي** ■ **منيره محمد المعدي** ■ ندى القحطاني ▪ **اروى الحميدي العتيبي**

				Java. - Good knowledge of APIs design. - General knowledge of Web- Service implementation	
22	**University Course Registration Web Application**	د. سعد الاحمري	عماد عبادي د. صحر عبد الرحمن	*PROJECT ABSTRACT* This project aims to develop a university course registration web application. This project will provide a better way to enhance course registrations for students and instructors. *REQUIREMENTS (both hardware and software* Good knowledge of a web scripting programming language PHP - Good knowledge of HTML and CSS design. - General knowledge of application analysis	▪ ربى مضحي المضحي ▪ أحلام القحطاني ▪ أميره سعيد الغامدي ▪ إمتنان المطيري ▪ ندى القحطاني
23	**Gesture-based gaming for children with special needs**	د. امل الخليفة	د. سعد صبير د. احمد ابراهيم	*PROJECT ABSTRACT* using gesture sensors and aspecially desigen ed game child will be able to play a game over and over again to improve specific skills *REQUIREMENTS (both hardware and software* The Kinect software development kit (SDK) for Windows using compatible PC drivers for Kinect device. Thus applications can be developed with C++, C#, or Visual Basic by using Microsoft Visual Studio 2010. ➢ An open-source software framework that is able to read sensor data from the Kinect such as PrimeSense, and OpenNI. In this case the code has to be developed with java.	▪ نوف العياضي ▪ لمياء الجليل ▪ وعد الشمري ▪ عهود العتيبي ▪ نورة الاميري ▪
24	**Watermarking 3D**	د. امل الخليفة	د. احمد ابراهيم	*PROJECT ABSTRACT*	▪ مرام النفيسة

Polygonal Mesh Objects for Copyright Protection		د. عامر بن صفية	The objective of Digital watermarking can be summarized as embedding information into the "cover media" in such a way that the watermarked "stego media" is perceptually indistinguishable from the original one. Furthermore, A good watermarking algorithm should be robust to removal or modification trials. This is of a great importance especially if the watermark will be used to authenticate the source. Another critical issue with watermarking is how secure it is, in other words how hard it is to decode the hidden information by an un-authorized user even if the watermarking technique is known ***REQUIREMENTS (both hardware and software*** The students are expected to implement the required algorithms using some programming language such as (C+=, C#, Java) with a GUI that facilitates data imports, 3D data load/display and performance evaluation	▪ مريم تركي سهو العتيبي ▪ فضة حمد العنزي ▪ نورة العتيبي ▪ نورة فيصل القحطاني

Approved by :.........Dr. Ahmed Ibrahim.................
Signature: