1. B.TECH IN BIOTECHNOLOGY

PROGRAM EDUCATIONAL OBJECTIVES:

- Practice engineering in a broad range of industrial, societal and real world applications
- Pursue advanced education, research & development, creative & innovative efforts in science, engineering, and technology, as well as other professional careers
- Conduct themselves in a responsible, professional, and ethical manner
- Participate as leaders in their fields of expertise and in the activities that support service and economic development throughout the world

PROGRAM OUTCOMES:

1. Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the conceptualization of engineering models
2. Identify, formulate, research literature and solve complex engineering problems reaching substantiated conclusions using first principles of mathematics and engineering sciences
3. Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
4. Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
5. Create, select and apply appropriate techniques, resources, and modern engineering tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations
6. Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
7. Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
8. Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice
9. Understand and commit to professional ethics and responsibilities and norms of engineering practice.

10. Understand the impact of engineering solutions in a societal context and demonstrate knowledge of and need for sustainable development
11. Demonstrate a knowledge and understanding of management and business practices, such as risk and change management, and understand their limitations
12. Recognize the need for, and have the ability to engage in independent and life-long learning

PROGRAM SPECIFIC OUTCOMES

- **PSO1:** Knowledge and hands-on training to solve engineering and scientific problems
- **PSO2:** Ability to work in interdisciplinary areas of science and technology towards industrial and academic research applications

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2. B. Tech. - CIVIL ENGINEERING PROGRAMME

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

To be a globally renowned KLEF, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the KLEF's Mission and thereby the Mission has converged into the following Program Educational Objectives (PEOs) which are best suited to Undergraduate Engineering programs, and are those that compliment the KLEF vision, mission.

- PEO1. Practice engineering in a broad range of industrial, societal and real world applications.
- PEO2. Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
- PEO3. Conduct themselves in a responsible, professional, and ethical manner.
- PEO4. Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAMME OUTCOMES (POs):

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write

effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO 1. Function as design consultants in construction industry for the design of civil engineering structures.
- PSO 2. Provide sustainable solutions to the Civil Engineering Problems.

M.Tech -Structural Engineering

Program Outcomes(POs):

- PO1 knowledge of a broad range of structural methodologies and underlying civil engineering, commonly used in the development and analysis of Structural Engineering systems.
- PO2 Knowledge of fundamental design issues relevant to Structural Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts.
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques.
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry.
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry.
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects.
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems in design aspects.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of Civil Engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Construction Technology & Management

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Construction Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Construction Technology and Management systems
- PO2 Knowledge of fundamental design issues relevant to Construction Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problem in construction technology and management.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Geospatial Technology

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Geospatial Technology methodologies and underlying civil engineering, commonly used in the development and analysis of geo spatial systems.
- PO2 Knowledge of fundamental design issues relevant to Geospatial Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts

- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems by mapping using geospatial technologies.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Energy and environmental Technology

Program Outcomes (POs):

- PO1 Knowledge of a broad range of Energy and environmental Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Energy and environmental systems.
- PO2 Knowledge of fundamental design issues relevant to Energy and environmental Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry

- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the environmental Problems by energy and environmental technologies.

Course Outcomes for M.Tech Construction Technology & Management

Course Outcomes for M.Tech Geospatial Technology

Course Outcomes for M.Tech Structural engineering

Extramural

003. Computer Science and Engineering

Program Objectives

PO1 Ability to apply knowledge of Mathematics, science and Engineering
PO2 Ability to identify, formulate, and solve engineering problems
PO3 Ability to design a system, component or process, to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
PO4 Ability to design and conduct experiments, as well as to analyze and interpret data
PO5 Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
PO6 Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
PO7 Knowledge of contemporary issues
PO8 Understanding professional and ethical responsibilities
PO9 Ability to function on multidisciplinary teams
PO10 Ability to communicate effectively (oral , written)
PO12 Recognition of the need for, and an ability to engage in life-long learning

PROGRAM SPECIFIC OBJECTIVES

PSO1 Ability to design and develop software projects, as well as to analyze and test user requirements.
PSO2 Working knowledge on emerging software tools and technologies.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1 A. Practice engineering in a broad range of industrial, societal and real world applications.
PEO2 B. Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
PEO3 C. Conduct themselves in a responsible, professional, and ethical manner.
PEO4 D. Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Mapping of Mission statements with program objectives

