

Lab facility

| S. No. | Lab Name | Lab In-charge Name | Equipment Detail | User |
|--------|-------------------------|--------------------------|--|------|
| 1 | Programming Lab | Mr. Umesh Kumar Gera | PC Specifications to be followed: Processor: Core 2 Due, 2.0 GHz OR Dual Core RAM: 3 GB or better HDD: 320 GB SATA Monitor: Color TFT OS: Genuine Windows 7 Professional or Home Premium or Windows 7 Ultimate Turbo C and C++ Compiler(Latest Version) | 60 |
| 2 | Networking Lab | Mr. Nilesh | Computer System (with latest specifications) Wireless access points 24 Port Switch Laser Printer Red hat Linux 19" Rack Frequency Modulation/Demodulation Trainer Board Frequency Modulation/Demodulation Trainer Board Windows 2003 Server or Latest version LAN Trainer System | 30 |
| 3 | AI Lab | Mr. Dharendra Siddharth | PU: 1x NVIDIA GeForce GTX 1070 Memory: 32 GB DDR4 RAM Storage: 1 TB NVME SSD Lambda Tensorbooks run Ubuntu OS and are preinstalled with AI development frameworks, TensorFlow, PyTorch, Caffe, Caffe 2, Keras, CUDA, and cuDNN. | 30 |
| 4 | DBMS Lab | Mr. Dilip Kumar J. Saini | Sql server 2015 Oracle 11.0 Windows 2008 server or latest version | 60 |
| 5 | Advance Programming Lab | Mr. Brajesh Mishra | Multimedia Computer Systems with latest specifications VB Dot Net (Latest Version) Adobe Dreamweaver Java Tool Kit | 30 |
| 6 | DLD Lab | Ms. Priti Singh | 8085 based Trainer Kits Assembler for 8085 programming Computer System with latest specifications Ad on Card to study interfacing of LCD with 8085 based microprocessor Ad on Card to study speed control of stepper motor using 8085 based microprocessor including stepper motor. | 60 |
| 7 | Research Lab | Dr. Kotadi Chinnaiah | Computer System (with latest specifications) Wireless access points 24 Port Switch Laser Printer Red hat Linux | 10 |

- **Programming Lab:**

1. To introduce students to the basic knowledge of programming fundamentals of C language.

2. To impart writing skill of C programming to the students and solving problems.

3. To impart the concepts like looping, array, functions, pointers, file, structure.

C is a programming language developed by Dennis Ritchie at AT&T's BELL Laboratory of USA in 1972. Because of its reliability, C is very popular. C is highly portable & it is well suited for structured programming. C program consists of collection of functions.

GCC is a Linux-based C compiler released by the Free Software Foundation which is usually operated via the command line. It often comes distributed freely with a Linux installation, so if you are running UNIX or a Linux variant you will probably have it on your system. You can invoke GCC on a source code file simply by typing.

Open Turbo C/C++ from your Desktop or Programs menu. Select "File" from Menu bar and select option "New" and Save C program with filename „.C" extension. To do compiling – Select -> Compile from menu and click-> compile. If the compilation is successful – you will see a "success" message. Else you will see the number of errors. To RUN the program – you may select ->Run from menu and click -> Run Now you will see the output screen.

- **Networking Lab:**

The Computer Networks Laboratory is designed for the undergraduate students to have the experiment related to the computer networks courses. The experiment includes network cabling, installation and configuration of network devices, analysis and application of network protocols, design and management of network systems.

The laboratory equips with a few groups of computer network systems designed for the students to learn the concepts of the communication technologies in LANs and WANs, and in Routing and Switching (Figure 1). These systems are located at a separated standard equipment room and can be remotely accessed through the computer terminals.

Lots of various enterprise-level network equipment exists in the laboratory, including advanced routers, Ethernet switches, IEEE 802.11a/b/g/n wireless access points, and the tools for cable making and testing (Figure 2), allowing the students to practice the skills of network engineering in cabling, installation and troubleshooting.

The software of computer network simulator is installed (Figure 3) in the computers of the laboratory, used for the students to learn how to design and manage some typical medium-size to large-size network systems.

At last, as a Cisco Networking Academy in Macau over 10 years (Figure 4), the laboratory offers some training courses of the internationally recognized Cisco certification exams for the students and the staffs of the university, and thus helps lots of them to become professional network engineers in their career.

- **AI Lab:**

Artificial Intelligence (AI) is a general term that implies the use of a computer to model and/or replicate intelligent behavior. Research in AI focuses on the development and analysis of algorithms that learn and/or perform intelligent behavior with minimal human intervention. These techniques have been and continue to be applied to a broad range of problems that arise in robotics, e-commerce, medical diagnosis, gaming, mathematics, and military planning and logistics, to name a few. Several research groups fall under the general umbrella of AI in the

department, but are disciplines in their own right, including: robotics, natural language processing (NLP), computer vision, computational biology, and e-commerce. Specifically, research is being conducted in estimation theory, mobility mechanisms, multi-agent negotiation, natural language interfaces, machine learning, active computer vision, probabilistic language models for use in spoken language interfaces, and the modeling and integration of visual, haptic, auditory and motor information.

The name “artificial intelligence” covers a lot of disparate problem areas, united mainly by the fact that they involve complex inputs and outputs that are difficult to compute (or even check for correctness when supplied). One of the most interesting such areas is sensor-controlled behavior, in which a machine acts in the real world using information gathered from sensors such as sonars and cameras. This is a major focus of A.I. research at Yale.

