| شال 201د NET 201D | مبادئ نظم وتقنية المعلومات<br><br>Principles of Information and Technology Systems | (0+1+3)3 |
|---|---|---|
| المتطلب السابق:<br>عال 110د<br>CS 110D | This course aims to develop an understanding of the components of computing and their relationships, significant impacts of IT disciplines on society, fundamentals of programming structures, basic modules and functions of operating system, enterprise and Internet business applications, and the basics of network architectures, protocols and security. | |

| شال 222د NET 222D | مبادئ الاتصالات والشبكات<br><br>Communications and Networks Fundamentals | (0+2+3)4 |
|---|---|---|
| المتطلب السابق:<br>فيز 202م<br>PHY 202M | This course aims to:<br><br>1.Describe Principles of Signal Processing<br>2.Describe the components of communication system.<br><br>3.Identify fundamental modulation and encoding techniques.<br><br>4.Describe Error Detection, Error Correction methods.<br><br>5.Describe Principles and current trends in computer networks. | |

| | أمن المعلومات | شال 311د |
|---|---|---|
| (0+1+3)3 | **Information Security** | **NET 311D** |

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|---|---|
| المتطلب السابق:<br><br>شال 221د<br><br>**NET 331D** | This course aims to develop an understanding of information assurance as practiced in computer operating systems, software and web applications, gain familiarity with common attacking techniques such as virus, Trojan, worms and memory exploits defenses against them, develop a basic understanding of cryptography, how it has evolved, and two key encryption techniques used today(DEA, RSA). |

| | بروتوكولات الشبكات | شال 323د |
|---|---|---|
| (0+1+3)3 | **Networks Protocols** | **NET 323D** |

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| المتطلب السابق:<br><br>شال 221د<br><br>**NET 221D** | This course aims to explain:<br><br>1. Network protocols and the standards used by various entities in an end-to-end Internet connection .<br>2. Routing protocols.<br>3. The mechanism for Process-to-Process delivery using TCP and UDP |

| شال 412د NET 412D | بروتوكولات أمن الشبكات<br><br>**Networks Security Protocols** | (0+1+3)3 |
|---|---|---|
| المتطلب السابق:<br>شال 323د<br>**NET 323D** | This course aims to explain the following concepts:<br><br>1. Analyze and address a number of situations in which security in networks can be compromised.<br>2. Understand and apply selected technologies used to ensure security.<br>3. Apply the algorithms behind some current network security protocols.<br>4. Understand the firewall, and VPN.<br>5. Understand IPSec architecture.<br>6. Understand DNS servers hacking attacks.<br>7. Understand cryptographic protocols to provide security over the Internet.<br>8. Understand how to monitor a network for malicious activities. | |

| شال 324د NET 324D | ادارة وتحليل الشبكات<br><br>**Networks Management and Analysis** | (0+1+3)3 |
|---|---|---|
| المتطلب السابق:<br>شال 323د<br>**NET 323D** | **The course covers in detail the methodology of network analysis, architecture. The course addresses Network management and protocols such as SNPM, CMIP and RMON as well as traffic analysis and network performance evaluation software systems; Reliability concepts; Architectures for system observation and control; System utilization and traffic classification; Network management tools.** | |

| شال 431د NET 431D | خدمات شبكات متقدمة<br><br>**Advanced Networks Services** | (0+1+3)3 |
|---|---|---|
| المتطلب السابق:<br>شال 332د<br>**NET 332D** | This course aims to:<br><br>1. Outline some traditional networks services (DNS, HTTP, DHCP).<br>2. Explain multimedia services.<br>3. Explain real time services.<br>4. Explain mobility services. | |

| | الشبكات الاسلكية ونظم الاتصالات المتنقلة | شال 332د |
|---|---|---|
| (0+1+3)3 | **Wireless Networks and Mobile Communications Systems** | **NET 332D** |

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| المتطلب السابق:<br><br>شال 323د<br><br>**NET 323D** | **This course aims to explain:**<br><br>**1.Tthe features and generations of the mobile networks.**<br>**2. Wireless devices and wireless network architectures.**<br>**3.Wireless communication standards.** |

| | برمجة وتطبيقات الشبكات | شال 341د |
|---|---|---|
| (0+1+3)3 | **Networks Programming and Applications** | **NET 341D** |

