**ADMINISTRATIVE DETAILSWelcome Note**

Dear Students

Engineering is a human activity aimed at creating new artifacts, algorithms, processes and systems that serve humans and in turn society. An engineer seeks to create what never did exist. It is a privilege to embark on a career related to engineering.

Aurora's Technological and Research Institute, Hyderabad, a premier engineering college in the country, since its establishment in 1999, has been carrying forward the legacy of Aurora's quality education. Guiding thousands of students on their way, shaping their future and moulding them into engineers the country would be proud of, is the goal of the institute. The passion for excellence that drives it can be seen in every aspect of this vibrant Institute from its stringent recruitment policies, teaching and learning process and academic performance to its outstanding infrastructure and placement activities. ATRI is affiliated to the Jawaharlal Nehru Technological University, Hyderabad and is approved by the All India Council for Technical Education, New Delhi. ATRI is also accredited by National Board of Accreditation, New Delhi which substantiates the high standards of excellence that the institution has set for itself.

As part of co-curricular and extra curricular activities, we conduct national and intercollegiate level seminars and workshops, encourage students to participate in technical paper presentation contests; organize lectures by experts from leading industries, conduct university sports meets etc. Many of our students regularly form parts of university teams and a few part of the state teams.

At ATRI, we have a student friendly environment with all facilities including well equipped departments, qualified and experienced faculty.

We at ATRI, seek to define the moral obligation of the engineer using traditional moral philosophy and describe how this obligation might be translated into a more positive definition of success. The programs offered by the institute prepare students for careers in industry or for post graduate study in engineering or related fields.

It gives me immense pleasure to welcome all those who aspire to have a career in engineering a fruitful stay at our institute.

With Warm Regards

Director

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**1. AURORA CONSORTIUM**

It was in 1989 that Mr. Ramesh Nimmatoori, a young postgraduate in Computer Science Engineering, decided to realize his dream. He made a humble but determined beginning with Aurora’s Degree College, set up under the aegis of the Aurora Educational Society. The college had four departments, namely Mathematics, Computer Science, Statistics, and Electronics. In 1993, two new departments were added — that of the biological sciences and commerce. The student strength rose to 600 that year. From then on, there was no looking back. By 1998, the Degree College had more than 2000 students enrolled in various branches of study. In 1995, the Aurora Educational Society established a Post graduate College which offered two programmes, namely, Masters in Computer Applications and Masters in Business Administration. In 1998, Aurora touched new heights when it established its engineering college on a sprawling campus of 580 acres at Bhongir. It was a bold venture in the area of higher education. Not long after, seven more engineering colleges came up, followed closely by four postgraduate colleges. Today, Aurora happens to be one of the largest educational groups in the state of Andhra Pradesh, with approximately 30,000 students on its rolls and more than 1800 faculty and 1200 administrative staff.

Aurora is known for establishing unique traditions in every aspect of its functioning. Be it pedagogical practices, advertising strategies, discipline, co-curricular and extra - curricular activities and events, Aurora is in the forefront. Today, it is no exaggeration that people across the country believe that Aurora is a trendsetter. It nurtures a knowledge culture. It facilitates tapping the latent potential of both the students and the staff. Aurora’s students and faculty command a distinct recognition among their peers and colleagues. It is this unique culture, which has become the hallmark of Aurora Consortium.

The ***Vision*** of Aurora is to make itself “synonymous with learning”. We, at Aurora, envisage a role for ourselves as a center of higher learning where we cherish, nurture and disseminate knowledge and thereby establish ourselves as pioneers in “man-making education”.

Our ***Mission*** is to serve the nation as a center for the advancement, preservation and dissemination of knowledge. We aim to endow our students with a perfect synthesis of human values, ancient wisdom and modern thought, thus ensuring that when they step into the fiercely competitive and technologically advanced world, they do not turn into mere automations but retain their sense of self as a direct result of what they have learnt with us.

**1.1 THE GOAL**

In seeking to fulfill its comprehensive mission, Aurora pursues three principal institutional goals: meaningful research, effective teaching, and service to society. Contribution towards the realization of these goals essentially constitutes the standard by which members of the academic staff are evaluated.

**1.2 RESEARCH**

The Aurora group acknowledges that the preservation and expansion of knowledge through scholarly inquiry is a function that distinguises institutions of higher learning. The institution believes that scholarly quest promotes effective teaching, besides serving the society. Aurora, therefore, seeks to preserve knowledge in its archives and libraries, employs teaching faculty holding research degrees awarded by reputed institutions of advanced education, honors those who achieve distinction as scholars, maintains laboratories, research centers and numerous administrative entities that function to promote the expansion of knowledge.

**1.3 TEACHING**

Aurora is committed to the transmission of knowledge. The institution’s primary responsibility is to impart quality education to the student community, and, in this regard, effective classroom teaching is Aurora’s most pervasive medium for the dissemination of the results of its faculty’s scholarly endeavors. The central concern of the institution is, therefore, excellence in its instructional activities that provide students with opportunities for a comprehensive education and a specialized professional training. The institution assigns substantial weightage to teaching in its process of faculty evaluation, recognizing that excellence requires not only knowledge on the part of a teacher but a continuing quest for knowledge, a constant review of curricula and methods, flexibility and creativity in the classroom, and an unceasing effort to individualize instruction. Towards this end, Aurora seeks to measure the quality of instruction through student and peer evaluation, and review of its academic programmes by accrediting agencies.

**2. THE INSTITUTE**

Aurora’s Technological and Research Institute (formerly known as Karshak Engineering College) is one of the eight engineering colleges under the umbrella of the Aurora group of Institutions. It was established under the aegis of the Karshak Vidya Parishad in the year 1999 in Kamareddy, Nizamabad district and now functions at its permanent location at Parvathapur, Uppal (post), Ranga Reddy District.

The **Vision** of ATRI is to be a center of higher learning that can provide the best learning experience in engineering education and to be recognized as one of the best engineering colleges in India.

The **Mission** of the institute is to provide excellent education in Engineering and Technology; to create an environment for quality research and dissemination of knowledge and to develop entrepreneurship and managerial abilities through world-class engineering and management education

The institute offers B.Tech courses in six streams viz; Computer Science and Engineering, Electronics and Communication Engineering, Information Technology, Electrical and Electronics Engineering, Mechanical Engineering and Civil Engineering. M.Tech. courses are offered in ten specializations : Software Engineering, Bio Technology, Power system control&Automation, Computer Science and Engineering, Embedded Systems, VLSI Design Web Technologies, Structural Engineering, Machine Design and Advanced Manufacturing System. Post graduate courses are also offered in Business Management (MBA) and Computer Applications (MCA).

*Aurora’s Technological and Research Institute* (ATRI), accredited by NBA, is approved by AICTE and affiliated to Jawaharlal Nehru Tehnological University, Hyderabad for conduction of its courses. The Institute is known for its discipline and integrity. ATRI has sincere and enthusiastic faculty, a blend of experienced and young professionals dedicated to teaching. The students are sincere and studious which is reflected in the overall excellent results.

A major area of thrust at ATRI is Research and Development with a focus on consultancy services and software development. There is a very strong industry academics interaction at ATRI. A number of MOU’s have been signed with various Electronic and Software Industries for setting up of Labs and conducting workshops and training. Notable among these are Gill Instruments Pvt. Ltd., Asian Electronics, UTS Solutions Ltd., Chinmaya Micro Technologies, Silicon Research Labs, Rocsys, Altech Imaging and Computing Pvt. Ltd., Praxis Groups, Coign Consultants, ERP Analysts, Stanza Technologies Pvt. Ltd. for Consultancy, Training and Placements. The Institute has taken the initiative of developing a Communication and Soft Skills course with a Language Lab for higher classes which is in addition to the prescribed curriculum. Intensive training is imparted in the areas of Group Discussions, Verbal Ability and Presentations.

**3. COURSES OFFERED**

The Institute offers 6 courses leading to the Bachelor’s in Technology (B. Tech.) degree and 9 courses for Post Graduate Degree:

1.  **Department of Computer Science and Engineering INTAKE**

i. B. Tech.(Computer Science and Engineering) 240

ii. M.Tech (Software Engineering) 25

iii. M.Tech (Computer Science and Engineering) 18

iv M.Tech (Computer Science and Engineering) II Shift 18

2.  **Department of Information Technology**

i. B. Tech. (Information Technology) 120

ii. M. Tech (Web Technologies) 18

3.  **Department of Electronics and Communication Engineering**

i. B. Tech (Electronics and Communication Engineering) 240

ii M. Tech(Embedded System) 25

iii. M. Tech (VLSI Design) 18

iv. M. Tech Embedded Systems (II Shift) 18

4. **Department of Electrical and Electronics Engineering**

B. Tech (Electrical and Electronics Engineering) 120

M. Tech (Power System Control & Automation) 18

5.  **Department of Mechanical Engineering**

B. Tech (Mechanical Engineering) 120

M.Tech (Machine Design) 18

M.Tech (Advanced Manufacuturing System) (II Shift) 18

6. **Department of Civil Engineering**

B. Tech (Civil Engineering) 120

M.Tech (Structural Engineering) (II Shift) 18

7.  **Department of Management Science**

Master of Business Administration 180

8.  **Department of Computer Applications**

Master in Computer Applications 60

**3.1 DEPARTMENT** **OF** **COMPUTER** **SCIENCE** **AND** **ENGINEERING**

**3.1.1 B.TECH.** **(COMPUTER** **SCIENCE** **AND** **ENGINEERING)**

**3.1.1.1** **COURSE** **OBJECTIVE**

The undergraduate program in Computer Science & Engineering is essentially aimed at equipping a student with excellent programming and system related competencies. The student is expected to possess skills and core knowledge both in hardware and software technologies related to the discipline of Computer Science. Teaching is focused on systems programming as well as application programming. Knowledge is imparted in Computer Architecture and Design, maintenance and networking. Students are also taught a spectrum of programming languages spanning assembly language programming, C, Java, C++, dot net and also operating systems like UNIX and Windows. In addition, they are also imparted skills in packages and tools like Multimedia, Weka etc.,

**3.1.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics – I

3. Mathematical Methods

4. Engineering Physics

5. Engineering Chemistry

6. Computer Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Workshop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.1.1.3 DISTINCT FEATURES OF THIS COURSE**

The Computer Science and Engineering Programme has a distinctly different course offered at the undergraduate level as compared to any other programme. There are many features that distinguish this course from that of the Information Technology course. Apart from software technology, focus is also on hardware technologies, such as Computer organization, Micro Processor and Computer Architecture. The course also focuses on Networking and System Administration with special emphasis on Unix Programming.

**3.1.1.4 Program Educational Objectives**

The Programme Educational Objectives of the Computer Science and Engineering Program is to bring together the teaching staff, students, non-technical staff and other resources to prepare students for successful and productive engineering careers, with emphasis on technical competency and with attention to teamwork and effective communication; prepare students for the successful pursuit of graduate studies and for life-long learning in Computer Science and Engineering, Information Technology and other related areas and endow students with a sense of professionalism with encouragement of professional ethics, and active participation in the affairs of the profession. The PEOs of the department therefore focus on acquisition of technical skills, employability skills, leadership skills, self-learning methods, problem solving skills and professional ethics.

**3.1.1.5** **GRADUATE** **DESTINATIONS**

Students can pursue higher education in specialized courses, such as Software Engineering, Artificial Intelligence, Networking, etc. Alumni of this college have been securing seats in premier national institutes such as the IITs, IIIT, University of Hyderabad, Osmania University, Jawaharlal Nehru Technological University and in Institutions in the United States, Australia and Canada.

**3.1.2 M. TECH. (COMPUTER SCIENCE AND ENGINEERING)**

**3.1.2.1 COURSE OBJECTIVE**

The present decade is witnessing an upsurge of demand for technically trained human resource. Information technology is expanding at a very fast rate. The range of tasks that can be handled most economically by computer operations is likely to grow rapidly. In addition to hardware, field of soft computing, Mobile and Wireless Computing, High Speed Networking is also poised for very rapid growth. There is a large demand for hardware and software professionals in our country and abroad. A vast potential for further development and research exists in this area. The M. Tech course was started to strengthen the expertise and capability available in this field. The post-graduates of this course would be useful not only for Indian industries and research organizations but also for the international market. It has been projected that Indian industry is set for very rapid growth in this area and trained persons with sophisticated skills will be needed in large numbers to meet the increasing international level of competition.

**3.1.2.2 COURSE DETAILS**

In the first semester, the subjects taught are Advanced Problem Solving, Computer System Design, Embedded Systems and Java & Web Technologies. The subjects offered under Elective - I are Objective Oriented Modeling, Software Quality Assurance and Testing and Software Architecture and Design Patterns. Elective - II comprises Software Design and Engineering, Advanced Compiler Design and Image Processing and Pattern Recognition.

Java and Web Technologies Lab is also conducted.

**3.1.2.3 DISTINCT FEATURES OF THIS COURSE**

The course focuses on Network Security,Mining and Data warehousing, Network Programming and Architecture and Design. It gives an overview of diverse research areas. Apart from taking up individual projects, the students are also trained to implement complex algorithms.

**3.1.3**  **M.** **TECH** **(SOFTWARE** **ENGINEERING)**

**3.1.3.1** **COURSE** **OBJECTIVE**

Software Engineering is defined in IEEE Standard 610.12 as “*the* *application* *of* *a systematic,* *disciplined,* *quantifiable* *approach* *to* *the* *development,* *operation, and* *maintenance* *of* *software;* *that* *is,* *the* *application* *of* *engineering* *to* *software.”*

Recognizing the growing need for programs preparing students for careers in the engineering of large complex software systems and products, the M.Tech Programme in Software engineering was started . This course helps one to understand theoretical, methods, and technologies applied for professional software development.

The primary emphasis in this degree is on the principles of good scientific software engineering practice and grounded in a hands-on understanding of the applicability of these practices in industry.

**3.1.3.2** **COURSE** **DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are for project work and submission of the dissertation/thesis. In the first semester, the subjects taught are Software Requirement and Estimation, Object Oriented Modeling, Software Process and Project Management, Java and Web Technologies. Apart from this, elective subjects are also offered - Elective I comprises of Advanced Computer Networks, Wireless Networks and Mobile Computing, Adhoc and Sensor Networks. The student can choose from Information Retrieval Systems, Distributed Database and Storage Area Networks as the second elective. Java and Web Technologies Lab is also conducted. Projects are evaluated.