- **DBMS Lab:**

Structure Query Language(SQL) is a database query language used for storing and managing data in Relational DBMS. SQL was the first commercial language introduced for E.F Codd's Relational model of database. Today almost all RDBMS(MySql, Oracle, Infomix, Sybase, MS Access) use SQL as the standard database query language. SQL is used to perform all types of data operations in RDBMS.

A database management system (DBMS) is computer application software that provides a way to manage data. The requirement of modern days is to have an automated system that manages, modifies and updates data accurately. This is achieved by a DBMS in robust, correct and non redundant way. DBMS lab aims at practicing and achieving this aim by using various software's such as SQL, ORACLE, and MS – Access etc. All these require a thorough practice of various DDI, DCL and DML queries.

- **Advance Programming Lab:**

This module aims to introduce the students to some concepts of advanced programming and practice on reusing components. It focuses on Graphical User Interface (GUI), multithreading, networking, and database manipulation. A selected programming language is used such as Java. By completing this module, the students should be able to write sophisticated Java applications.

This module exposes students to the depth and breadth of modern programming practice, with the goal of making students better programmers. It is, however, an advanced level module in which some advanced programming concepts are taught.

Knowledge and understanding - Understand some advanced programming concepts - Deal with complex data objects as whole entities, rather than by twiddling with their elements • Cognitive skills (thinking and analysis). - Define the problem and write large programs - Analyze a problem and determine what problem elements to represent as functions or objects • Communication skills (personal and academic). - Write the simplest possible program that solves a given problem while explaining to the reader how it solves that problem • Practical and subject specific skills (Transferable Skills). - Effectively use parameterization and inheritance to promote reuse - Develop programs with networking and multithreading - Compose more complex programs from simpler parts - Write programs that implement GUIs.

- **DLD Lab:**

The DLD Lab is for undergraduate coursework related to the course EE131. It is one of the core modules of B. Tech. Electrical Engineering therefore the lab has a significant importance in the department. This lab is designed such that the students get a hands on familiarity with the concepts they come across in the course EE131 that is the Digital Systems course. This is an undergraduate course which deals with the basics of digital systems design and is a core module of the B. Tech. Electrical Engineering coursework as it provides the prerequisites for advance courses in digital electronics. Because of the significance of this course the DLD Lab has been carefully designed to meet the course requirement.

The Lab is well equipped with both hardware and software facilities required by the students to perform the necessary experiments designed for this lab. Details of the lab equipment has been discussed in a proceeding section. Experiments are designed in such a way that the students become well aware of the concepts they learn in the theory sessions. A list of experiments that are conducted in this lab has also been mentioned in a proceeding section. Experiments are related to both digital hardware and Verilog Programming.

The Experiments in the Lab have been divided into two major portions: • Hardware Labs • Hardware Description Language (Verilog) Labs Hardware Labs have been designed to familiarize students with the Combinational Digital Logic Design and Sequential Digital Logic Design through the implementation of Digital Logic Circuits using ICs of basic logic gates and some simple digital logic circuits.

- **Research Lab:**

This is a model job description. The duties listed below are representative and characteristic of the duties required. They are intended to suggest a level of skill and complexity and as such are not a substitute for the specific descriptions for individual positions.

Typical Duties

1. Performs laboratory experiments utilizing standard techniques and equipment;
2. Collects project data;
3. May perform routine logging and testing of samples;
4. Processes, organizes and summarizes data, reporting experiment results using a variety of scientific, word processing, spreadsheet or statistical software applications or program platforms;
5. Assists in the design of laboratory experiments, techniques, and protocols;
6. May instruct other staff and students in basic laboratory techniques;
7. Performs related laboratory maintenance such as maintaining and cleaning equipment and ordering supplies;
8. May process orders or invoices, or undertake other clerical and simple accounting duties under the direction of administrative personnel.

Under nominal direction, performs a variety of basic and general laboratory research and clerical tasks determined by the field and scope of the particular research study. May perform tasks related to the research project independently, within broad guidelines and subject to periodic review by supervisor or other research staff.

- **DBMS Lab**

The purpose of the DBMS lab makes it possible for end users to create, read, update and delete data in a database. The DBMS essentially serves as an interface between the database and end

users or application programs, ensuring that data is consistently organized and remains easily accessible.

- **Project Lab**

The Project Lab offers the students, the opportunity to gain valuable hands-on experience with state-of-the-art environment where students become proficient in both the physical and creative skills needed in the field of Computer Science & Engineering. The Project Lab has a key role in promoting practical/ Programming learning experience, a place where they develop creative proposals, and execute their final projects.

- **Web Technology Lab**

The objective of this lab is to develop an ability to design and implement static and dynamic website

At the end of the course, students should be able to:

- Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.
- Have a Good grounding of Web Application Terminologies, Internet Tools, E – Commerce and other web services.
- Get introduced in the area of Online Game programming.

- **Computer Network Lab**

Equipped with latest networking related devices, the lab facilitates students to perform Computer Network practicals. All important Network Simulators like Cisco Packet Tracer, NetSim, OMNET and NS3 are installed to provide solution to the practical problems faced by computer scientists.

- **Algorithms Lab**

The lab provides requisite environment for Design and Analysis of Algorithms for solving complex problems in the field of computer science. Students execute all data structure and other algorithm related practical's in the lab. The latest platforms/compiler are provided to the students to run their programs.

- **C/C++ Programming Lab**

The lab is installed with all important editors like Code Block, Dev C++ provides a dual operating system environment where the students can learn to execute C and C++ programs in all types of environments.

- **Programming/Internet Lab**

To get familiar with basics of the Internet Programming.

To acquire knowledge and skills for creation of web site considering both client and server side programming.

To gain ability to develop responsive web applications.

To explore different web extensions and web services standards.