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| المتطلب السابق:<br><br>شال 323د<br><br>**NET 323D** | **This course aims to develop the necessary skills for developing robust & scalable network applications and to build necessary basic knowledge for managing computer communication networks to deliver web content, Learn the basics of socket programming using TCP Sockets, Learn basics of UDP sockets, Develop knowledge of threads for developing high performance scalable applications, and Understand simple network management protocols & practical issues.** |

| | مشروع التخرج (1) | شال 437د |
|---|---|---|
| (0+0+2) 2 | **Graduation Project (1)** | **NET** |
| | **(Capstone 1)** | **437D** |

| المتطلب السابق: يتأكد القسم من اكمال الطالبة بنجاح للتالي: (**90** وحدة دراسية على الأقل + نال **350**د) | This course provides teamwork of students with a thorough guideline for survey and research to design, develop, and implement different fields covering the IT area. |
|---|---|

| | مشروع التخرج (2) | شال 438د |
|---|---|---|
| (0+0+2) 2 | **Graduation Project (2)** | **NET** |
| | **(Capstone 2)** | **438D** |

| المتطلب السابق: شال 437د **NET 437D** | This course provides teamwork of students to implement and testing the proposed project in the Graduation Project I. |
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| | التدريب الميداني | شال 439د |
|---|---|---|
| (6+0+2)4 | **Internship** | **Net 439D** |

| المتطلب السابق: اكمال **90** وحدة دراسية على الأقل بنجاح | **This course aims to:** **1. provide a supervised experience in networking environment with an aim of helping the PNU students to develop an insight into the professional demands of the workplace.** **2. Recognize real-world opportunities and constraints such that they are better prepared to enter their future careers.** |
|---|---|

| | نظم تشغيل الشبكات | شال 351د |
|---|---|---|
| (0+1+3)3 | **Networks Operating Systems** | **NET 351D** |

| | This course aims to explain how to: |
|---|---|
| المتطلب السابق:<br><br>عال 340د + شال 221د<br>**CS 340D+NET 221D** | **1. install a secure, multi-user, client-based network operating system.**<br><br>**2. Implement and administer operating system resources.**<br><br>**3. Implement share and NTFS permissions .**<br><br>**4. Configure and troubleshoot workstation performance**<br><br>**5. Monitor a network**<br><br>**6. Implement, monitor, and troubleshoot operating system security .**<br><br>**7. Configure, and troubleshoot network connectivity.** |

| | أنظمة الوقت الحقيقي والأنظمة المنضمة | شال 352د |
|---|---|---|
| (0+1+3)3 | **Real Time and Embdedded Systems** | **NET 352D** |

| | This course aims to explain: |
|---|---|
| المتطلب السابق:<br><br>عال 340د<br>**CS 340D** | - **Real-time and embedded systems.**<br>- **properties of embedded and real-time systems.**<br>- **Real-time systems modeling.**<br>- **Scheduling aspects of real-time systems.**<br>- **Assembly language programming.** |

| | العمارات المتوازية | شال 353د |
|---|---|---|
| (0+1+3)3 | **Parallel Architectures** | **Net 353D** |

| | This course aims to introduce: |
|---|---|
| المتطلب السابق: <br><br> عال **340**د <br> **CS 340D** | • **The design of parallel computer systems, including modern parallel architectures and alternatives.** <br> • **The basic concepts of shared memory multiprocessors.** <br> • **The basic concepts of multicore architectures.** |

| | موضوعات مختارة (1) | شال 302د <br> **NET 302D** |
|---|---|---|
| (0+2+1)2 | **Seleceted Topics (1)** | |

| | This course aims to explain: |
|---|---|
| المتطلب السابق: - | 1. **The basic principles of mobile radio.** <br> 2. **Different Cellular structures and mobile radio network.** <br> 3. **The basics of Diversity and Combining Techniques** <br> 4. **Modulation Techniques and Multiple Access Techniques.** |