**3.1.3.3** **DISTINCT** **FEATURES** **OF** **THIS** **COURSE**

It gives an exposure to the field of ‘Software Engineering’ with a focus on obtaining an understanding of what it means to do software engineering and on reflecting on alternative methods and approaches. It deals with an overview of philosophies, methods, and techniques to project management and modeling supplemented by insights into the use and implementation of tools and approaches to process analysis and improvement.

**3. 2 DEPARTMENT OF INFORMATION TECHNOLOGY**

i. B.Tech (INFORMATION TECHNOLOGY)

ii. M.Tech (WEB TECHNOLOGIES)

**3.2.1 B.TECH. (INFORMATION TECHNOLOGY)**

**3.2.1.1 COURSE OBJECTIVE**

This is a four-year undergraduate program in Information Technology essentially aimed at equipping the student with excellent programming and system related competencies. This course focused on systems programming as well as application programming. Knowledge is imparted in algorithm analysis, computer architecture and design, networking & security, and web designing. Students are also taught a spectrum of programming languages spanning assembly language programming, C, Java, C++ and also operating systems like UNIX and Windows.

**3.2.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics – I

3. Mathematical Methods

4. Engineering Physics

5. Engineering Chemistry

6. C Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Work-Shop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.2.1.3 DISTINCT FEATURES OF THIS COURSE**

Special emphasis is given to Software Testing and Maintenance with Embedded and Real-time Systems, thus making them distinctly different from their counterparts doing a course in Computer Science Engineering. Students of this course can claim additional competence in software testing and maintenance and networking related concepts, thus being trained in application aspects of computing technologies.

**3.2.1.4 Program Educational Objectives**

The program educational objectives of the Information Technology program will result in graduates who will obtain positions as information technology professionals in various industries and government agencies that are involved in the creation, maintenance and use of computers, computer networks and computer information systems.

The IT program educational objectives guide the program faculty in defining the knowledge and skills that graduates need in order to be successful in their chosen careers so that they will be able to demonstrate effective problem solving skills that will enable them to be successful professionals. The PEOs of the department therefore include career enhancement, acquisition of technical skills, depth in knowledge, expertise in core areas, exposure to a good learning environment and creation of professionals with strong ethics.

**3.2.1.4 GRADUATE DESTINATIONS**

Students of this course are eligible for higher studies in Software Engineering, Network Administration, and for advanced courses, such as VLSI and Embedded Systems. The alumni of this course have benefited from excellent placement opportunities in organizations, such as Infosys, Satyam, Wipro, and in MNCs, such as Oracle, Adobe and Computer Associates.

**3.2.2 M.TECH (WEB TECHNOLOGIES)**

**3.2.2.1 COURSE OBJECTIVE**

The growth of the world-wide web (www or simply web) today is simply phenomenal. Each day, thousands more people gain access to the Internet. Easy retrieval of electronic information in conjunction with the multimedia capabilities of web browsers (like Mosaic or Netscape) is what started this explosion. Since the tremendous growth of the Internet and Information Technology, the potential for web-based applications has grown by leaps and bounds. Any application, which was earlier targeted to a local population in now getting transformed into a web-application to reach the customers spread across the entire globe and this trend will continue to increase.

The M.Tech. course on web technologies is designed keeping in view the tremendous potential for developing web-based applications. It is extremely useful to have a course that collectively describes not only the underlying areas from which internet technology derives its solutions, but also details the specific solutions to important applications on the world wide web.

The objective of this course is to provide students with an application oriented view of Web Technologies

**3.2.2.2 COURSE DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are allotted for project work and submission of the dissertation/thesis.

In the first semester, the students study subjects like Java and Web Technologies, Distributed Systems, Information Retrieval Systems and Web Security. They can choose from Advanced Computer Networks, Wireless Networks and Mobile Computing and Inner Networking with TCP / IP as their first elective and from E- Commerce, Storage Area Networks and Advanced Data Bases as their second elective. Web Problems Lab also forms part of the curriculum.

In the second semester, the students study subjects like Scripting Languages, Web services, Semantic web and social networks, Grid Computing, They can choose from Multimedia Rich and internet application, Cloud computing as their first elective and from Software quality assurance and testing, Software architecture and design patterns, software process and project management as their second elective. Web mining and web services lab also forms part of the curriculum.

**3.2.2.3 DISTINCT FEATURES OF THIS COURSE**

The course on Web Technology ranges from fundamental areas such as information retrieval and data markup to applications such as web search, instant messaging, mobile access and web services. Web technology is an evolving area constituting web services, web security, grid computing, web mining, etc. This course aims at providing all the knowledge and skills required for an IT / Computer Science engineer to become an expert web application designer.

**3.3 DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

**3.3.1 B.TECH (ELECTRONICS & COMMUNICATION ENGINEERING)**

**3.3.1.1 COURSE OBJECTIVE**

The main objective of this course is to produce talented engineers in the field of Electronics & Communication Engineering. Emphasis is on teaching design, testing and implementation of electronic circuits required for communication-related areas. Students are taught the applications of electronics in the field of communication systems, computer engineering, radar engineering, satellite communication, etc. FPGA advantage software, supposed to be the best and adopted worldwide, is used. Modern methods of electronic communication like Optical Communications, FSK, PSK, MSK and DPSK are tested using the best modules.

**3.3.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics – I

3. Mathematical Methods

4. Engineering Physics

5. Engineering Chemistry

6. C Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Work-Shop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.3.1.3 DISTINCT FEATURES OF THE COURSE**

The Electronics and Communications Engineering Course offered at the undergraduate level is a distinctly different course, with emphasis on electronics subjects, such as Digital & Micro Electronics, and communication engineering subjects, such as Satellite Communication, Optical Communication and Digital Signal Processing. Students can specialize in advanced communication engineering subjects, like Cellular and Mobile Communications, Radar Engineering, or applied electronics subjects, such as Embedded Systems, VLSI and Biomedical Instrumentation.

**3.3.1.4 Program Educational Objectives**

The program educational objective of the Electronics and Communication Engineering department is to bring together the faculty, staff, and capital resources to prepare students for successful and productive engineering careers, with emphasis on technical competency and with attention to teamwork and effective communication; prepare students for the successful pursuit of graduate studies and for life-long learning in electronics and communication engineering and related fields and endow students with a sense of professionalism with encouragement of professional ethics, and active participation in the affairs of the profession. PEOs of the department focus on professionalism and citizenship, technical accomplishments, invention, innovation and creativity, professional development and human resource development.

**3.3.1.4 GRADUATE DESTINATIONS**

Students can opt for placements in government and public sector companies like ECIL, BSNL, ISRO, NRSA, AIR, Doordarshan, Indian Railways, DRDO and NGRI; private sector companies like Motorola, TI, Qualcomm and Sasken to name a few. Those interested in going for higher studies to IITs/IISc have to qualify the All-India GATE Examination. Apart from these, our students have been getting excellent placements in MNCs both in India and abroad.

**3.3.2 M.TECH (VLSI DESIGN)**

**3.3.2.1 COURSE OBJECTIVE**

This course is an introduction to VLSI System Design which presents both design methods and real examples of the impact of VLSI on modern digital systems. Its objectives are to give theoretical and practical knowledge in hardware modeling and model based performance analysis the present and future complex digital and analog systems.

The course is intended to give the student an understanding of the fundamental system level electrical issues involved in the design of digital deep submicron CMOS VLSI systems and a mastery over the basic techniques and methods used to deal with these issues. The key focus in this course is on impact of interconnects (metal Al or Cu wires) to circuit and system properties. Issues related to interconnects will be introduced in the areas of power distribution, signalling, timing, synchronization, noise-management, and related chip power consumption minimization. In each area, the fundamental problems and the engineering architecture and circuit solutions to these problems are discussed.

**3.3.2.2 COURSE DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are set for project work and submission of the dissertation/thesis.

In the first semester, the subjects taught are Micro controllers for Embedded System Design, CPLD & FPGA Architectures and Applications, VLSI Technology & Design, Algorithms for VLSI Design Automation. The student can choose a subject each from elective - I, Hardware Software Co-Design, Digital System Design and Device Modeling and Elective - II - Advanced Digital Signal Processing, Network Security and Cryptography, Micro Electromechanical Systems. A Simulation Lab (VLSI) is also part of the curriculum.

**3.3.2.3 DISTINCT FEATURES OF THIS COURSE**

This course explores the technology, circuits, architecture, systems and CAD tools for VLSI design. The emphasis is on modern CMOS processes and circuits. Students learn how to design at different levels of abstraction, from detailed circuits for custom memory, logic and data-path to high-level behavioral languages for automatic chip compilers. Basic methods of VLSI CAD tools are a part of the course.

**3.3.3 M.TECH (EMBEDDED SYSTEMS)**

**3.3.3.1 COURSE OBJECTIVE**

Embedded Systems are involved in almost every facet of modern life including cell phones, pagers, answering machines, microwave ovens, televisions, VCRs, CD and DVD players, video game consoles, remote controls, fax machines, and digital cameras. Modern automobiles may contain as many as 65 embedded microprocessors, controlling such tasks as braking, climate control, engine control, audio system control, and airbag deployment. Embedded processor sales far outweigh any other type of microprocessor. This tremendous growth in embedded computing has given rise to demand for engineers with experience in designing and implementing Embedded Systems. The course presents practical lessons and techniques for use in designing, implementing, integrating, and testing software for modern embedded systems.

The objective of this course is to impart an indepth understanding of the role of embedded systems and embedded systems design and development. Students completing this course will have a framework for evaluating, developing, implementing and integrating Embedded Systems software projects which are in high demand and will understand the role of embedded systems in the context of complex engineering systems.

**3.3.3.2 COURSE DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are set for project work and submission of the dissertation/thesis.

In the first semester, the core subjects are Micro controllers for Embedded System Design, Embedded Real Time Operating Systems, VLSI Technology & Design and Advanced Computer Networks. The students can choose a subject from Advanced Computer Architecture, Wireless LAN’s & PANs and Advanced Digital Signal Processing as their first elective; and from Digital System Design, Neural Networks & Applications & Advanced Operating Systems as their second elective.

Embedded Systems Lab also forms part of the curriculum.

**3.3.3.3 DISTINCT FEATURES OF THIS COURSE**

This course covers the principles of embedded and real-time systems inherent in many hardware platforms and applications being developed for engineering and science as well as for ubiquitous systems, including robotics and manufacturing, interactive and multimedia, immersive and omnipresent applications. As part of this course, students learn about quality of service and real-time system principles, understand embedded and real-time operating systems and the resource management issues that arise, and construct sample applications on representative platforms

**3.4 DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

**3.4.1 B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING)**

**3.4.1.1 COURSE OBJECTIVE**

The course provides classroom and laboratory instruction on the prerequisites for a career in Electrical and Electronics Engineering, including theory and design, and the basic science upon which future technology is based.

This a four year course for students wishing to learn about Electrical Engineering, Electronics Engineering and Software Engineering. Electrical Engineering include all the aspects of Power generation, Transmission, Distribution, Utilization and Electrical measurement with barriers like Electrical circuits, Electromagnetics, Control systems, and Electrical machines. Electronics Engineering include basics of Electronic devices, Power electronics, Digital logic circuits, Microprocessors and Micro controllers, Digital signal processors, Fuzzy logic and Neural networks. Software Engineering includes C and Data structures, Simulation techniques, and DBMS.

**3.4.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics – I

3. Mathematical Methods

4. Engineering Physics

5. Engineering Chemistry

6. C Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Work-Shop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.4.1.3 DISTINCT FEATURES OF THIS COURSE**

The Electrical and Electronics Engineering Course offered at the undergraduate level is a specialized engineering course. Students are trained in Electrical Substation Design, Electrical maintenance, Electrical Machine Design and Electrical Energy auditing. Students are given special instruction in computer-aided power management systems, and computer-aided design of electrical machines. They also study advanced subjects, such as VLSI and Embedded Systems and their applications with fuzzy, AI and Neural Networks.

**3.4.1.4 Program Educational Objectives**

The Program Educational Objectives of the department aim to prepare students for successful careers in Electrical and Electronics engineering meeting the requirements of Indian and global companies; to make students proficient in the design, development and production of electrical, electronic equipment, power system and control devices; to enable students acquire mathematical, analytical and engineering skills required for pursuing higher studies and carrying out research in Electrical and Electronic disciplines; to compete effectively in a world of rapid technological change and assume leadership roles within industrial, entrepreneurial, academic, or governmental environments in the broad context of electrical engineering and develop professional, ethical values and communication skills for successful careers in the chosen domain.

**3.4.1.5 GRADUATE DESTINATIONS**

Students can pursue postgraduate programmes in electrical power systems, power electronics, electrical drives, electromagnetics, high voltage AC/DC engineering, advanced control systems, digital electronics and micro-electronics. Alumni of the college have been joining premier educational institutions both in India and abroad. A large number of students are getting placed in MNCs such as DELL, HP, Motorola, and in Indian companies like Infosys, Wipro, APSEB, NTPC, BHEL, BEL , ABB and LANCO. They can also make a career in Indian electrical manufacturing units and industries, both; public and private sectors. Students of this college have been placed in companies widely known for Embedded Systems and VLSI design such as Portal Player.

**3.4.2 M.TECH (Power System control and automation)**

**3.4.2.1 COURSE OBJECTIVE**

Power system automation is the act of automatically controlling the power system via instrumentation and control devices. Substation automation refers to using data from Intelligent electronic devices (IED), control and automation capabilities within the substation, and control commands from remote users to control power system devices. Power system automation includes processes associated with generation and delivery of power. Monitoring and control of power delivery systems in the substation and on the pole to reduce the occurrence of outages and shorten the duration of outages that do occur. The IEDs, communications protocols, and communications methods, work together as a system to perform power system automation. The term “power system” describes the collection of devices that make up the physical systems that generate, transmit, and distribute power. The term “instrumentation and control (I&C) system” refers to the collection of devices that monitor, control, and protect the power system.

