

<p>Enables students to learn the graphical meaning of the derivative, the tangent line problem and the velocity of an object, techniques of differentiation, limits, one sided limits, and limits at infinity, continuity, derivatives, and integrals of algebraic and transcendental functions of one variable. Differentiate selected trigonometric functions, natural and general exponential and logarithmic functions, inverse trigonometric functions, general exponential functions Product, quotient, and chain rules to differentiate selected functions, Integration techniques, indefinite and definite integrals by substitution, basic properties of the definite integral, applications of differentiation with emphasis on optimization techniques, applications of integration.</p>	<p>MATH 1200- Calculus I</p>
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<b>Course Name</b> : Introduction to Database	<b>Course Code</b> : ITDB101
<b>Pre Requisite</b> : None	<b>Credit Hours</b> : 3
<b>Passing Grade</b> : Depending on the Type of the course belongs to the Audit Degree	<b>Level:</b> Diploma
<b>No. of Theory Hrs:</b> 1	<b>No. of Practical Hrs</b> : 4
<b>Goal:</b> To introduce to students the fundamental concepts of database management systems.	
<b>Objectives:</b> Upon completion of this course, the students should be able to:	
<ol style="list-style-type: none"> <li>1. Understand the basic database concepts and operation of the relational data model</li> <li>2. Apply logical database design principles, including Entity Relationship (ER) diagrams and database normalization</li> <li>3. Apply the concepts of Relational Algebra</li> <li>4. Use Structure Query Language to query, update and manage a database</li> </ol>	
<b>Outcomes</b>	<b>Methodologies</b>
Upon completion of this course, the students should be able to:	
1. Define the basic concepts, terminologies and characteristics of database systems	Theory
2. Differentiate database systems from traditional file systems by enumerating the features provided by database systems	Theory
3. Analyze a case study and derive an information model expressed in the form of an Entity Relationship(ER) diagram	Practical
4. Discuss relational data model and its components	Theory
5. Transform an Entity Relationship (ER) model into a relational database schema	Practical
6. Apply normalization theory up to Third Normal Form to a database	Practical
7. Apply Relational Algebra theory to a range of query problems	Practical
8. Create and access database using simple Structured Query Language (SQL) statements	Practical
<b>Software &amp; Hardware Tools:</b> Oracle	
<b>Text Book:</b> 1) An Introduction to Database Systems, C. J. Date, Addison-Wesley	
<b>Reference Book:</b> 1) Database System Concepts, by Abraham Silberchatz, Henry Korth, S. Sudarshan 2) Fundamentals of Database Systems: Elmasri, Navathe, Addison Wesley, ISBN-13:978-0321122261	



Course Name : Fundamentals of Information Technology	Course Code : ITIS101
Pre Requisite : FPIT0001- IT For Foundation	Credit Hours : 3
Passing Grade : Depending on the Type of the course belongs to the Audit Degree	Level: Year I (Diploma First Year)
No. of Theory Hrs: 0	No. of Practical Hrs : 4
<b>Goal:</b> To provide students with the fundamentals of Information Technology so as to have a better understanding of concepts required in various specialization in the field.	
<b>Objectives:</b> Upon completion of this course, the students should be able to:	
<ol style="list-style-type: none"> <li>1. Acquire understanding about the importance of Internet Technology, and to be able to demonstrate skills that are necessary for the proper management of its security and other ethical issues</li> <li>2. Understand the importance of the concept of academic integrity and must be able to demonstrate this through IT using an anti-plagiarism software in their reports / research papers</li> <li>3. Acquire deep understanding of computer number systems and be able to apply this by designing logic Circuits.</li> <li>4. Develop computational thinking and understanding of the main principles of solving problems using computers.</li> <li>5. Gain deeper understanding of the concepts of logic formulation and programming by describing algorithmic solutions on case studies involving game development.</li> </ol>	
<b>Outcomes</b> Upon completion of this course, the students should be able to:	Methodologies
1. Explain how the Internet and its components function to enable communications, including basics of basics of data packets, connection types, Internet addressing, domains, browsers and servers, URLs, and navigation tools and techniques.	Practical
2. Conduct basic research using resources located in the Internet, understand the concepts of search engine techniques, evaluation of results, copyright guidelines, and downloading images.	Practical
3. Demonstrate effective strategies and techniques for locating, preparing, and/or creating Web content, including writing text for websites, word processing software, message-driven image content, accessing graphics, and Web communication strategies.	Practical
4. Demonstrate the correct use of an anti-plagiarism utility to be able to submit reports/research papers that adhere to academic integrity.	Practical
5. Demonstrate knowledge of Internet safety practices to combat risks related to online social and recreational activities, including cyberbullying, online gaming, etc.	Practical
6. Demonstrate knowledge of ethical and legal issues related to content found in the Internet, including music and videos downloaded from the Internet, and guidelines for copyright and fair use.	Practical
7. Demonstrate knowledge of security threats to computer systems (including common security threats, and viruses vs. malware), and perform countermeasures to secure a computer (including antivirus scans, strong passwords, and cyber safety techniques for protecting your computer when using the Internet).	Practical
8. Explain the different representations of number systems used in computing.	Practical




