concepts in Java and database connectivity. The emphasis shall be more on application development in the laboratory.

Learning Outcomes
After successful completing this course, you should be able to:

- Understand and develop core Java Programs
- Able to create packages, API and jar files
- Performdatabaseconnectivity
- Develop GUI application using Swing, Applets, Abstract Windows Toolkit (AWT) and IO Package.
- Develop Mobile applications for various devices
- Port the Mobile Applications to their mobile devices

Content

- Java Collection Interface
- Introduction to Graphical User Interface (GUI) with special emphasis on Mobile and Wireless Computing
- Abstract Classes and Methods
- Packages and Interfaces :Defining a package, Protection in packages, importing packages, Access protection, Defining an Interface, Implementing Interfaces, Applying interfaces, Variables in interfaces, Achieving multiple inheritances through interfaces.
- String Handling: string operations, Character extracting, String comparison, Searching strings, Modifying a string, Strings buffer, Different string methods.
- Exception Handling: Fundamentals, Exception types, try and catch, multiple catch clauses, nested try statements, Throw, throws and finally, Exception subclasses, creating own exception classes.
- Multithreading: Thread basics, Creating and running a thread, The thread life cycle, Thread priorities, Advanced threading, Asynchronization, Messaging, Interthread communications, Priorities and Scheduling, Daemon threads.
- Introduction to Applets, AWT, Swing Package: Buttons and Labels, Checkboxes and Radio Buttons, Lists and Combo Boxes Simple menu, Jpanel, JLabel, JTextfield, JButton, JCheckbox and JList. Submenu IO Package: BufferedInputStream, BufferedOutputStream, BufferedReader, BufferedWriter. JDBC and ODBC connectivity.
- Multithreading
- Introduction to Event Handling; ActionEvent, AdjustmentEvent, ItemEvent, TextEvent and ComponentEvent.

ICT305: Web Application Development

Aims and objectives
This course introduces the students to web application Development.

Learning Outcomes
Students who successfully complete this unit of study will be able to:

- Describe, identify and debug issues related to the development of web applications
- Design and develop interactive web applications using embedded server-side scripting language PHP
- Use MySQL for data management and manipulate MySQL with PHP
- Design and develop asynchronous web applications using Ajax techniques
- Use client-side dynamic scripting language JavaScript and server-side scripting language PHP with Ajax

- Apply XML/JSON technologies for data management with Ajax
- Use Ajax framework, web services and APIs and apply design patterns for developing web applications

You will be provided with feedback on your progress in attaining the following generic skills:

- Analysis skills - the process of analysing problem specifications, systematising them, and developing systematic design and implementation solutions
- Problem solving skills - the process of addressing the tasks of development of web-based systems, and integrating appropriate technologies and techniques to provide satisfactory efficient implementations
- Ability to tackle unfamiliar problems - the process of applying a toolbox of techniques and technologies to address problems not seen before, to appreciate how abstractions learned in a generic context may be applied in particular instances
- Ability to work independently - the assessment in this unit is all at an individual level. The emphasis is on acquiring a significant number of technical skills. However, it is expected that students will work collaboratively to help each other learn, whilst remaining faithful to the expectation that they will work independently on assessment work.

Content

- Server-side scripting language PHP: variables, data types, operations, strings, functions, control statements, arrays, files and directory access, maintaining state
- Web programming approach by using embedded PHP
- Access and manipulation of MySQL
- The Ajax web application development approach
- DOM and CSS used in JavaScript
- Asynchronous content update technologies
- XMLHttpRequest objects used to communicate between clients and servers
- XML and JSON
- XSLT and XPath as mechanisms for transforming XML documents
- Web services and APIs (especially Google Maps)
- Ajax frameworks for contemporary web application development
- Design patterns used in web applications

ICT307: Computer Systems Engineering

Aims and objectives

This unit of study will provide you with an understanding of computer system design, particularly the relationship between hardware and software and how this influences system performance.

Learning Outcome

After successfully completing this unit, you should be able to:

1. Appreciate the range of application of computer systems and their differing performance requirements.
2. Describe the different components of a computer system and their purpose.
3. Appreciate different computer architectures and their intended application.
4. Appreciate different computer organizations and their effect upon operation and performance.
5. Appreciate techniques used to improve computer operation such as interleaving, caches and pipelining and be able to estimate their effectiveness in simple scenarios.
6. Apply knowledge of computer organization and implementation approaches to the design of computer hardware.