**3.4.2.2 COURSE DETAILS**

1st semester- Power system operation & control, Advanced power system protection, High voltage dc transmission, Distribution automation, Power system reliability, Micro processors & Microcontrollers, Advanced digital signal processing, Digital control system, Lab-Power system lab. 2nd Semester - Power system control & stability, Flexible ac transmission systems, extra high voltage transmission, Neural & fuzzy systems, operation research, embedded system, power quality, Control System and Simulation Lab

**3.4.2.3 DISTINCT FEATURES OF THIS COURSE**

It gives an exposure to the field of “Power System Analysis” such as Automation tasks, Hardware structure of the power system automation, Controlling (output) devices,  Communications devices, Over current protection, Supervisory Control and Data Acquisition. It deals with the overview of Power System Automation control to analyses of Power transmissions line, distributions line and their faults in a transmissions line.

**5. DEPARTMENT OF Mechanical Engineering**

**3.5.1 B.TECH (Mechanical ENGINEERING)**

**3.5.1.1 COURSE OBJECTIVE**

The course provides classroom & laboratory instruction on the prerequisites for a career in Mechanical Engineering, including theory & Practical application. It involves understanding of core concepts of design, manufacturing, production and analysis including subjects like mechanics, kinematics, Fluid Mechanics, Material science, Production Technology, Thermal Engineering, finite element analysis etc.

**3.5.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics –I

3. Engineering Mechanics

4. Engineering Physics

5. Engineering Chemistry

6. C Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Work-Shop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.5.1.3 DISTINCT FEATURES OF THIS COURSE**

Mechanical Engineering is a large & diversified field. Mechanical Engineering touches almost every aspect of technology that applies the principles of design, manufacturing, analysis & maintenance of Mechanical systems.

**3.5.1.4 Program Educational Objectives**

The Mechanical Engineering program seeks to prepare graduates who, after few years of their career, emerge as practising engineers. These graduates will develop as professional mechanical engineers capable of contributing to their respective organizations, seeking continuous improvement of skills and professional growth.

The graduates of Mechanical Engineering, within few years of of their work experience will be able to take up design, development activities and solve problems encountered in their respective work situations; be able to communicate and perform as an effective engineering professional in both individual and team-based project environments; be able to work as an effective engineering professional in both individual and team situations and will also consider the ethical implications and societal impact of engineering solutions. The PEOs of the department aim at acquisition of good technical skills, employability skills, leadership qualities, self-learning, problem solving skills and professional ethics.

**3.5.1.4 GRADUATE DESTINATIONS**

Students can pursue postgraduate programmes in Mechanical Engineering specialization areas like Thermal, Design, Production, CAD/CAM etc .Alumni of the college have been joining premier educational institutions both in India and abroad. They can be placed in MNCs and Government Organisations. Students can further pursue PhD in the specialization areas after post graduation leading to good career growth.

**3.5.2 M.TECH (Machine Design)**

**3.5.2.1 COURSE OBJECTIVE**

The course on “Machine Design “ presents an integrated approach to design of mechanical systems using interrelationship between force, stress and failure analysis in real world design. The advanced computational and analysis tools are incorporated to enhance the capability of the designer. The scope of the course ranges from conventional design to design code to highly sophisticated and advanced Computer-Aided Design (CAD). The objective of the program is to produce quality design engineers to cater to the needs of the relevant industry. The curriculum has been designed in consultation with expert academicians, industry experts and researchers keeping in pace with the present technological developments and industry needs. The programme is conducted by well-versed faculty, invited experts from reputed institutions and industries.

**3.5.2.2 COURSE DETAILS:**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are set for project work and submission of the dissertation/thesis. In the first semester, the subjects taught are Advanced Mechanical Engineering Design Advanced Mechanics of Solids Fatigue, Creep & Fracture Mechanics, Computational Methods in Engineering. The student can choose a subject each from elective - I, Advanced Finite Element Analysis,Applied Triobology,Gear Engineering, Theory of Elasticity & Plasticity and Elective - II - Advanced Mechanics of Composite Materials,Data Base Management System,Advanced Computer Aided Design,Concurrent Engineering. A Kinematics and Dynamics Lab is also part of the curriculum. In the second semester, the subjects taught are Advanced Mechanics of Machinery,Mechanical Vibrations,Advanced Optimization Techniques and Applications and Experimental Stress Analysis.

The student can choose a subject each from elective – III -pressure vessel design, design synthesis, non linear vibrations and industrial robotics and elective – IV – signal analysis and condition monitoring, Mechatronics, Computational Fluid Dynamics and Theory of Plates and Shells. Computer Aided testing, Analysis and modeling Lab is also part of the curriculum.

**3.5.3 M.TECH (Advanced Manufacuturing System)**

**3.5.3.1 COURSE OBJECTIVE**

The course on “Advanced Manufacturing Systems “ presents an integrated approach to new technology, engineering and business strategies. An emphasis is placed on the state of the art of automation and computer integrated manufacturing. Topics include advanced manufacturing process, rapid prototyping, intelligent manufacturing controls etc.,

The primary goal of this course is to impart to the student an understanding of advanced systems for the production of mechanical components using the attest technologies and methods and is to enable the student to analyze systems for the production of mechanical components using modern advanced processes and technologies.

**3.5.3.2 COURSE DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are set for project work and submission of the dissertation/thesis. In the first semester, the subjects taught are Automation in Manufacturing, Computer Aided Manufacturing, Precision Engineering & Design for Manufacturing and Assembly. The student can choose a subject each from elective – I- Special Manufacturing Process, Product Data Management & Total Quality Management and Elective - II – Advanced CAD, Advanced Mechatronics & Theory of Elasticity & Plasticity. Advanced CAD/CAM Lab is also part of the curriculum. In the second semester, the subjects taught are Simulation Modeling of Manufacturing Systems, Quality Engineering in Manufacturing, Materials Technology & Production and Operations Management. The student can choose a subject each from elective – III – Industrial Robotics , Advanced Tool Design, Design and Manufacturing of MEMS and Micro Systems and elective – IV – Performance Modeling and Analysis of Manufacturing Systems, Computational Fluid Dynamics & Intelligent Manufacturing Systems. Manufacturing Simulation and precision Engineering Lab is also part of the curriculum.

**6 DEPARTMENT OF CIVIL Engineering**

**3.6.1 B.TECH (CIVIL ENGINEERING)**

**3.6.1.1 COURSE OBJECTIVE**

The Objective of this course is to equip the students both professionally and personally with required knowledge as well as moral and ethical values, thus providing value added education, which can make the students competitive in their field of study.

**3.6.1.2 COURSE DETAILS**

**I YEAR**

1. English

2. Mathematics –I

3. Engineering Mechanics

4. Engineering Physics

5. Engineering Chemistry

6. C Programming

7. Engineering Drawing

8. Computer Programming Lab

9. Engineering Physics / Engineering Chemistry Lab

10. English Language Communications Skills Lab

11. IT Work-Shop / Engineering Workshop

**Note :** Subject details of II, III and IV year (as per 2013 regulations) are yet to be released by JNTUH

**3.6.1.3 DISTINCT FEATURES OF THIS COURSE**

The department has well equipped laboratories with all necessary machines. All the laboratories of the department are well equipped with advanced sophisticated instruments to fully satisfy the training needs of the students and meet the research and consultancy requirement of the department.

**3.6.1.4 Program Educational Objectives**

To satisfy the mission of the Civil Engineering program, the graduates within few years of their work experience will be able to take up design, development and solve problems encountered in their respective work situations; be able to communicate and perform as effective engineering professionals in both individual and team-based project environments; be able to work as an effective engineering professionals in both individual and team situations and will consider the ethical implications and societal impacts of engineering solutions.

The Programme Educational Objectives of Civil Engineering Program is to bring together the teaching staff, students, non-technical staff and other resources to prepare students for successful and productive engineering careers, with emphasis on technical competency and to develop the abilities like teamwork and effective communication; prepare students for the successful pursuit of graduate studies and for life-long learning in Civil Engineering and other related areas and endow students with a sense of professionalism with encouragement of professional ethics and active participation in profession.

**3.6.1.5 GRADUATE DESTINATIONS**

Just after the completion of B.Tech degree, a student can be placed in jobs like Design Engineer and Site Engineer. Knowledge in Auto CAD package makes a Civil Engineering graduate a AutoCAD Engineer. A good grooming in STAAD, NISA, ANSYS or any other Structural Engineering package can help to procure jobs like software engineer in core field of engineering, Scientist in SERC (Structural Engineering Research Centre). By learning Geographical Information System (GIS) packages like Arc INFO, Arc VIEW or other related packages, a B.Tech graduate can expect a job as a Scientist in RRSC ( Regional Remote Sensing Centres). A B.Tech graduate can also pursue M.Tech (2 years)/Ph.D (5 years)

**3.6.2 M.TECH (Structural Engineering)**

**3.6.2.1 COURSE OBJECTIVE**

The objective of the course is to produce structural engineers who integrate and build on the Program’s core curricular concepts in the pursuit of professional leadership, teamwork, life-long learning, and career advancement. The course aims to enhance postgraduate design expertise by offering curricular design experiences that include projects involving the professional community;

The Special Features of the programme include design and process-modeling, open-ended problem solving and appropriate technical proficiency in the sub-disciplines of structures and materials.

**3.6.2.2 COURSE DETAILS**

The duration of this course is two years. The course consists of 4 semesters out of which III and IV semesters are for project work and submission of the dissertation/thesis. In the first semester, the subjects taught are Computer Oriented Numerical Methods,Theory of Elasticity,Advanced Structural Design, Theory of Plates. Apart from this, elective subjects are also offered - Elective I comprises of Concrete Technology,Experimental Stress Analysis,Optimization Techniques in Structural Engineering. The student can choose from Advanced Structural Analysis,Soil Dynamics and Foundation Engineering,Composite Materials. Advanced Concrete Lab is also conducted.

In the second semester Finite Element Methods,Structural Dynamics,Analysis and Design Of Shells and Folded Plates Advanced Steel Design. Apart from this, elective subjects like Prestressed Concrete, Advanced Foundation Engineering, CAD, Principles of Bridge Engineering, Earthquake Resistant Structures, Plastic Analysis and Design are also offered

**7. DEPARTMENT OF MANAGEMENT SCIENCES**

**3.7.1 MASTER OF BUSINESS ADMINISTRATION**

**3.7.1.1 COURSE OBJECTIVE**

The MBA degree offered by JNTU is a two year programme which aims to equip the students with the basic knowledge in all areas of Management and an in-depth knowledge in a chosen area of specialization.

The first two semesters focus on giving a good foundation in the areas of Marketing, Finance, Human Resources and Systems. Apart from core specialization subjects, students are also taught general management subjects like Statistics, Operations Research and Operations Management. The introduction of Business Communication aims at improving the oral as well as written presentation skills of the students.

The last two semesters aim to provide in-depth knowledge in a chosen specialization area. In these semesters, students are also taught general management subjects like Strategic Management and Technology Management, which help them perform well in the middle level management and also there will be summer internship & Viva-Voce in the 3rd & 4th semesters respectively to have practical exposure in Industries.

**3.7.1.2 COURSE DETAILS**

In the first semester, the following subjects are taught - Management Fundamentals, Business Laws and Regulations, Managerial Economics, Business Environment, Research Methodology and Statistical Analysis, Statistical Data Analysis (Practical), Business Communication (Practical), Financial Accounting and Analysis, Business Law and Regulation, Computer Application in Business.

**3.7.1.3 DISTINCT FEATURES OF THIS COURSE**

The course has four main streams, namely Marketing, Finance, Systems and Human Resources. The student can chose from one of the above areas of specializations in the beginning of the third semester.

**3.7.1.4 STUDENT DESTINATIONS**

Students can seek admission as research scholars in various Business Schools across the globe. Students can get into the Executive Level or Middle Level Management Jobs. Every company needs Management Professionals. Some of the companies, which recruit MBAs regularly, are HSBC, GE, Satyam, Bajaj Alliance, Food World, Mudra, ICICI, HDFC, SIS Info Tech, and so on.

**8. DEPARTMENT OF COMPUTER APPLICATIONS**

**3.8.1 MASTER OF COMPUTER APPLICATIONS**

**3.8.1.1 COURSE OBJECTIVE**

The program is designed to train students in the state-of-art technologies such as Object-Oriented Analysis/Design techniques and programming, client server application development, distributed database development, telecommunications and local area network design and artificial intelligence/expert systems

The main objective of the course is to impart basic understanding of concepts, strategies, tools and techniques of information technology, to provide a strong foundation in all technical aspects of computers and their applications, to develop communication and soft skills necessary for contemporary IT professionals and to give hands on experience in IT application in industry through projects on computer application software.

**3.8.1.2 COURSE DETAILS**

The above postgraduate programme consists of six semesters for a duration of three years.

In the first semester, the subjects taught are Mathematical Foundations of Computer Science, Computer Organization, Object Oriented Programming through C++, Probability and Statistics, Accounting and Financial Management.

In addition, the following labs are conducted - IT Workshop, Object Oriented Programming Lab through C++, Computer Organization Lab.

**3.8.1.3 DISTINCT FEATURES OF THIS COURSE**

The program aims at imparting comprehensive knowledge with equal emphasis on theory and practice. The course curriculum has enough flexibility to enable a student to undertake advanced studies in Computer Science later on.

**3.8.1.4 STUDENT DESTINATIONS**

The MCA program equips students with positions like system analysts, systems designers, Programmers and managers in any field related to Information Technology.

**3.9 DEPARTMENT OF HUMANITIES & APPLIED SCIENCES**

The department of Humanities and Applied Sciences (H & AS) comprises the disciplines of English, Mathematics, Physics and Chemistry. A blend of experience and enthusiasm, the department plays an instrumental role in moulding students from the first year itself. The objective of the department is to prepare students to face challenges in a globalised world by imparting intensive training in English Language and Communication Skills, Mathematics, Physics and Chemistry that will help them apply their core knowledge to related fields. The department caters to the placement – related needs of the students by training them in areas like Verbal Ability, Group Discussions, Interview Techniques, Quantitative Aptitude, etc.