9. Use data to design logic circuits.	Practical
10. Explore, analyze and visualize data with Excel.	Practical
11. Analyze, design and, create problem solving plans.	Practical
12. Identify principles of gaming, including modern uses for games and various game types.	Practical
13. Describe the design process and apply it to game development, including design process steps, problem-solving, deconstruction of existing games for analysis, game creation tools, design criteria and constraints, and storyboard creation.	Practical
14. Describe programming concepts and apply them to game development, including common programming languages and applications for games, programming structures (sequential, iteration and loop), algorithm creation, pseudocode for modeling program flow, logic errors, Boolean concepts, and programming language elements such as variables, events and handlers, functions, objects, properties, and methods.	Practical
15. Create a basic interactive game program, videos or animations, including writing code, testing and evaluating, solving problems, and creating and controlling an animated object.	Practical
<b>Software &amp; Hardware Tools:</b> <ul style="list-style-type: none"> <li>- MS Excel.</li> <li>- College e-learning Portal: <a href="http://e-learning.hct.edu.om/moodle263/login/index.php">http://e-learning.hct.edu.om/moodle263/login/index.php</a>.</li> <li>- College e-mail: <a href="http://www.hct.edu.om/hct/live@edu-hct/index.html">http://www.hct.edu.om/hct/live@edu-hct/index.html</a>.</li> <li>- Scratch: <a href="https://scratch.mit.edu/educators/">https://scratch.mit.edu/educators/</a>.</li> <li>- Logic Design Simulator: <a href="https://academo.org/demos/logic-gate-simulator/">https://academo.org/demos/logic-gate-simulator/</a>.</li> </ul>	
<b>Text Book: [1] Patt, Yale N., Sanjay J. Patel, and J. Patel. Introduction to computing systems: from bits and gates to C and beyond, 2004.</b>	
<b>[2] Sinha, Pradeep K., and Priti Sinha. Computer Fundamentals. Vol. 4. BPB publications, 2010</b>	
<b>Reference Book:</b> <ol style="list-style-type: none"> <li>1. Support for Office 2001 and 2010. Accessed 06 June 2016. <a href="http://support.microsoft.com/gp/gp_off_main#tab0">http://support.microsoft.com/gp/gp_off_main#tab0</a> . Accessed 06 June 2016.</li> <li>2. White, Ron, How Computers work ( Eighth Edition), Que, 2006.</li> <li>3. Sinha, Pradeep K., and Priti Sinha. Computer Fundamentals. Vol. 4. BPB publications, 2010</li> </ol>	