| 3 (0+1+3) | إدارة الأعمال في مجال تقنية المعلومات<br><br>**Entrepreneurship and New Venture Creation in IT** | شال 461د<br>**NET 461D** |
|---|---|---|
| المتطلب السابق:<br><br>شال 201 د<br>**NET 201D** | 1. **This course Describe the role and skills of an entrepreneur and cultivate an entrepreneurial mindset**<br>2. **It explains principles and dynamics of various functions of business (e.g., marketing, accounting, operations and HRM) to create value added product and services**<br>3. **It explains how to ddentify, assess and evaluate business opportunities and construct a robust Business Plan;**<br>4. **It describes the implications of various business ownership and financial structures**<br>5. **It describes the various Venture Capital opportunities including (Venture Capitalist, Angel Investors, IPO in the stock market, and conventional lending institutions)**<br>6. **It describes the role of CIO and CKO within a business structure.** | |

| 3 (0+1+3) | تصميم وإنشاء الشبكات<br><br>**Networks Design and Implementation** | شال 433د<br>**NET 433D** |
|---|---|---|
| المتطلب السابق:<br><br>شال 323د<br>**NET 323D** | **This course aims to :**<br><br>**1. Exlain design models for LAN, MAM, WAN, WLAN.**<br>**2. Provide an appreciation of performance issues in networks, and competence in the use of techniques to analyze and optimize performance.**<br>**3. Explain how to analyze a customer requirements for designing a network.** | |

| | عمارة شبكة الانترنت | شال 434د |
|---|---|---|
| (0+1+3) 3 | **Internet Architectures** | **NET 434D** |
| المتطلب السابق:<br><br>شال 323د<br><br>**NET 323D** | This course aims to explain:<br><br>.1 Internet design principles.<br>2. Internet routing design<br><br>3. Internet application layer protocols | |

| | موضوعات مختارة (2) | شال 403د |
|---|---|---|
| (0+2+3)4 | **Seleceted Topics (2)** | **NET 403D** |
| المتطلب السابق: - | This is an introductory course in multimedia computing and networking. It explores the interaction between multimedia data and the systems that need to support multimedia data such as audio and video. Topics that will be covered in the course include: compression technologies, multimedia formats such as JPEG and MPEG, multimedia streaming over reservation-based and best-effort networks, multicasting of multimedia data, and systems support for multimedia computing | |

| | شبكات الاستشعار الاسلكي | شال 435د |
|---|---|---|
| (0+1+3) 3 | **Wireless Sensor Networks** | **NET 435D** |
| المتطلب السابق:<br><br>شال 222د<br><br>**NET 222D** | This course aims to explain:<br><br>1. The relevant protocols and design issues of wireless sensor network (MAC and network protocols.<br>2. The IEEE 802.15.4 standard that provides low cost and low power connectivity for Wireless Sensor Network (WSN) devices.<br>3. TinyOs as an operating system for sensor networks.<br>4. Some synchronization and localization methods. | |

| | الاتصال بالأقمار الصناعية | شال 425د |
|---|---|---|
| 3 (3+1+0) | **Satellite Communication** | **NET 425D** |

| المتطلب السابق: | This course aims to explain: |
|---|---|
| شال 222د | |
| **NET 222D** | 1. The basics of satellite communications. |
| | 2. Satellite system elements. |
| | 3. Some key issues of satellites. |
| | 4. Error control for digital satellites. |
| | 5. The propagation effects on satellite-earth links |

| | الشبكات الضوئية | شال 436د |
|---|---|---|
| 3 (3+1+0) | **Optical Networks** | **NET 436D** |

| المتطلب السابق: | This course aims to explain: |
|---|---|
| شال 222د | |
| **NET 222D** | 1. Light characteristics. |
| | 2. Components, types, and communication of fiber optics. |
| | 3. SONET/SDH). |
| | 4. Optical networking fundamentals. |

| | موضوعات مختارة (3) | شال 426د |
|---|---|---|
| 3 (3+1+0) | **Selected Topics (3)** | **NET 426D** |

| المتطلب السابق: | |
|---|---|
| شال 222د | This course aims to explain the key concepts of cloud computing. It |
| **NET 222D** | focuses on models, management, deployment, architectures, and security aspects of cloud computing systems. |