The department conducts various literary competitions like Debate, Elocution, Creative Writing, ‘Ad’ Venture, etc. that helps in bringing out the latent talents of the students. A Mathematics and Science Quiz ‘MATRIX’ is also conducted every year. Short term language proficiency courses are offered by the faculty of the department. This year, the institute has introduced into the curriculum the BEC (Business English Certificate) exam offered by Cambridge University. Currently students are being prepared in the areas of Listening, Speaking, Reading and Writing skills.

The department consists of English Language Communication Skills Lab, Advanced Communication Skills Lab, Engineering Physics Lab and Engineering Chemistry Lab. The licensed Software used for advanced communication skills are Hi-Class and K-Van.

The department consists of Senior Professors, Associate Professors and Assistant Professors.

**4. TEACHING-LEARNING PROCESS**

The college is making an earnest attempt with the determination to deliver its promises. The salient feature of the teaching-learning process is that it synthesizes conventional mechanisms of learning, such as lectures and laboratory sessions, with interactive teaching-learning aids, like seminars, on-course projects, guest lectures/expert sessions, industrial visits, and assignments. For the teaching-learning process to be truly interactive, the innovative concept of ‘learning groups’ has been adopted. In addition, each student receives a student handbook that provides a detailed plan of activities to be undertaken during the semester/year.

**4.1 LEARNING METHODOLOGY**

**4.1.1 LECTURES**

Lectures are designed to provide the framework of a subject. They normally last for 50 minutes and are given by expert faculty. Students are expected to note the main points. Handouts are often given summarizing the important points and explaining complex concepts.

**4.1.2 LABORATORIES**

Laboratory work is essential to science and engineering. It provides students with an opportunity to apply their knowledge and develop appropriate practical skills. Laboratories normally involve carrying out experiments using some of the most sophisticated equipment. Both group and individual project work is undertaken in laboratory sessions.

**4.2 INTERACTIVE LEARNING** **METHODOLOGY**

The different learning groups are formed for different activities like Class Tests, Student Seminars, Assignments, Guest Lectures, Mini Projects and Industry Institute Interaction.

**4.2.1 CLASS TESTS**

In addition to the Mid examinations, class tests are conducted by the respective faculty after completion of every unit. Students who fail in these tests will have to reappear. Absence from these tests is viewed strictly. The student is required to clear the test the following week.

**4.2.2 STUDENT SEMINARS**

Seminars characteristically involve learning groups and a member of the teaching staff. They provide an opportunity for active discussions on relevant topics, many of which are covered in the lectures. They help develop transferable skills such as communication and teamwork, and offer a platform to participate fully in learning. The major feature of a seminar is that the student is encouraged to take a measure of control over his studies and contributes positively to these discussions.

Each learning group has to submit the synopsis of their seminar to the head of department one week prior to the presentation.

**4.2.3 STUDENT ASSIGNMENTS**

Students should submit the assignments as per the schedule given in the student handbook. Each class is divided into 15 assignment groups. Each group consists of four students. A minimum of twenty questions are given under each unit. The first question of every unit is answered by Group I and the second question of every unit is answered by Group II and so on. If the questions under the units are exhausted, the same questions are repeated.

**4.2.4 GUEST LECTURES**

In order to provide students with expert guidance, the college organizes regular guest lectures and training sessions.

The student learning groups shall coordinate with the faculty in arranging guest lectures. The students will be responsible for accompanying the guest speakers, and taking care of their hospitality. The student groups in rotation will prepare a synopsis of the lecture and present it to the class. They will also be responsible for sending the necessary feedback to the guest speakers immediately after.

**4.2.5 PROJECTS**

The knowledge acquired by the students during the course of their tenure culminates in the project of the student. The project is the essential ingredient of the U.G. programme of engineering which depicts not only the knowledge of student in various theoretical courses but also shows the experimental skills developed by the candidate. Needless to say that the project report developed by the student would be referred to by various experts in assessing the skills of the candidate at least in the initial phases of candidate’s career development. The serious involvement of staff members in the student’s projects will go a long way in increasing the rapport with the students and the department gets benefited by way of infrastructure and development. As such Aurora’s Technological and Research Institute gives a lot of importance to students’ projects and all the students are advised to follow meticulously the guidelines given.

1. All B.Tech projects are to be done in-house

2. Each student will have an internal guide and an external guide. The attendance during the semester is compulsory and will be given 8 hr/ week as per JNTU norms.

3. Students are advised to know their strengths and weaknesses.

4. A maximum of two members for a project are allowed.

5. Students are advised to identify projects in the area where they have more interest.

6. After ratification of the area students are supposed to discuss with the staff member and prepare a synopsis. The staff member may ultimately become his internal guide. The synopsis should contain the source of material, websites, journals etc.

7. The synopsis submitted by the student is discussed in the department and is ascertained for implementation of the project where department has internal resources namely expert guidance, the necessary hardware and software platform for implementing the project.

8. The workload distribution of the student members for a particular project is to be clearly defined.

9. If it is a hardware project, it should culminate in the development of a working model, which would be kept, in the department after the project work is completed.

10. If it is a software project, the entire code has to be made available to the department and the student should be able to demonstrate the software to the examiners.

11. The student projects are continuously monitored on weekly basis on the prescribed guidelines by the department.

12. Student is supposed to give 3 seminars during the course work of the semester.

13. All the seminars of the students should be in the form of PPTs only along with any demonstrable package.

14. The department has every right to reject the project if it is not up to the mark and if the student fails to implement the suggestions received by them during the course of the project.

**4.2.6 MINI PROJECTS**

During their summer vacation, students of III B.Tech have to work for a minimum of three to four weeks on mini projects (75 to 100 hours project). The projects are designed by the department well in advance and intimated to the learning groups. Each learning group is expected to submit a report on the work done in the schedule given in the almanac to the head of the department. This helps students to study the design and programming aspects.

**4.2.7 INDUSTRY-INSTITUTION INTERACTION**

Visits to local industries every semester are organized to provide practical exposure to the students. Students can experience first-hand the industrial developments taking place in the country. Different learning groups are formed to do this activity. Each learning group is required to submit a report within two days from the date of interaction, to the head of the department.

**4.2.8 STUDENT COUNSELING**

In order to keep track of the development of the students, the college has divided each class into three counseling groups. Each faculty is assigned 20 students. There are 2 - 3 counseling sessions in a semester.

**4.2.9 LEARNING GROUPS**

The students in each class are facilitated to form ‘learning groups’ of six each. These groups are formed for academic work. Each learning group is given the name of a scientist / Entrepreneur / Researcher / Eminent Personality etc., of the concerned branch of Engineering. The group must present a profile of the scientist.

**4.2.10 INDUSTRIAL / EDUCATIONAL TOURS**

It is important for students of technical education to keep themselves abreast of changes taking place in the industry. Towards this end, the college organizes regular industrial tours. Students are also encouraged to visit at least one company, either Indian or a multinational, every semester. The student must prepare in advance a detailed note on the industry to be visited. Information could be collected from the website of the company or any other source. The student, guided by the faculty, shall conduct a survey/interview of the people and the place visited. He/she shall then prepare a detailed report of the tour for a class presentation.

**4.2.11 ADJUNCT COURSES**

Adjunct courses have been introduced with the objective of making efficient engineers. With conventional syllabi having limited practical use to the modern day student, our specially charted value-added Adjunct Courses offer students the opportunity to enhance their skills and add to their knowledge base without having to seek training off-campus. Various seminars and workshops are also conducted by all departements.

**5. EVENTS**

ATRI organizes various events spaced throughout the academic year which provide a platform for students across the state to present their innovative ideas. Competitions in programming, Poster Presentations, Paper Presentations, Projects, Quizzers etc., are conducted. In addition, cultural events like Dance, Singing, Mehendi, Face Painting, Photography, also bring out the talents of the students. Events like ‘Cynosure’, ‘Aura’, ‘Iris’ and ‘Scienta’organized by the institute also provide an interface among various technical institutes of the state.

**5.1 COLLEGE LEVEL COMPETITIONS**

**5.1.1 LITERARY**

The Department of Humanities encourages the students to improve their communication skills through different events, which are usually organized during weekends at college level. Literary competitions like *Book Review Competition, What’s the Good Word?, General Knowledge Quiz, Poster Competition, Floor Crossing, Essay Writing , Creative Activity (Picture Interpretation), ‘Ad’Venture (Advertising Activity) and Extempore* are conducted.

**5.1.2 CULTURAL**

ATRI provides a platform for students to showcase their talents by conducting cultural events in areas like singing, dancing, painting and so on.

**5.1.3 GAMES & SPORTS**

Competitions like Chess, Carroms, Table Tennis, Shuttle Badminton, Volley – Ball, Throw – Ball and Cricket are conducted throughout the year.

**6. FESTIVALS, FUNCTIONS & CELEBRATIONS**

The following are the important festivals, functions and events that are celebrated in ATRI.

**6.1 FESTIVALS**

**6.1.1 INDEPENDENCE DAY**

ATRI reaffirms its commitment towards the process of nation building. Various social activities and community services are initiated on this day.

**6.1.2 GANESH CHATURTHI**

On this day ATRI rededicates itself to the supreme values of education. The idol of Lord Ganesha is installed with pomp and it is immersed with much fervour.

**6.1.3 REPUBLIC DAY**

Celebrated on January 26, the Republic Day is another occasion when the staff and students get an opportunity to uphold their commitment as responsible citizens of India and derive inspiration from the great leaders and intellectuals whose vision has guided this nation on the path of progress.

**6.1.4 VASANT PANCHAMI**

It was on this day that the stone was laid for **AURORA EDUCATIONAL SOCIETY** in the year 1989**.** On this day we worship Devi Saraswati and celebrate the Foundation Day.

**6.2 FUNCTIONS**

**6.2.1 INDUCTION DAY**

Every year the college warmly welcomes the new batch of students. While the induction is meant to make students feel at ease in their new environs, it has a serious purpose behind it. It is an initiation into the culture and traditions upheld by the college. Students are apprised of the rules and norms of the college, and the challenges that they will surely face over four years of demanding course. A three-day programme consisting of lectures by distinguished personalities, cultural events, and a formal get-together mark the induction process every year, which is held in the month of September / October.

**6.2.2 FRESHERS’ DAY**

Senior students organize Freshers’day within the stipulated time in consultation with their respective heads of the departments. It is necessary that the Freshers’ Day be held within four weeks from the commencement of the academic year for the first year students. Senior students should form a committee and work under the supervision of their Head of the Department.

**6.2.3 FOUNDATION DAY**

On the Foundation Day (3rd of January) an eminent personality is invited to give the Foundation Day Lecture. This is the day when the college takes pride in reaffirming its commitment to the cause of education.

**6.2.4 ATRI DAY**

The ATRI Day is a unique get-together organized every year during November / December to have all the families of the staff to interact with one another. It is an opportunity for every one to know each other to strengthen personal as well as professional relationships among themselves and their families.

**6.2.5 ANNUAL DAY**

The annual day celebrations of the college take place in the month of February/March. Sports, cultural and literary competitions are conducted as a run-up to the main program. In addition to the staff and the students, parents, alumni, and other guests are invited for the event. This is an occasion for the college to reaffirm its commitments. The annual report consisting of the achievements and record of events of the past year is presented to the College Board a week before the proposed annual day.

**6.3 CELEBRATIONS**

**6.3.1 ENGINEERS’ DAY**

The birthday of Bharat Ratna Sir Mokshagundam Visveswaraiah is celebrated on 15th September as Engineers’ Day. Exhibition and Lectures are organized. It is also an opportunity to honour engineers who have excelled in their respective fields.

**6.3.2 TEACHERS’ DAY**

September 5, the birthday of Dr. Sarvepalli Radhakrishnan, is celebrated as Teachers’ Day all over the country. It is one of the most important days in the ATRI calendar, when students give the campus a festive look. Felicitation of teachers marks the occasion.

**6.3.3 CHARLES BABBAGE DAY**

The birthday of Charles Babbage, the founder of the first computer is celebrated on 18th October. This is an important day for the faculty and students. Quizzes and Lectures are organized by the CSI student chapter.

**6.3.4 LINUX TORVALD DAY**

The birthday of Torvald, founder of Linux Operating System is celebrated on 28th December. Quizzes and Lectures mark the day.

**6.3.5 JAMES WATT DAY**

The birthday of James Watt, inventor of the Steam Engine is celebrated on 12th January. On this day at ATRI, quizzes and Lectures pertaining to the discipline are organized.

**6.3.6 ALEXANDER GRAHAM BELL DAY**

The birthday of Alexander Graham Bell is celebrated on 03rd March. Seminars and Lectures mark the day.

**7. RULES & REGULATIONS**

**7.1 COLLEGE TIMINGS**

The college functions from 09:20 AM to 04:30 PM, from Mondays to Fridays and from from 9.20 AM to 12.40 PM on Saturdays. Classes start at 9.20AM with a lunch break of thirty minutes, from 12:40 to 01:10 PM. The Director may take a decision to extend the timings and the days depending upon the necessity to complete the curriculum and other activities.

**7.2 UNIFORM**

To inculcate discipline, accountability and a feeling of ‘oneness’, among the Aurora’s Technological and Research Institute students, a **uniform, Regular Denim Blue Jeans, white full-sleeves shirt, white sport shoes and hanging ID card,** is mandatory for all the students.

**7.3 ID CARDS**

Students are issued ID cards only after they have filled in details in a prescribed form that is issued to them at the time of registration. All the students should submit their details to the college at the time of registration.

In case the card is lost, a duplicate ID card is issued against a payment of Rs 100.

Without the ID Card no student is allowed into the college campus.

**7.4 ATTENDANCE**

The continuous evaluation system adopted by the college clearly expects every student to be responsible for regularity in class rooms, internal tests and other tasks assigned to him/her in the course. As such, students are advised not to remain absent without the submission of leave letter to the respective heads/class incharges.

1. A student has to put in a minimum of 75% attendance in aggregate of all the subjects in the year/ semester.

2. A student will not be promoted to the next semester unless he/she satisfies the attendance requirement of the present semester/year.

3. Shortage of Attendance **below 75% in aggregate shall in no case be condoned.**

4. Students who have shortage of attendance are not eligible to take their examination of that class and their registration shall stand cancelled. They may seek re-admission for that semester/year when offered next.

5. Students coming out in the middle of the classes or late entry into the class will be seriously viewed and attendance will not be given for the hour.