<b>Course Name : Computer Hardware</b>	<b>Course Code : ITNT101</b>
<b>pre-requisite: none</b>	<b>Credit Hours: 3</b>
<b>Passing Grade:</b> Depending on the Type of the course belongs to the Audit Degree	<b>Level: Diploma</b>
<b>No. Of Theory &amp; Practical Hours (1:4)</b>	
<b>Goal:</b> The course Provide the students with the fundamental concepts of computer hardware and software	
<b>Objectives:</b> The course should enable the student to : <ol style="list-style-type: none"> <li>1. Prepare for entry-level position in the ICT field</li> <li>2. Gain skills and working knowledge on how computer works.</li> <li>3. Assemble Computers, troubleshoot hardware and diagnose software issues</li> </ol>	
<b>Outcomes</b>	<b>Method</b>
1. Define information technology (IT) and describe the components of a personal computer	Theory & Practical
2. Describe how to protect people, equipment, and the environment from accidents, damage, and contamination	Theory & Practical
3. Perform a step-by-step assembly of a desktop computer	Practical
4. Explain the purpose of preventive maintenance and identify the elements of the troubleshooting process	Theory
5. Install and navigate an operating system	Theory & Practical
6. Upgrade or replace components of a laptop based on customer needs	Theory & Practical
7. Describe the features and characteristics of mobile devices	Practical
8. Configure computers to connect to a network	Theory & Practical
9. Install and share a printer	Theory
10. Implement basic hardware and software security principles	Theory
11. Apply good communication skills and professional behavior while working with customers	Theory & Practical
12. Perform preventive maintenance and advanced troubleshooting	Theory & Practical
13. Assess customer needs, analyze possible configurations, and provide recommendations for hardware	Theory & Practical
<b>Hardware Tools:</b> <ul style="list-style-type: none"> <li>• Ratio of one lab PC for two students is the minimum acceptable for the hands-on lab</li> <li>• Some of the lab activities require the student lab PCs to be connected to a local network</li> <li>• PCs will be in various states of assembly and repair</li> <li>• The computer toolkit should include the following tools:( Phillips screwdriver, Flathead screwdriver, Hex Socket Drivers (various sizes), Needle-nose pliers, Electrostatic discharge (ESD) wrist strap and cord, Electrostatic discharge (ESD) mat with a ground cord, Safety glasses, Lint-free cloth, Electronics cleaning solution, Flashlight, Thermal compound, Multimeter, Compressed air service canister (optional due to globally varying classroom health and safety laws), Power supply tester (optional), Cable testers (optional), Network Loop back plugs (optional)</li> </ul>	
<b>Book:</b> Cisco IT Essentials: PC Hardware and Software v4.1 ( e-book)	
<b>Reference Book:</b> <ul style="list-style-type: none"> <li>• COMPTIA A+ Certification Exam by Mike Meyer</li> <li>• Upgrading and repairing PCs:A+Certification Study Guide by Scott Mueller and Mark E.Scoper</li> </ul>	



	<p>To analyze, synthesize, evaluate, and interpret information and ideas by writing in a style appropriate to the purpose and audience. Organizing information, designing, and writing specialized forms such as abstracts, instructions, and proposals using various kinds of writing. To plan and manage writing projects in terms of drafting, designing, revising and editing documents. To convey clearly and correctly, through written media, the technical aspects to non-specialist audiences by working collaboratively and providing peers with constructive feedback on their work. Developing effective style and tone by following business and technical writing guidelines. Analysing charts, graphs, specifications, diagrams, etc. and responding both orally and in writing. Locating source materials in the library, internet and evaluating their usefulness, relevance, and credibility and then incorporating them into an assigned task with inline citations and full bibliography. Learning to write well-organized essays with an introduction, a body and a conclusion. Designing visually effective documents (e.g. layouts, formatting, incorporating graphics and visuals into documents). Ability to prepare and deliver an effective mixed media presentation.</p>
<p>ENTW1100-Technical Writing I</p>	