6. The attendance of each student along with the unit test marks will be displayed on the notice board every fortnight. These will be sent to the parents at the address registered with the college at the cost of the student.

7. Students will not be given lab attendance unless they submit practical records of the previous lab sessions within a week.

8. In case of ill-health, the student must submit proof of evidence for absence and the leave application to the Principal/Head immediately on rejoining the college. Medical leave will be considered only if the student has been absent continuously for atleast five days. Late submission of leave application will not be accepted for consideration at the time of condonation of shortfall of attendance.

9. Students with less than 75% of attendance will not be permitted to participate in co-curricular, extra-curricular and sports activities. No college facilities like bus pass, travel concessions, scholarships will be admissible for students who fall under the 75% category.

**7.5 CELL PHONES**

Students are not allowed to keep the cell phone switched on in the college campus. The cell phones with camera are strictly not allowed. If found, the cell phone is confiscated and not returned to the student.

**8. CODE OF CONDUCT**

**8.1 RAGGING**

1. Ragging is prohibited as per Act 26 of A.P. Legislative Assembly, 1997.

2. Ragging entails heavy fines and/or imprisonment.

3. Ragging invokes suspension and dismissal from the college

4. Outsiders are prohibited from entering the college without permission.

5. All the students must carry their Identity Cards.

**Nature of offence - Punishment**

1. For assaulting or using criminal force or criminally intimidating a student - Imprisonment upto 6 months or fine of Rs. 1,000/- or both

2. For restraining or causing hurt to student - Imprisonment upto 1 year or fine upto Rs. 2,000/- or both

3. For causing grievous hurt or kidnapping, raping or committing unnatural offence with a student - Imprisonment upto 2 years or fine upto Rs. 5,000/- or both

4. For causing death or abetting suicide - Imprisonment for life or upto 10 years with fine extending to Rs. 50,000/-

**8.2 DISCIPLINE**

Discipline is a priority for the success of any venture. Be it related to matters of general conduct, attendance, punctuality, dress, body language, or academic performance. Discipline has a bearing on all aspects of a student’s personality. At ATRI discipline is valued and promoted, both among the staff and students.

Students are expected to abide by the rules of the college and refrain from any activity that harms the dignity of the individual or casts a slur on the image of the institution. Any violation of the college norms shall be dealt with strictly and the student will be penalized accordingly. The cooperation of parents/guardians is essential in this regard.

A novel method of correcting acts of misconduct has been devised. Instead of monetary penalization, students will be given academic punishments for a range of undesirable acts, like, giving proxy attendance, not attending classes regularly, bunking classes while on campus, not observing the dress code, scribbling on college property, littering the classroom and many more such acts. (See No. 1.6 for list of Academic punishments.)

1. Consumption of alcoholic beverages, narcotics and other addictive substances on the college premises, or coming to college having consumed them elsewhere, will entail dismissal from the college and conduct certificate will not be issued.

2. Smoking on the college campus is strictly prohibited and the student will be suspended from college with immediate effect and recommended for punishment as per Section 4 of the “Cigarettes and Other Tobacco Products Act 2003”.

3. Ragging is a legal offence as per “Act 26 of the AP Legislative Assembly 1997”. Students are cautioned against indulging in any activity that may be classified as “ragging” in and around the college campus, in student buses or at boarding/alighting points. Those found aiding and abetting are also equally accountable for their actions. Ragging entails suspension, dismissal, heavy fines, and imprisonment.

4. Adherence to the Dress Code laid down by the college is a must.

5. Entry shall not be given if a student is late to college. The student should be in the class before 9.20 A.M. The entry of latecomers will be regulated and monitored by the college authorities.

6. The kind of language we use is a reflection of our personality and our home environment. Use of slang and abusive language, whistling in the college premises, are strictly discouraged and liable to be penalized.

7. Not attending classes while being on the premises and en masse absenteeism are both viewed with displeasure.

8. Students are advised to mind their body language. It communicates more than words. Slouching in corridors or sitting on the parapet walls or on the steps at the entrance are discouraged.

9. Any damage to college property, scribbling on walls, tables, drawing boards, is seriously viewed.

10. Rising to greet when a teacher enters the classroom adds value to one’s own personality Conduct towards faculty and peer group should be impeccable.

**8.3 CODE OF CONDUCT IN LABORATORIES**

1. Students should report to the labs concerned as per the timetable.

2. Students who turn up late to the labs will in no case be permitted to perform the experiment scheduled for the day.

3. After completion of the experiment, certification of the staff in-charge concerned in the observation book is necessary.

4. Students should bring a notebook of about 100 pages and should enter the readings/observations into the notebook while performing the experiment.

5. The record of observations along with the detailed experimental procedure of the experiment performed in the immediate previous session should be submitted and certified by the staff member in-charge.

6. Not more than two students in a group are permitted to perform the experiment on a set up.

7. The group-wise division made in the beginning should be adhered to, and no mix up of student among different groups will be permitted later.

8. The components required pertaining to the experiment should be collected from Lab- in-charge after duly filling in the requisition form.

9. When the experiment is completed, students should disconnect the setup made by them, and should return all the components/instruments taken for the purpose.

10. Any damage of the equipment or burnout of components will be viewed seriously either by by imposing penalty or by dismissing the total group of students from the lab for the semester/year.

11. Students should be present in the labs for the total scheduled duration.

12. Students are expected to prepare thoroughly to perform the experiment before coming to the laboratory.

13. Procedure sheets/data sheets provided to the students’ groups should be maintained neatly and are to be returned after the experiment.

**8.4 PUNCTUALITY**

1. All the students shall strictly observe college timings. If any student comes late to college, he/she shall not be sent to the class and attendance will not be marked for that hour.

2. If anyone is found to be regularly late, administrative action shall be initiated, including suspension from classes.

3. All the students should strictly adhere to the deadlines specified for the submission of assignments, laboratory reports, seminar reports, project reports etc., failing which students will be punished.

**9. FACILITIES**

**9.1 ACADEMIC FACILITIES**

**9.1.1 LIBRARY**

Our library is truly a learning center with reading space for more than 100 students at a time. The library stocks textbooks, reference books, journals, magazines, newspapers and an archive of editorial clippings on interesting subjects.

The library subscribes to a number of national and international journals and has a very large collection of reference books on advanced disciplines that are aimed at developing students beyond their normal curriculum. In all, the college library has more than 30,393 volumes and around 5932 titles covering various advanced disciplines pertaining to the subjects offered by the college. All the books are barcoded. The library is supported by a strong database which furnishes complete information about the books.

A dynamic CD library presents data and information in bytes. Furthermore, information is compiled for the students from various international websites and is collated topic-wise in the form of printouts which is made freely available to the students.

Supporting this excellent library facility is the computer-enabled digital library giving access to various international journals. The college library also offers reprographic facilities like photocopying, lamination, spiral binding, etc.

The library provides facility for the borrowing of books, magazines, freeware and SONET CDs. The Book Bank facility supported by the Social Welfare Department is available in the library for SC & ST scholarship holders.

The Library is automated using DELPLUS - Ver-2 (LAN VERSION). OPAC is also made available to users to facilitate viewing information regarding general and reference books. The ‘document - delivery service’ involving the issues and returns is also computerised. A ‘single-card-system’ has also been introduced which details the information regarding books borrowed in the four years of study.

**9.1.2 LABORATORY FACILITIES -**

**COMPUTER SCIENCE AND ENGINEERING**

The Departments of Computer Science Engineering and Information Technology have spacious computer science resource centers and laboratories backed by uninterrupted power supply. The labs have Pentium IV systems, fully networked, supporting multiple operating systems. Sufficient printers cater to the needs of users in the institution. The following laboratories support different subjects to be dealt with in both the undergraduate programmes offered by the departments.

**9.1.2.1 COMPUTER PROGRAMMING LABORATORY**

The college has a state-of-the-art computing lab with Pentium IV networked nodes exclusively used for conducting lab practice related to C programs and implementation of Data Structures. Students are given comprehensive practice exercises to provide a strong foundation and to equip them with requisite skills for real life projects.

**9.1.2.2 INFORMATION TECHNOLOGY WORKSHOP**

To teach the students based on PC hardware, Internet, World Wide Web and productivity tools including MS word, Excel, Power point and Publisher. PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like Windows XP, Linux and the required devices drivers. In addition hardware and software level troubleshooting processes are covered.

Internet & World Wide Web module introduces the different ways of hooking the PC on to the internet from home and workplace and effective usage of the internet. Usage of web browsers, email and newsgroups would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the virus, worms and other cyber attacks would be introduced.

Productivity tools module would enable the students in crafting professional word documents, excel spread sheets, power point presentations and personal web sites using the Microsoft suite of office tools and LaTex.

**9.1.2.3 DATA STRUCTURES LABORATORY THROUGH C++**

To make the student learn a object oriented way of solving problems using C++ and to make the student write ADTs for various data structures like Stacks, Queues, Dequeues, Binary Search Trees, B-Trees, Tree Traversals, Graphs, Graph Traversals, Sorting, Dictionaries, Pattern Matching Algorithms.

**9.1.2.4 OBJECT ORIENTED PROGRAMMING LABORATORY**

To make the student learn a object oriented way of solving problems using JAVA and to make the student write programs on Stacks, Queues, Polish Notations, file processing, event-handling, multi-threading, design Applets for various Applications, designing & handling layouts like Calculator, traffic light management.

**9.1.2.5 DATABASE MANAGEMENT SYSTEMS LABORATORY**

The Database Management Systems laboratory enables the students to practice the concepts learnt in the subject DBMS by designing, developing and querying a data base in the context of a real-time example of "Roadway Travels".

Students are expected to use "My SQL" database.

**9.1.2.6 COMPUTER NETWORKS & OPERATING SYSTEMS LABORATORY**

The Computer Networks lab helps the students to understand the functionalities of various layers of OSI model like Bit Stuffing, Character Stuffing, Cyclic Redundancy Check, finding Shortest path, encryption and decryption techniques.

The Operating Systems lab enables the students to understand the functionalities of Operating System like CPU Scheduling, Page Replacement Algorithms, Memory Management, File Allocation & Organization, Deadlock Detection, Avoidance and Prevention.

**9.1.2.7 WEB TECHNOLOGY & COMPILER DESIGN LABORATORY**

The Web Technology lab enables the students to create a fully functional website (with features of HTML, XML, Java Script, ASP, Parsers, CSS, Beans, IDE) with MVC Architecture. The lab also helps the students to install TOMCAT Web Server, Apache Web Server and also establish database connectivity. The students are instructed to develop an Online Book Store (Ex: www.amazon.com).

The Compiler Design lab provide an understanding of the language translation peculiarities by designing a complete translator for a mini language. The Lab helps in understanding the various phases of compiler i.e., Lexical Analysis, Syntax Analysis, Semantic Analysis, Intermediate Code Generation, Code Optimization, Code Generation besides the functionalities of Symbol Table Manager and Error Handler.

**9.1.2.8 LINUX PROGRAMMING & DATA MINING LABORATORY**

Linux Programming Lab makes the students to learn and write shell programs, awk scripts and socket programs. It also helps in understanding the concept of process creation, process communication and how a process gets terminated. This lab makes the students to know the implementation and working of internal linux commands.

Data Mining Lab helps the students to know how information is gathered from the raw data and get the required knowledge by applying various techniques. The Lab enables in analyzing the functionalities of data mining and the obtained results, by applying various algorithms with different constraints using WEKA Tool.

**9.1.2.9 CASE TOOLS & SOFTWARE TESTING LABORATORY**

Case Tools Lab is used to design a Project by drawing UML diagrams. The Lab facilitates in understanding the working of an Application (Ex: ATM) by developing UseCase Diagram, Class Diagram, Object Diagram, Sequence Diagram, Collaboration Diagram, StateChart Diagram, Activity Diagram, Component Diagram and Deployment Diagram.

Software Testing Lab make the students learn a software testing of constructs in programming languages using Software Testing Tools and studying the test cases for different applications. Students are instructed to write the test cases for various applications.

**9.1.3 LABORATORY FACILITIES -**

**INFORMATION TECHNOLOGY**

The Department of Information Technology has spacious Computer resource centers and laboratories backed by uninterrupted power supply. The labs have Pentium IV systems, fully networked, supporting multiple operating systems. About 20 printers cater to the needs of users in the institution. The laboratories complement the theory subjects in the undergraduate programme offered by the department.

**9.1.3.1 COMPUTER PROGRAMMING LABORATORY**

The college has a state-of-the-art computing lab with Pentium IV networked nodes exclusively used for conducting lab practice related to C programs and implementation of Data Structures. Students are given comprehensive practice exercises to provide a strong foundation and to equip them with requisite skills for real life projects.

**9.1.3.2 DATABASE MANAGEMENT SYSTEMS LABORATORY**

The Database Management Systems laboratory consists of networked systems exclusively supporting all the advanced licensed software packages related to data management systems like SQL and MYSQL.

**9.1.3.3 OPERATING SYSTEMS AND COMPUTER NETWORKING USING LINUX PROGRAMMING LABORATORY**

The operating systems laboratory works on all popular operating systems like UNIX, WINDOWS and LINUX. With licensed version of SCO Unix, Ubuntu the advanced Unix programming and this lab offers courses in Networking and System Administration supported by licensed versions of software to have a practical in LINUX programming environment.

**9.1.3.4 CASE TOOLS AND SOFTWARE TESTING LABORATORY**

This lab is equipped with state-of-the-art licensed versions of various tools and packages that help students practice such packages used in the industry as Java Web server, Designer Tools like Rational Rose, and performing functional testing by using the testing tools like WinRunner, QTP etc.

**9.1.3.5 MOBILE APPLICATION DEVELOPMENT LABORATORY**

The college is equipped with a state-of-the-art computing lab with 60-networked nodes exclusively used for the conduct of lab practice related to java mobile development version i.e., J2ME with database as a backend such as SQL and MYSQL. Students get an opportunity to practice the new technologies which were used in developing applications for mobiles.

**9.1.3.6 DATA STRUCTURES THROUGH C++ LABORATORY**

This lab offers course in understanding the basic OOPS concepts and consists of licensed versions of relevant software like C++ used in learning how to organize data in different representations like Trees, lists etc, with accessing mechanism.

**9.1.3.7 EMBEDDED SYSTEMS AND DATA MINING LABORATORY**

Students are provided with software development kit 89c51 with which they learn assembly language programming for development and use of micro controllers and their interfaces. On other side this lab includes Weka command line and GUI versions, where student can have exposure on different mining concepts their implementations and presentation patterns.

**9.1.3.8 WEB TECHNOLOGY LABORATORY**

This lab is equipped with Core Java and advanced J2EE with Tomcat and Apache web servers that help the students in practicing and developing the projects on JSPs and by using Beans used in the industry for web applications.

**9.1.3.9 OBJECT ORIENTED PROGRAMMING LABORATORY**

This lab is equipped with Core Java latest version that helps the students in practicing and developing the projects using applets, swing, and struts and handling the exceptional situations that rise in this process.

**9.1.3.10 IT WORKSHOP LABORATORY**

Students are provided with hardware kits which include motherboard, memory, cards smps and many more which are required to assemble, disassemble the system. They even learn to install operating system like Windows and Linux, to work with MS office and to solve basic problems occur in hardware and software.

**9.1.4 LABORATORY FACILITIES –**

**ELECTRONICS & COMMUNICATIONS**

The Department of Electronics and Communication Engineering has seven laboratories, namely: Microwaves lab, the VLSI Lab, IC & PDC lab, E-CAD lab (VHDL / VERI LOG), Electronic Devices & Circuits lab, Microprocessors lab, Analog Communications lab and Digital Communication lab. All these laboratories are equipped with advanced instruments and necessary licensed software.

**9.1.4.1 MICROWAVE & OPTICAL COMMUNICATIONS LABORATORY**

This laboratory has microwave test benches, that can be used by the students for all experimental work on microwave devices and also in the recording of radiation pattern of microwave antennae and power measurements and so on.

This lab consists of trainer kits related to the experiments like studying the characteristics of LED and LASER diode and Intensity modulation of Laser output through an optical fiber. It also consists of transmitter and receiver kit to design fiber optic digital link for transmission of digital signals.

**9.1.4.2 VLSI & E-CAD LABORATORY**

The VLSI laboratory has Pentium IV systems supported by licensed software like Multisim (for Spice based mixed model circuit simulation software having virtual instruments facility), Tina-pro (for Spice & VHDL simulations), Tanner tools, (S Edit, T Spice, L Edit & LVS for CMOS digital & analog simulations / implementations).Students are also trained in Digital System Design using Xilinx 9.2 ISE developer version (for synthesis and STA) and model sim 6.2 (for VHDL / verilog simulations) with FPGA Spartan II/3E kits.

**9.1.4.3 IC & PDC LABORATORY**

In this laboratory Analog and Digital IC trainers & component development systems are made available on every table.

**9.1.4.4 ELECTRONIC DEVICES & CIRCUITS LABORATORY**

In the Electronic Devices and Circuits laboratory, every table has a dual-trace CRO, dual power supply and signal generator.

**9.1.4.5 MICROPROCESSORS LABORATORY**

The Microprocessors lab consists of 8085, 8086 Microprocessors, 8051 Microcontrollers along with required interfaces & modules.

**9.1.4.6 ANALOG COMMUNICATIONS LABORATORY**

In this laboratory, Analog Modulation trainers and component development systems are used for modulation and demodulation techniques using different methods.

**9.1.4.7 DIGITAL COMMUNICATION LABORATORY**

Advanced Digital Communication trainers are used for experimentation on various types of digital modulation and demodulation techniques.

**9.1.4.8 DIGITAL SIGNAL & IMAGE PROCESSING LABORATORY**

In this laboratory, Texas DSP processors TMS320C6713 / 5416 are programmed for different applications of DSP. Low order distortion generator and High Speed CROs are used to analyze the different signals. This lab consists of 30 P-IV Systems with software like Core Composer Studio (Texas, 6X / 5X) and Mat Lab 7.2.

**9.1.4.9 EMBEDDED SYSTEMS LABORATORY**

The lab is established with the required hardware and software modules like MSP 430 kits, SPARTAN 3E FPGA Kits, 8051 development boards (with add - on cards), licensed full version Tanner Tools for VLSI Design, Keil ‘C’ Compiler and CCS.

**9.1.4.10 Basic Simulation LABORATORY**

In this lab, students carryout all the Electronic related circuits using Multisim software and analyse them.

**9.1.5 LABORATORY FACILITIES –**

**ELECTRICAL & ELECTRONICS**

The laboratories are well equipped and sufficiently staffed for the applications of the theories to satisfy the curiosity of the student. The department consists of the following labs.

**9.1.5.1 Electrical Measurements Laboratory:**

Electrical Measurement Laboratory is a facility for conducting experiments for measurement of electrical Parameters and functions. The facility also provides for experiments for calibration of Electrical Measuring Instruments. For measurement of electrical parameters and functions like lab resistance, capacitance, inductance, low e.m.f. the laboratory has required equipment like, AC & DC bridges, DC Crompton potentiometer for measuring 3 phase active and reactive power. The laboratory has required current transfer load boxes, wattmeters, power factor meter voltmeter and ammeter. Calibration experiment are done on current transformer wattmeters, power factors meter, DC Ammeter & DC Voltmeter using the required measuring instruments including phase shifting transformer.

**9.1.5.2 Power Electronics Laboratory**

The facility of Power electronics laboratory provides an arena to conduct experiments on power electronics devices like, thyristors, IGBTS, Mosfets and their different configurations. Equipment is available to cater to the needs of practical study on DC to AC invertors and AC to DC convertors. These are half and fully controlled voltage convertors, half and fully controlled invertors. Experiments are also conducted on equipment having gate firing circuits. The laboratory is also equipped with PSPICE a simulation software program for carrying out simulation of experiments in power electronics.

**9.1.5.3 Electrical Simulation Laboratory**

Electrical simulation laboratory is a facility equipped with personal computing having simulation softwares to later to the requirements of electrical and electronics engineering. Simulation software PSPICE provides simulation of problems in Power Electronics similarity MATLAB software is under for simulation of control system models. It is used in miner and major projects in power system PSCAD software is used for exclusively for simulation of power systems. The laboratory is used for laboratory curriculum projects execution respectively.

**9.1.5.3 Control systems and Simulation Laboratory**

The Control System and Simulation laboratory provides an arena to conduct experiments on Time response of second order system, programmable logic controller; effect of feedback on DC servo motor; transfer function of DC motor; effect of P, PD, PI, PID controller on second order systems; lag and lead compensation; transfer function of DC generator; temperature controller using PID; characteristics of magnetic amplifiers; characteristics of AC servo motor.

**9.1.6 LABORATORY FACILITIES –**

**MECHANICAL ENGINEERING**

The following laboratories are well established and are functional under the Mechanical Engineering Department.

**9.1.6.1** **Production Technology Laboratory**

This lab caters to the need of Mechanical Engineering Department, of one of the core subject production technology:

The laboratory is equipped with all the required equipment to study the fundamental aspects & application of production technology in manufacturing of various products ranging from plastics bottles , caps etc, metal forming operations like punching, blanking deep drawing etc, and various types of welding processes as well as casting process. The laboratory setup comprises of injection moulding machine, blow moulding machine, Hydraulic press, permeability tester, TIG welding, Spot welding, & casting equipment, which exposes the students to practical knowledge on manufacturing processes.

**9.1.6.2 Metallurgy Laboratory**

This laboratory focuses on facilitating students to acquire the fundamental & applied aspects of material science.

The laboratory is equipped with abrasive cutting machine, Hot mounting machine cold mounting Die, Belt grinder, Disc polisher Rockwell Hardness tester, Furnance & Jomminy End quench Machine.

The laboratory exposes the students to the study of microstructure & hardness of various ferrous & non ferrous metals and also it involves the basic preparation of the specimen required for the study.

**9.1.6.3 Metrology Laboratory**

The lab involves accurate measurement of dimensions (like length, angles & other quantities expressed in linear or angular terms) of various mechanical components using instruments like slip gauges, vernier calipers with dial guage, micrometer gear tooth vernier, sine bar, bevel protractor spirit level, toolmakers microscope, Dial indicator, dial guage. It exposes students to study the accurate dimensions of given components including micro components

**9.1.6.4 Fluid Mechanics and Hydraulic Machinery Laboratory**

This laboratory caters to the needs of Mechanical Engineering Department in the important subject of Fluid Mechanis and Hydraulic Machinery. The laboratory is equipped with a large number of equipment and experimental setups to study the fundamental and applied aspects of Hydraulics and Fluid Mechanics. The setup comprise a variety of flow measuring devices like Ventury Meters, Weirs, Notches, Orifice Meters, and Flow Study Techniques for estimating losses in pipes, Study of impact of jets over vanes, Hydraulic Ram etc. the laboratory is also equipped with different types of water turbines like Francis, Kaplan and pelton wheel and has facilities and requisite instrumentation to study the characteristic of the these turbines the laboratory also has centrifugal and reciprocating pump setup on which number of experiment are carried out the equipment is operated in a closed loop which conserves water and obviates the need for large quantities of water supply.

**9.1.6.5 Machine Tools Laboratory**

This laboratory caters to the needs of Mechanical Engineering departments in one of the core subject machine tool laboratory. Machine tools, which form the backbone of the manufacturing industry, developed from conventional drilling, milling and boring machines to complex, multi-axis, advanced computer controlled machines that are an integral part of today’s manufacturing industry.

The laboratory is equipped with lathe machine, grinding machine, slotting machine, milling machine and drilling machine. The laboratory consist of power driven machines for making components of given shape size and accuracy by removing metal from work pieces in the form chips.

**9.1.6.6 Engineering workshop**

The Engineering Workshop focuses on facilitating the students to acquire the basic knowledge about various tools and their use in different sections of manufacture. It provides an exposure to the current trades and gives them an overview of basic practical activities associated with the different sections of manufacture. The lab is fully equipped and experiments in Carpentery, Fitting, Black Smithy, Foundry, House Wiring. Tin Smithy, Welding. Demonstrations on Plumbing are also part of lab activities

**9.1.6.7 Thermal Engineering Laboratory**

Thermal engineering is a branch of science that covers energy conversion from one form to another, working of IC engines, modes of Heat transfer, principles of refrigeration and air conditioning etc

The objective of this laboratory is to provide the student a good environment to understand some very important concepts and applications in the field of IC engines and refrigeration. These concepts are necessary to understand how the typical thermal devices work (refrigerators, air conditioning devices, car engines or steam engines). These fundamentals will be used to link the phenomenological processes taking place in the engine for issues of: power generation, emissions and environmental impact, fuel economy and fuel composition effects on engine operation and mechanical limitations of obtaining ideal performance

**9.1.7 LABORATORY FACILITIES –**

**CIVIL ENGINEERING**

The Department of Civil Engineering has five laboratories, namely: Surveying lab, the Strength of Materials Lab, Computer Aided Design and Drafting lab, Fluid Mechanics and Machinery lab, Engg. Geology lab.

**9.1.7.1 Surveying Laboratory**

The purpose of this laboratory is to teach the art of measuring measurements of the relative positions of the natural and man-made features on the earth’s surface and presenting the information either graphically or numerically. The experiments are designed to demonstrate the applications of the techniques for the collection of required details in all areas of surveying. This laboratory exercise also provides practice in making engineering judgments, estimates and assessing the reliability of measurements, skills which are very important in all engineering disciplines.

The Instruments available are Engineering chains, Ranging rods, Arrows, Cross staff, Magnetic compass-(a) Prismatic compass (b) Surveying compass, Prism square, Plane table sets, Leveling instruments – Leaving staff, Planimeter, Box sextant.

**9.1.7.2 Strength of Materials Laboratory**

The purpose of this laboratory is to teach the art of determining the various strength of materials (steel / Copper / Brass / Aluminum) such as compression, Tension, Flexure, Hardness, Impact Strength, Torsion, Young’s modulus. This laboratory exercise also provides practice in making engineering judgments, assessing the reliability of materials, which are very important in all engineering disciplines.

The Equipment available is Universal Testing Machine (Capacity 40 tons), Torsion Testing Machine (Capacity 50 kg-m), Rockwell cum Brinell Hardness Testing Machine (Capacity 250 kgf), Compression Testing Machine (Capacity 200 Tonnes), Spring Testing Machine (Capacity 2Tonnes), Impact Testing Machine (Capacity 300 Joules), Deflection Beam Apparatus.

**9.1.7.3 Computer Aided Design and Drafting Laboratory**

The department is well equipped with a Computer laboratory, which helps the students to have hands on training in the software’s related to Civil Engineering. The laboratory is being used by the students in beginning of their Engineering career, ie. in their II Year 2nd semester where they are introduced with AutoCAD and during their 7th semester they equip themselves with the designing software. At the end of the course the student acquire experience in preparation of design and structural drawings both for Concrete and Steel structures.

The Systems available are P-IV Model (35 Nos,)

**9.1.7.4 Fluid Mechanics and Machinery Laboratory**

The purpose of this laboratory is to reinforce and enhance the understanding of the students regarding the fundamentals of Fluid mechanics and Hydraulic machines. The experiments are designed to demonstrate the applications of the basic fluid mechanics principles and to provide a more intuitive and physical understanding of the theory. This laboratory exercise also provides practice in making engineering judgments, estimates and assessing the reliability of your measurements, skills which are very important in all engineering disciplines.

The Equipment available are Venturimeter and Orficemeter, Rectangular notch and Triangular notch, Bernoullis apparatus, Pelton wheel Turbine, Francis Turbine, Single stage/ Multistage centrifugal pump, Reciprocating pump.

**9.1.7.5 ENGG. GEOLOGY Laboratory**

Geology is a science concerned with earth. Geology also relates to human endeavors and needs, including the use of natural resources, the preservation of the environment, global change, and the mitigation of geologic hazards.

Geology obtains data from first hand field observations and laboratory analyses of minerals, sediments, rocks, fossils, natural fluids and gases, and landforms. The *Geology Laboratory* is equipped with extensive rock and mineral samples as well as topographic, geologic, and soil maps.

The mineral specimens available are 72 numbers and the Rock samples are 70 numbers. Lab also has Structural Geology Models and Maps

**9.1.8 Laboratory Facilites -**

**Department of Computer Applications**

MCA Laboratory : The MCA Laboratory is fully equipped with licensed software required for an MCA student to develop applications using Client Server, Web and Mobile technologies.