<b>Course Name: Network Fundamentals – I</b>	<b>Course Code: ITNT102</b>
<b>Pre-requisite: ITNT101 – Computer Hardware</b>	<b>Credit Hours: 2</b>
<b>Passing Grade:</b> Depending on the Type of the course belongs to the Audit Degree	<b>Level: Diploma</b>
<b>No. Of Theory &amp; Practical Hours : (0:4)</b>	
<b>Goal:</b> To introduce the architecture, structure, functions, components, and models of the Internet and computer networks.	
<b>Objectives:</b> The course should enable the student to : 1. Explain the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations. 2. Perform basic configurations for routers and switches 3. Implement IP addressing schemes and build a simple LANs.	
<b>Outcomes</b>	<b>Method</b>
1. Understand and describe the devices and services used to support communications in data networks and the Internet.	Theory
2. Understand and describe the role of protocol layers in data networks.	Theory
3. Build a simple Ethernet network using routers and switches	Practical
4. Explain fundamental Ethernet concepts such as media, services, and operations	Theory
5. Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations	Practical
<b>Chapters to be covered:</b>	
<b>Chapter 1</b>	<b>Exploring the Network</b>
<b>Chapter 2</b>	<b>Configuring a Network Operating System</b>
<b>Chapter 3</b>	<b>Network Protocols and Communications</b>
<b>Chapter 4</b>	<b>Network Access</b>
<b>Chapter 5</b>	<b>Ethernet</b>
<b>Hardware Tools:</b> <b>Refer on the link for the complete sets of Equipment needed;</b> <a href="https://www.netacad.com/group/program/equipment-information">https://www.netacad.com/group/program/equipment-information</a> <b>Software Tools:</b> <b>CISCO Packet tracer 6.3 or higher</b>	
<b>Book:</b> Cisco Networking Academy (2014). <i>Introduction to Networking</i> . CISCO Press: CISCO Press	
<b>Reference Material:</b> CISCO Networking Academy, <a href="http://cisco.netacad.net">http://cisco.netacad.net</a> , access on 6-April 2014	



<b>Course Name:</b> Programming I	<b>Course Code:</b> ITSE101
<b>Pre-Requisite:</b> ITIS101 - Fundamentals of Information Technology	<b>Credit Hours:</b> 3
<b>Passing Grade:</b> Depending on the Type of the course belongs to the Audit Degree	<b>Level:</b> Dip Year 1
<b>No. Of Theory &amp; Practical Hours :</b> 1:4	
<b>Goal:</b> This course provides fundamental programming concepts and techniques using high level programming language using C++.	
<b>Objectives:</b> The course should enable the student to : 1. Write algorithms and design flow charts. 2. Understand the basic programming concepts. 3. Design and Implement Programs in C++ including Arrays and functions.	
<b>Outcomes</b> At the end of this course, students should be able to:	<b>Method</b>
1. Define concepts of programming	Theory
2. Write algorithms using pseudo codes and design flow charts to solve problems	Practical
3. Use Basic Data Types, Variables, Constants, and Operators	Theory & Practical
4. Use basic input/output statements, conditional and looping control structures.	Theory & Practical
5. Implement Program using Arrays	Practical
6. Implement program using functions	Practical
7. Compile, Debug, and Run programs successfully.	Practical

<b>Software Tools:</b> C++ Compiler and Integrated Development Environment
<b>Text Book:</b> C++: The Complete Reference by Herbert Schildt, Published by Osborne
<b>Reference Book:</b> 1. Schaum's Outline of Programming with C++ by John Hubbard Published by McGraw Hill 2. C++ How to Program by Harvey Deitel & Paul Deitel Published by: PHI





<b>Course Name : Web Technologies</b>	<b>Course Code : ITIS103</b>
<b>Pre Requisite : None</b>	<b>Credit Hours : 3</b>
<b>Passing Grade : Depending on the Type of the course belongs to the Audit Degree</b>	<b>Level: Year I (Diploma First Year)</b>
<b>No. of Theory Hrs: 1</b>	<b>No. of Practical Hrs : 4</b>
<b>Goal:</b> To introduce to students with the practical knowledge and skills in writing markup language tags, design style sheets, and scripting in order to design websites according to W3C standards, using the latest web tools and technologies.	
<b>Objectives:</b> Upon completion of this course, the students should be able to: 1. Understand the Internet and WWW, browsers, protocols, search engines, and domain names. 2. Acquire knowledge on the different types of web design along with the techniques, principles, and standards set forth by the W3C, using web tools and technologies. 3. Acquire proficiency in <i>writing</i> markup language tags, design style sheets, and web technologies (such as <i>writing</i> HTML 5 tags, <i>designing</i> CSS, and <i>writing</i> basic JavaScripts). 4. Appreciate the use of various web tools and technologies.	
<b>Outcomes</b>	<b>Method</b>
Upon completion of this course, the students should be able to:	
1. Discuss the Internet and WWW, its evolution, client-server architecture, browsers, protocols, search engines, and domain names.	Practical
2. Discuss web concepts, techniques, tools, and technologies.	Practical
3. Discuss the different types of web design along with the techniques, principles, and standards set forth by W3C, using web tools and technologies.	Practical
4. Write markup language tags (such as HTML 5 tags) for headings, paragraphs, line breaks, horizontal line, changing the font style, text alignments, different lists, hyperlinks, media objects such as images, audio, video, and animations, tables, forms, and frames.	Practical
5. Design style sheets (such as Cascading Style Sheets).	Practical
6. Write client-side scripts (such as JavaScripts) for <b>basic</b> form handling.	Practical
7. Design and develop websites.	Practical
<b>Software &amp; Hardware Tools:</b> HTML 5, MS Paint, Text Editors	
<b>Text Book:</b> [1] Joe Kraynak, James A. Brannan, <b>Web Design</b> , 2011.	
<b>Reference Book:</b> [1] Mike Wooldcirclye, Teach Yourself Visually HTML 5, 2011. [2] Steve Suehriug, <b>JavaScript</b> , 2011. [3] Alexie White, <b>JavaScript (Programmer's Reference)</b> , 2011.	