**9.1.9 Laboratory Facilites -**

**Department of Humanities and Applied Science**

The department has English Language Communication Skills Lab, Advanced English Communication Skills Lab, Engineering Physics Lab and Engineering Chemistry Lab.

**9.1.9.1 ENGLISH LANGUAGE COMMUNICATION SKILLS Laboratory**

The department of H & AS has 2 language Labs - ELCS lab for I B.Tech students and AECS lab for III B.Tech students. The labs facilitate the objective of honing the language skills of the students in the areas of Listening, Speaking, Reading and Writing. In addition to the Hi-Class and K-Van Software used in these labs, a host of individual and team activities are conducted that help students tap their interpersonal, leadership and teamwork skills.

**9.1.9.2 Advanced English Communication Skills Laboratory**

The AECS lab for III B.Tech students is more placement oriented. Students are given intensive training in areas like Verbal Ability, Group Discussion, Interview Skills, Resume Writing, Presentation Skills and Report Writing.

**9.1.9.3 ENGINEERING Physics Laboratory**

This lab facililates the students to conduct optics experiments using spectrometer, Travelling microscopes, Mercury lamp, Sodium Vapour etc., electrical and electronic related experiments using DC power supply sources, Frequency generators, Cathode ray oscilloscopes, active and passive components, energy gap kit etc, some general experiments related to sound & mechanics using sonometer, volume resonator, AC attached tuning fork, torsional pendulum setup etc.

**9.1.9.4 ENGINEERING Chemistry Laboratory**

This lab facilitates the students to conduct the experiments using Volumetric Flask Burette, Pippet, Conical Flask, Burners, Glass rod, Colorimeter, Conductometer, Potentiolmeter, Cuvet etc., Some experiments related to analysis of Water, preparation of Organic Compounds, Analysis of Alloy, Analysis of Organic Functional Groups, Study of Rate of Chemical Reaction and Adsorption are also part of the lab activities.

**9.2 GENERAL FACILITIES**

**9.2.1 CANTEEN**

The canteen offers fresh snacks and beverages. Besides, the canteen space is ideal for congregational activities of students. While using the canteen, students are expected to handle the furniture and other equipment with utmost care. They must take care not to indulge in any type of unruly behavior that the college administration may find objectionable.

Students who are found spending time in the canteen during class hours are liable to be punished.

**9.2.2 STATIONERY SHOP**

Students can purchase notebooks, pens, pencils and paper at a subsidized price from the stationery shop. Students can also avail facilities like spiral binding, photocopying & lamination at a nominal price. The shop remains open during college hours.

**9.2.3 INTERNET**

The college has made necessary arrangements to provide access to Internet connectivity, in order to enable students to make use of online resources. This has establish an essentially electronic and digital virtual private network for continuous communication. Internet connectivity is especially important for the library as it provides access to the libraries worldwide. 1.5 Mbps Reliance broadband and 10 Mbps BSNL Network connectivity is made available in both the blocks and library of the Institute. A Wi Fi router is also available in the institute.

**9.2.4 TRANSPORTATION**

The Institute provides bus service for all students. The bus service is operated strictly on ‘No profit’ basis and the charges cover the minimum operational and maintenance costs incurred, primarily for the convenience and safety of the student.

**10. SUPPORT SYSTEMS**

**10.1 PHYSICAL EDUCATION**

Physical education is an integral part of education. Physical education helps in developing the physical fitness and social efficiency of an individual. The objectives of physical education are organic development, neuro-muscular coordination, and emotional development. The concept of total education will be complete only when there is a proper and balanced blend of mental and physical activities.

**Sports Facilities :**

Sports facilities are provided on the campus for the mentioned below for the use of students during sports period and free time

Football, Volley Ball, Throw Ball, Tennikoit, Cricket, Table Tennis, Carroms and Chess.

**Sports Periods in the time table**

In order to expose the talent of students in sports activities and to keep them physically fit, two sports periods are alloted per week for each class in the time table to make use of out door and indoor facilities on ATRI campus. Students are making use of the these facilities.

Sports periods enable the students to participate in the sports activities of their interest and to improve the skills and techniques and to excel in the concerned sports events so that they can represent tournaments.

Many students of ATRI have represented the country and JNTU University, Hyderabad.

Inter Class Tournaments in various games and sports are conducted for all students. Prize winners are given prizes on the college Annual Day Function.

**10.2 PLACEMENTS**

ATRI has a reputation of placing its students in reputed firms thus enabling them to settle down very early in their career.

1. The Placement cell in ATRI works in tandem with the students to compile a manual of placements, which can be used for ready reference. To facilitate this information is gathered about each and every student under an exhaustive portfolio.

2. Interaction with the organizations namely emailing, phone calls, mailing brochures, hospitality and scheduling placement activities is done weeks in advance by placement cell.

3. The placement cell works in coordination with Center for Career Counseling. Here the students are educated about the difference between a job and career. The Center for Career Counseling tries to provide rich information and structured understanding to students so that they can locate for themselves where exactly their talent lies and how best it can be utilised.

4. The Placement cell is also assisted by the Center for Communication. This Center does the preliminary job of scouting students who are potentially employable. It grooms the students in personality development, SWOT sessions, GDs, mock interviews, body language and etiquette and other areas, which boost their self-esteem and prepare them for the professional arena. In addition, Campus Recruitment Training is also given by external agencies.

5. All the students of final year undergo a one to one interaction with the placement officer. During these interactive sessions the officer acquaints the students with the activities of the placement cell. They are also helped to prioritize their future plans.

6. Student placement coordinators are selected from second, third and final years. This is done with the intention that these students are given necessary orientation to facilitate them to help their team members. These selections are in the month of July or August.

7. Categorizing of the students is done on the basis of their performance in aptitude test conducted by placement and Center for Communication in the month of June. Based on the results the students are groomed to evolve into self-confident entities ready for recruitments.

8. An E-MAIL club has been established to have continuous accessibility to the students.

9. Placement fete is organized, wherein distinguished personalities from the industry are invited to address and motivate students about the prospects of early career placements. This fete also includes several competitions like Best Resume competition, Mock interviews, Group Discussions, JAM sessions, Interview based dressing, to name a few.

10. Alumni of ATRI who are currently placed in reputed organizations are invited to interact with the students and explain their strategies and hands - on experience to them.

11. Students are encouraged to collect and display placement literature on the notice board. The best contribution is duly rewarded.

**10.2.1 Eligibility for Placements**

It is mandatory for a student to have a consistent academic track record which would be measured in terms of the Companies’ requirement.

**10.2.2 ALL ABOUT YOU**

To facilitate the employer to have an insight into all the aspects of his prospective employees, the placement cell gives the database of students to the prospective employers.

**10.3 NSS UNIT & COMMUNITY DEVELOPMENT**

National Service Scheme (NSS) is a body under the Ministry of Youth Affairs and Sports. The NSS unit of Aurora’s Technological and Research Institute is recognised by JNTU from 2007-08. The aim of NSS is mainly centered on the personality development of the students through community service and programs. National Service Scheme is a centrally sponsored scheme. It was launched on 24th September 1969, as a student Youth Service Program with 40,000 volunteers in 37 Universities. At present 19,30,000 NSS Volunteers are enrolled in 174 universities in the country.

**10.3.1 THE CONCEPT OF NSS**

The overall concept of NSS as envisaged earlier, is to give an extended dimension to the higher education system and orient the student youth to community service while they study in educational institutions. The reason for the formulation of this objective is the general realization that the colleges and the +2 level students have a tendency to get alienated from the villages/slum masses which constitute the majority of the population of the country. The educated youth who are expected to take the reins of administration in future are found to be unaware of the problems of the village/slum community and in certain cases are indifferent towards their needs and problems. Therefore it is necessary to arouse the social conscience of the students, and to provide them an opportunity to work with the people in the villages and slums.

**10.3.2 THE PHILOSOPHY OF THE NSS**

The NSS encourages the youth to develop a positive attitude towards the community and commitment to work for the upliftment of the weaker sections and downtrodden people in the society . The NSS also creates a module to involve the students in the process of social development in the country by inculcating qualities such as social consciousness, service to the community and a sense of responsibility. It also facilitates Personality Development and self-confidence. This helps to contribute towards national integration, attaining perfection, creditability, stability and maturity. The NSS proves to groom the student into an active citizen, which brings about satisfaction to an individual and promotes peace in the community.

Community service rendered by NSS volunteers has covered several aspects like adoption of villages for intensive development work, carrying out medico-social service, setting up of medical centers, programs of mass immunization, sanitation drives, adult education programs for the weaker sections of the community, blood donation, helping patients in hospitals, helping inmates of orphanages and physically handicapped etc. The NSS volunteers did commendable relief work during natural calamities and emergencies such as cyclones, floods, famine, earthquake etc from time to time all over the country. They have also done useful work in organizing campaigns for eradication of social evils and popularization of objectives like nationalism, democracy, secularism, social harmony and development of scientific temper.

**10.3.3 THE MOTTO OF THE NSS**

The motto of NSS “not me but you” stands for two things

1. Forgetting and surrendering The Self and

2. Rendering selfless service to others

The word “not” before “me” is to reduce the self to enhance the importance of others. The abridged expression “not me but you” can be simply expanded as follows: I don’t live for me, but for you. The world is not only for me but for you also. The motto of NSS reminds us of the words of Swami Vivekananda “ not I but thou” which advises us to forget ourselves completely whatever we may be. According to the Swami the watchword of all moral good, is “not I but thou”.

**10.3.4 CLASSIFICATION OF NSS PROGRAMME**

NSS activities have been divided into two major groups. These are regular NSS activities and special camping programmes.

**10.3.5 REGULAR NSS ACTIVITY**

Under this students undertake various programs in the adopted villages, school campuses and urban slums during weekends or after college hours.

These activities are listed below

1. Orientation of NSS volunteers

2. Campus work

3. Natural calamities and national emergencies

4. National days and celebrations

**10.3.6 SPECIAL CAMPAIGN PROGRAMME**

Under this, camps of seven days duration are organized in adopted villages and urban slums during vacations with some specific projects by involving the local communities. 50 NSS volunteers are expected to participate in these camps.

**10.3.7 HOW TO INVOLVE IN THE NSS ACTIVITIES**

One should have a sense of nationalism and be a student of the college in which NSS unit exists. Aurora’s Technological Research Institute has an NSS unit for the benefit of the student community. One has to enroll with the NSS coordinator at the beginning of the academic year or as and when the dates for enrollment are announced.

**10.4 WEBSITE**

Our Website atri.edu.in is a mine of information. Provided in the most interactive manner, it helps in establishing a virtual family of students, faculty and parents.

**11. STUDENT MATTERS**

**11.1 ADMISSION PROCEDURE**

As per the state government rules 30% admissions will be filled up by the management. The Convener through EAMCET Counseling will fill up the rest of 70% Merit quota.

**11.1.1 ELIGIBILITY**

**11.1.1.1 Management Quota**

The candidates should have atleast 50% in 10+2 Examination in Mathematics, Physics and Chemistry stream or 10+2 in vocational computer course.

**11.1.1.2 MERIT QUOTA**

The candidate should have minimum pass in 10+2 examination and should have qualified the EAMCET conducted by the state government.

**11.1.2 FILLING IN THE FORM**

The candidates allotted both by the Convener under merit quota or by the Management under the management quota shall approach the principal and take admission. The admitted candidates should fill in the prescribed Application forms in their own handwriting.

**11.1.3 DOCUMENTS FOR ADMISSION**

Candidates should submit their admission forms along with the allotment letter either issued by the convener or the management along with the one set photocopies of the following Certificates:

1. Transfer Certificate from the Institution where the Candidate last studied.

2. Date of Birth Certificate & SSC Memorandum of Marks.

3. Migration Certificate by students coming from Universities other than Osmania University area.

4. Bonafide Certificate for class I to XII.

5. Income Certificate of the parent/guardian (if necessary).

6. Nativity Certificate from Mandal Revenue Officer (if necessary).

7. Caste/Community Certificate from an officer, not below the rank of Mandal Revenue Officer (if necessary).

**Note:** The College reserves the right to cancel the admission of a candidate at any stage if it is detected that the admission is against the rules and regulations of the University.

**11.2 FEES**

**PARTICULARS EAMCET SEAT**

Tuition fees for IV year Rs.31,000.00

Tuition fees for III year Rs.31,000.00

Tuition fees for II year Rs.60,400.00

Tuition fees for I year Rs.60,700.00

Student Expenses(II, III & IV year) Rs.2,500.00

Student Expenses (I year) Rs.5,500.00 (Rs.3000 extra for accredited courses)

**Management SEAT**

Tuition fees for IV year Rs.91,700.00

Tuition fees for III year Rs.95,000.00

Tuition fees for II year Rs.60,400.00

Tuition fees for I year Rs.60,700.00

Transportation Fee As applicable

**11.3 EXAMINATIONS**

**11.3.1 Award of B.Tech. Degree:**

A student will be declared eligible for the award of B. Tech. Degree if he fulfils the following academic regulations:

1.1 The candidate shall pursue a course of study for not less than four academic years and not more than eight academic years.

1.2 **After eight academic years of course of study, the candidate is permitted to write the examinations for two more years.**

1.3 The candidate shall register for 224 credits and secure 216 credits with compulsory subjects as listed in Table-1.

**11.3.2 Credits**

**11.3.3 Distribution and Weightage of Marks**

i) The performance of a student in each semester or I year shall be evaluated subject-wise for a maximum of 100 marks for a theory and 75 marks for a practical subject. In addition, industry-oriented mini-project, seminar and project work shall be evaluated for 50, 50 and 200 marks, respectively.

ii) For theory subjects the distribution shall be 25 marks for Internal Evaluation and 75 marks for the End-Examination.

iii) For theory subjects, during a semester there shall be 2 mid-term examinations. Each mid- term examination consists of one objective paper, one essay paper and one assignment. The objective paper and the essay paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for essay paper). The Objective paper is set with 20 bits of multiple choice, fill- in the blanks and matching type of questions for a total of 10 marks. The essay paper shall contain 4 full questions (one from each unit) out of which, the student has to answer 2 questions, each carrying 5 marks. **While the first mid-term examination shall be conducted on 1 to 2 1/2 units of the syllabus, the second mid-term examination shall be conducted on 2 1/2 to 5 units.** Five (5) marks are allocated for Assignments (as specified by the subject teacher concerned). The first Assignment should be submitted before the conduct of the first mid-examination, and the second Assignment should be submitted before the conduct of the second mid-examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each candidate. However, in the I year, there shall be 3 mid term examinations, each for 25 marks, along with 3 assignments in a similar pattern as above (1 st mid shall be from Unit-I, 2 nd mid shall be 2 &3 Units and 3 rd mid shall be 4 & 5 Units) and the **average marks of the examinations** secured (each evaluated for a total of 25 marks) in each subject shall be considered to be final marks for the internals/sessional**s. If any candidate is absent from any subject of a mid-term examination, an on-line test will be conducted for him by the University. The end examination will be conducted for 75 marks with Part A as a compulsory question for 25 marks. Part B is for maximum of 50 marks with 5 questions consisting of two parts each (a) and (b), out of which the student has to answer either (a) or (b), not both. Each question in Part B carries 10 marks.**

iv) For practical subjects there shall be a continuous evaluation during a semester for 25 sessional marks and 50 end semester examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the University.

v) For the subject having design and/or drawing, (such as Engineering Graphics, Engineering Drawing, Machine Drawing) and Estimation, the distribution shall be 25 marks for internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for end semester examination. There shall be two internal tests in a Semester and the average of the two shall be considered for the award of marks for internal tests. However, in the I year class, there shall be three tests and the average will be taken into consideration.

vi) There shall be an industry-oriented Mini-Project, in collaboration with an industry of their specialization, to be taken up during the vacation after III year II Semester examination. However, the mini-project and its report shall be evaluated along with the project work in IV year II Semester. The industry oriented mini-project shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of an external examiner, head of the department, the supervisor of the mini-project and a senior faculty member of the department. There shall be no internal marks for industry-oriented mini-project.

vii) There shall be a seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of head of the department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks. There shall be no external examination for the seminar.

viii) There shall be a Comprehensive Viva-Voce in IV year II semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is intended to assess the student s understanding of the subjects he studied during the B. Tech. course of study. The Comprehensive Viva-Voce is evaluated for 100 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

ix) Out of a total of 200 marks for the project work, 50 marks shall be allotted for Internal Evaluation and 150 marks for the End Semester Examination (Viva Voce). The End Semester Examination of the project work shall be conducted by the same committee as appointed for the industry-oriented mini-project. In addition, the project supervisor shall also be included in the committee. The topics for industry oriented mini project, seminar and project work shall be different from one another. The evaluation of project work shall be made at the end of the IV year. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.

x) The Laboratory marks and the sessional marks awarded by the College are subject to scrutiny and scaling by the University wherever necessary. In such cases, the sessional and laboratory marks awarded by the College will be referred to a Committee. The Committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the Committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University rules and produced before the Committees of the University as and when asked for.

**11.3.4 Attendance Requirements:**

i) A student is eligible to write the University examinations only if he acquires a minimum of 75% of attendance in aggregate of all the subjects.

ii) Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester or I year may be granted by the College Academic Committee

iii)  **Shortage of Attendance below 65% in aggregate shall not be condoned.**

iv) student who is short of attendance in semester / I year may seek re-admission into that semester/I year when offered within 4 weeks from the date of the commencement of class work.

v)  **Students whose shortage of attendance is not condoned in any semester/I year are not eligible to write their end semester examination of that class and their registration stands cancelled.**

vi) A stipulated fee shall be payable towards condonation of shortage of attendance.

vii)  **A student will be promoted to the next semester if he satisfies the attendance requirement of the present semester/I year, as applicable, including the days of attendance in sports, games,** **NCC and NSS activities.**

viii)  **If any candidate fulfills the attendance requirement in the present semester or I year, he shall not be eligible for readmission into the same class.**

**11.3.5 Minimum Academic Requirements**

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.6.

i) A student is deemed to have satisfied the minimum academic requirements if he has **earned the credits allotted to each theory/practical design/drawing subject/project and secures not less than 35% of marks in the end semester exam, and minimum 40% of marks in the sum total of the mid-term and end semester exams.**

ii) A student shall be promoted from first year to second year if he fulfills the minimum attendance requirement.

iii) A student will not be **promoted from II year to III year** unless he fulfils the academic requirement **of 34 credits up to II year I semester from all the examinations, whether or not the candidate takes the** **examinations and secures prescribed minimum attendance in II year II semester.**

iv) A student shall be **promoted from III year to IV year** only if he fulfils the academic requirements of **56 credits up to III year I semester from all the examinations, whether or not the candidate takes the examinations and secures prescribed minimum attendance in III year II semester.**

v) A student shall register and put up minimum attendance in all 224 credits and earn 216 credits. **Marks obtained in the best 216 credits shall be considered for the calculation of percentage of marks.**

vi)  **Students who fail to earn 216 credits as indicated in the course structure within ten academic years (8 years of study + 2 years additionally for appearing for exams only) from the year of their admission, shall forfeit their seat in B.Tech. course and their admission stands cancelled.**

**11.3.6 Course pattern**

i) The entire course of study is for four academic years. I year shall be on yearly pattern and II, III and IV years on semester pattern.

ii)  **A student, eligible to appear for the end examination in a subject, but absent from it or has failed in the end semester examination, may write the exam in that subject during the period of** **supplementary exams.**

iii)  **When a student is detained for lack of credits/shortage of attendance, he may be re-admitted into the next semester/year. However, the academic regulations under which he was first** **admitted, shall continues to be applicable to him.**

**11.3.7 Award of Class:**

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B. Tech. Degree he shall be placed in one of the following four classes:

(The marks in internal evaluation and end examination shall be shown separately in the marks memorandum)

**11.3.8 Minimum Instruction Days:**

i. The minimum instruction days for each semester / I year shall be 90/180 clear instruction days.

ii.There shall be no branch transfers after the completion of admission process.

iii.There shall be no place transfer within the Constituent Colleges and Units of Jawaharlal Nehru Technological University Hyderabad.

**11.3.9 Academic Regulations for B. Tech. (Lateral Entry Scheme)**

(Effective for the students getting admitted into II year from the Academic Year 2013-2014 and onwards)

1.The Students have to acquire 160 credits from II to IV year of B.Tech. Program (Regular) for the award of the degree.

Register for **168** credits and secure **160** credits.

The students, who fail to fulfil the requirement for the award of the degree in 8 consecutive academic years (6 years of study + 2 years additionally for appearing exams only) from the year of admission, shall forfeit their seats.

2. The attendance regulations of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

**11.3.10 Promotion Rule:**

A student shall be promoted from second year to third year if he fulfills the minimum attendance requirement.

A student shall be promoted from III year to IV year only if he fulfils the academic requirements of **34 credits up to III year I semester from all the examinations, whether or not the candidate takes the examinations.**

**Award of Class**

After a student has satisfied the requirement prescribed for the completion of the program and is eligible for the award of B. Tech. Degree, he shall be placed in one of the following four classes:

The marks obtained in the internal evaluation and the end semester examination shall be shown separately in the marks memorandum.

All the other regulations as applicable to **B. Tech. 4-year degree course (Regular) will hold good for** **B. Tech. (Lateral Entry Scheme)**.

**11.4 ISSUE OF DOCUMENTS**

**11.4.1 BUS PASSES AND BONAFIDES**

Students are required to submit their applications for bus passes and bonafides before 12:30 PM in the office and collect the certificates on the same day after 3:30 PM. This work has to be done only during a free period. Students having at least 75% of attendance are eligible to take new bus passes / renewal of bus passes.

**11.4.2 ORIGINALS**

The original certificates and memoranda of marks submitted by the student will not be returned during the study period. They can be issued to the student for valid reasons against a deposit of Rs 50, 000 or the remaining fee, whichever is higher, after seeking approval from the Director. Students should submit an application to the Principal requesting for the same. The documents have to be returned to the college at the earliest and the security deposit can be taken back (Not Applicable for Fee Reimbursement students).

**11.4.3 MEMORANDUM OF MARKS**

The Memorandum of Marks can be collected from the examination cell of the Institute, during the specified hours.

**11.5 SCHOLARSHIPS**

All the SC, ST, BC, EBC Physically Challenged and Minority students can apply for scholarships through online, subject to fulfillment of annual income criteria. Fresh applications for scholarships have to be submitted at the Institute.

The documents to be enclosed with the application are:

1. Aadhaar Card

2. Caste & Income certificates issued by the MRO

3. Photocopies of SSC, Intermediate marks memo

4. Transfer certificate

5. Photocopy of parents’ Electoral Card

6. Photocopy of parents’ Ration Card

7. Photocopy of Counselling Allotment Order.

8. Bonafide Certificate (Annexure-1)

The following are the rules and regulations pertaining to scholarships:

1. Candidates seeking fee exemption have to submit their application form within the stipulated time; or they will not be eligible for exemption.

2. Students with less than 75% attendance are not eligible for maintenance allowance.

3. Students applying for scholarships have to open a savings bank account in any branch of Andhra Bank before submitting the application form.

4. The renewal of scholarships will be recommended to the authorities concerned only if the candidate secures 75% attendance and gets promoted to the next class/semester.

Online websites :

**www.epass.cgg.gov.in** for SC, ST, BC & EBC & PH.

**www. sbms2.ap.gov.in** for SC/ST/BC and Physically Challenged students

**www.apsmfc.com** for Minority students.

**Note:**

a) On scrutiny, if any student is found producing wrong evidence or information he/she will be rusticated from the college.

b) Candidates admitted under **Management Quota are not eligible** for fee reimbursement.

**11.6 CHANGE OF ADDRESS**

In case of change in permanent/contact address, students are required to incorporate the same in the registration cards to be filled by them at the beginning of every semester. If there is a change in the middle of any semester, students can forward an application for change of address to the college office through the Assistant Registrar.

**11.7 TRANSFER OF ADMISSIONS**

**11.7.1 FROM COLLEGE TO COLLEGE**

The transfer of admissions from one college to another college will be allowed only for the students of second year who have health problems.

The students who want to transfer their admissions from one college to another college shall submit their applications to the Commissioner, Technical Education Government of Andhra Pradesh, BRKR Buildings, Near Secretariat, along with the following documents.

1. No objection certificate from both the colleges.

2. Medical certificate from Civil Assistant Surgeon working in government hospitals.

3. Requisition letter from the candidate.

**11.7.2 FROM BRANCH TO BRANCH**

As per the JNTU Rules, the transfer of admission from branch to branch is not allowed from second year onwards.

**12. STUDENT ACTIVITIES**

**12.1** **STUDENTS’ COUNCIL**

A Students’ council has been formed to create a perfect link between the students and the administration, the students and the faculty, the students and the community, and among the students themselves. The council aims to help students share ideas, interests, and concerns with the teachers and the Director. Being on the Students’ Council will help students become responsible and active members of the Institute. A student should have cleared all subjects to be eligible for nomination on the council. A senior faculty member will be nominated as staff advisor by the Director.

The constitution of the Student’s council would be as follows :

1) Class representatives (CR) – Class Toppers from all classes in the immediate past University examination to be nominated to the Students’ Council as CRs.

2) One cultural representative (CuR), one sports representative (SR), two ladies’ representatives (LR) and one NSS representative to be nominated by the Director.

3) Secretary – Students’ Council – to be elected by secret ballot from amongst all CRs SRs, LRs & CuR.

4) HOD Nominees: A nominee by the HOD of every department.

**12.2 NEWS LETTER**

The college Newsletter “Tarang” records the events and also encourages the creative streak in the students. The purpose of the Newsletter is to make the students aware of all the activities and developments (academic) taking place in the college. The names of Academic Toppers are published in “Tarang” to boost the morale of the students. Articles, sketches, puzzles etc contributed by the students are published in the Newsletter. “Tarang” records and consolidates the plethora of events and activities of ATRI.

**12.3 ALUMNI ASSOCIATION**

Our alumni is well placed in diverse fields and employed with many top-notch corporates. Their success has served to further strengthen their roots in ATRI. They are today our ambassadors in the corporate world, benefiting both fellow alumni members and current students. The Alumni association provides an opportunity for alumni and friends to stay connected with their almamater through communications, programs and services that foster a lifetime relationship with the institution. In return, the college gains from their valued inputs to update their teaching methodologies, subjects, research trends, and even provide employment opportunities and career counseling for freshers.

**13. STUDENT CLUBS**

The ATRI ethos believes that true education can be accomplished not through imposition but through aspiration. Nothing can accomplish this better than club activities that are ‘by the students, of the students and for the students’.

**13.1 LITERARY CLUB**

The literary club organizes activities like debate, elocution, essay writing, and general quiz, during the academic year. Competitions are organized on special days like Independence Day, Engineers’ Day, and the Annual Day. Students with talent and inclination are motivated to participate. The club also provides a forum for developing communication skills, and cultivates a creative outlook in students.

**13.2 CULTURAL CLUB**

Under the umbrella of the cultural club, students are encouraged to organize dramatics, music, painting, singing & dance competitions, etc. These activities tap the creativity of students and go a long way in making them successful as creative professionals. Such activities hone their personalities and allow them to be in sync with other aspects of their being.

**13.3 NATURE CLUB**

This club promises to rediscover man as part of the wonderful creation called Nature. Students here are involved in photo exhibitions, nature protection activities and awareness-building programs on sustainable development.

**13.4 PROFESSIONAL CLUBS**

This club is a reflection of new ideas and technologies. It shares the latest information on emerging trends, events and personalities involved in designing and working of technologies. In order to encourage involvement in technical activities and enhance professional competence among budding engineers, the college has instituted a number of student chapters of national and international professional bodies. Some of these are:

1. Institution of Electrical & Electronics Engineers (IEEE)

2. Institution of Electrical & Electronics Engineers (IEEE) - Computer Society

3. Institution of Electrical & Electronics Engineers (IEEE) - Women in Engineering

4. Institution of Electronics and Telecommunication Engineers (IETE)

5. Computer Society of India (CSI)

6. The Indian Society for Technical Education (ISTE)