Teach students the established basics for effective written composition in the business world and introduce them to analyze, synthesize, evaluate and interpret information and ideas. To convey clearly and correctly, through written media, the technical aspects to non-specialist audiences by working collaboratively and providing peers with constructive feedback on their work. Build confidence and fluency in writing and the ability to generate well-developed texts. Students will understand how their texts fit in with a larger text-based world by developing a sense of audience and purpose. Developing style, tone, and clarity of expression. Guides students to choose words to avoid clichés, wordiness, informality, and confusion. Emphasizes clear, consistent and direct writing for a variety of tasks. Write well-organized essays with an introduction, a body and a conclusion. Design visually effective documents (e.g. layouts, formatting, incorporating graphics and visuals into documents). Prepare and deliver an effective mixed media presentation.

ENTW1200- Technical Writing II



<b>Course Name : Fundamentals of Multimedia</b>	<b>Course Code : ITIS104</b>
<b>Pre Requisite : None</b>	<b>Credit Hours : 3</b>
<b>Passing Grade : Depending on the Type of the course belongs to the Audit Degree</b>	<b>Level: Year I (Diploma Second Year)</b>
<b>No. of Theory Hrs: 1</b>	<b>No. of Practical Hrs : 4</b>
<b>Goal:</b> To provide students with solid foundation on concepts, principles, techniques, and latest tools surrounding multimedia technology with emphasis on the design and development of multimedia systems for industrial, educational and personal applications.	
<b>Objectives:</b> <b>In this course, students will learn how to:</b>	
<ol style="list-style-type: none"> <li>1. Survey and analyze various theories, components and elements of multimedia.</li> <li>2. Conceptualize and develop effective multimedia projects.</li> <li>3. Critique multimedia applications and determine whether they are effective.</li> <li>4. Address issues surrounding multimedia design and use.</li> <li>5. Use tools/ software to create multimedia content.</li> </ol>	
<b>Outcomes:</b> Upon completion of this course, the students should be able to:	<b>Methodologies</b>
1. Discuss the concepts, standards and components of multimedia through practical demonstration.	Practical
2. Examine multimedia applications against multimedia principles, standards, and techniques.	Practical
3. Demonstrate the use of various elements of multimedia such as text, graphics, sound, video, animation, and virtual reality using the latest tools, technologies, techniques, and standards.	Practical
4. Evaluate the processes involved in producing multimedia content to meet specific needs of the target audience.	Practical
5. Apply principles of multimedia project management and distribution.	Practical
6. Develop multimedia titles or multimedia systems for industrial, educational and personal applications.	Practical
7. Use an appropriate software /tool to design or manipulate images	Practical
8. Use an appropriate software /tool to create vectors and animate them.	Practical
<b>Software &amp; Hardware Tools:</b> [1] Adobe Photoshop [2] Adobe Illustrator [3] Adobe Flash	
<b>Text Book:</b> [1] Mike Wooldridge, Brianna Stuart, <b>Adobe Photoshop CS6</b> , 2011 [2] Wilbert O. Galitz, <b>Adobe Flash Professional CS6</b> , 2011. [3] Tay Vaughan, <b>Multimedia Making It Works</b> , 2011.	
<b>Reference Book:</b> [1] Mike Wooldridge, Brianna Stuart, <b>Adobe Photoshop CS6</b> , 2011 [2] Wilbert O. Galitz, <b>Adobe Flash Professional CS6</b> , 2011.	



<b>Course Name:</b> Introduction to Operating Systems	<b>Course Code:</b> ITSE102
<b>Pre-Requisite:</b> ITSE101- Programming I	<b>Credit Hours:</b> 3
<b>Passing Grade:</b> Depending on the Type of the course belongs to the Audit Degree	<b>Level:</b> Dip Year 1
<b>No. Of Theory &amp; Practical Hours : 1 : 4</b>	
<b>Goal:</b> This course will cover the fundamentals of operating system concepts in managing system resources.	
<b>Objectives:</b> The course should enable the student to : 1. Discuss the components of operating systems and its services. 2. Analyze the Processes Management. 3. Discuss Memory, I/O and File Management. 4. Apply security for the resources. 5. Use various Operating Systems.	
<b>Outcomes</b> At the end of this course, students should be able to:	<b>Method</b>
1. Explain functions, features and types of operating system.	Theory
2. Discuss the internal structure of an operating system.	Theory
3. Discuss process management concepts.	Theory
4. Apply process scheduling algorithms.	Theory & Practical
5. Analyze the deadlock and its management.	Theory & Practical
6. Discuss memory management and virtual memory concepts.	Theory
7. Discuss I/O management techniques.	Theory
8. Use different file systems.	Theory & Practical
9. Apply security for the resources.	Theory & Practical
10. Demonstrate the installation of Windows and Linux Operating Systems.	Practical
11. Use Unix Shell commands and write shell scripts.	Practical

<b>Hardware / Software Tools:</b> Windows, Linux, DOS, Android ...etc Operating Systems
<b>Text Book:</b> Operating System Concepts, 6 <sup>th</sup> Edition by Silverchatz, Galvin and Gagne, McGraw Hill Book Co., 2003
<b>Reference Book:</b> Operating System (Concept and Design), McGraw Hill Book Co.



<b>Course Name: Network Fundamentals - II</b>	<b>Course Code: ITNT103</b>
<b>Pre-requisite: ITNT102 -Network Fundamentals - I</b>	<b>Credit Hours: 3</b>
<b>Passing Grade:</b> Depending on the Type of the course belongs to the Audit Degree	<b>Level: Diploma</b>
<b>No. Of Theory &amp; Practical Hours : (1:4)</b>	
<b>Goal: To introduce the architecture, structure, functions, components, and models of the Internet and computer networks.</b>	
<b>Objectives:</b> The course should enable the student to : <ol style="list-style-type: none"> <li>1. Explain the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations.</li> <li>2. Perform basic configurations for routers and switches</li> <li>3. Implement IP addressing schemes and build a simple LANs.</li> </ol>	
<b>Outcomes</b>	<b>Method</b>
1. Understand and describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments.	Theory
2. Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks	Practical
3. Build a simple Ethernet network using routers and switches	Practical
4. Troubleshoot basic routers and switches configuration	Practical
5. Utilize common network utilities to verify small network operations and analyze data traffic	Practical
<b>Chapters to be covered:</b>	
<b>Chapter 6</b>	<b>Network Layer</b>
<b>Chapter 7</b>	<b>Transport Layer</b>
<b>Chapter 8</b>	<b>IP Addressing</b>
<b>Chapter 9</b>	<b>Subnetting IP Networks</b>
<b>Chapter 10</b>	<b>Application Layer</b>
<b>Chapter 11</b>	<b>It's a Network</b>
<b>Hardware Tools:</b> <b>Refer on the link for the complete sets of Equipment needed;</b> <a href="https://www.netacad.com/group/program/equipment-information">https://www.netacad.com/group/program/equipment-information</a> <b>Software Tools:</b> <b>CISCO Packet tracer 6.3 or higher</b>	
<b>Book:</b> <b>Cisco Networking Academy (2014). <i>Introduction to Networking</i>. CISCO Press: CISCO Press</b>	
<b>Reference Material:</b> <b>CISCO Networking Academy, <a href="http://cisco.netacad.net">http://cisco.netacad.net</a>, access on 6-April 2014</b>	