Mission Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO12
To Impart Quality Education with social consciousness and make them Globally Competent.	3	2	2	2	3	1	3	2	2	3	2

Mapping of Mission statements with program specific objectives

Mission Statement	PSO1	PSO2
To Impart Quality Education with social consciousness and make them Globally Competent.	3	2

Mapping of Mission statements with program educational objectives

Mission Statement of CSE	PEO1	PEO2	PEO3	PEO4
To Impart Quality Education with social consciousness and make them Globally Competent.	2	2	2	3

004. Electronics and Communication Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: Practice engineering in a broad range of industrial, societal and real world applications.

PEO2: Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Conduct themselves in a responsible, professional, and ethical manner.

PEO4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Program Outcomes

PO1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES

PSO1 An abilityto Understand the theoretical and mathematical concepts to analyze real time problems.

PSO2 An Abilityto Design and Analyze systems based on the theoretical and Practical Knowledge

5. Electronics and Computer Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO1: Practice engineering in a broad range of industrial, societal and real world applications.

PEO2: Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Conduct themselves in a responsible, professional, and ethical manner.

PEO4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

PROGRAM OUTCOMES(PO's)

PO No	Description
PO1	An ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization for the solution of complex engineering problems in Electronics and Computer Engineering
PO2	An ability to identify, formulate, research literature, analyze complex engineering problems in Electronics and Computer Engineering using first principles of mathematics, natural sciences and engineering sciences
PO3	An ability to design solutions for complex engineering problems and system component or processes that meet the specified needs considering public health & safety and cultural, societal & environment
PO4	An ability to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to obtain solutions to Electronics and Computer Engineering problems
PO5	Ability to create, select and apply appropriate techniques, resources and modern engineering activities, with an understanding of the limitations
PO 6	Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO7	Ability to demonstrate the knowledge of engineering solutions, contemporary issues understanding their impacts on societal and environmental contexts, leading towards sustainable development
PO8	An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice
PO9	An ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
PO10	Ability to communicate effectively oral, written reports and graphical forms on complex engineering activities
PO11	Ability to demonstrate knowledge and understanding of the engineering and management principles and apply those one's own work, as a member and leader in

	team, to manage projects and in multi-disciplinary environments
PO12	An ability to recognize the need for and having the preparation and ability to engage independent and life-long learning in broadest context of technological change

PROGRAM SPECIFIC OUTCOMES(PSO's)

PO No	Description
PSO1	An ability to solve Electronics Engineering problems, using latest hardware and software tools, to arrive cost effective and appropriate solutions in the domain of embedded systems and Internet of Things.
PSO2	An ability to demonstrate basic knowledge of Web Technologies for development of web based applications along with knowledge and skill related to cyber security.

006. Electrical and Electronics Engineering

Program Educational Objectives:

PEO 1: Acquiring engineering knowledge in a wide range of industrial, societal and real world applications

PEO 2 :Pursuing advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers

PEO 3: Managing themselves in a committed professional and ethical manner

PEO 4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world

Program Outcomes:

PO 1 : Ability to apply knowledge of mathematics, science, engineering fundamentals and engineering specialization for the solution of complex engineering problems

PO 2 : Ability to identify, formulate, research literature, analyze complex engineering problems using first principles of mathematics, natural sciences and engineering sciences

PO 3 : Ability to find solutions for complex engineering problems and system component of processes that meet the specified needs considering public health, safety and cultural, societal & environment

PO 4: Ability to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to obtain solutions to critical engineering problems

PO 5 : Ability to create, select and apply appropriate techniques, resources and modern engineering activities, with an understanding of the limitations

PO 6: Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO 7: Ability to demonstrate the knowledge of engineering solutions, contemporary issues understanding their impacts on societal and environmental contexts, leading towards sustainable development

PO 8: Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

PO 9 : Ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings

PO 10: Ability to communicate effectively verbal, written reports and graphical forms on complex engineering activities

PO 11: Ability to demonstrate knowledge and understanding of the engineering and management principles and apply those one's own work, as a member and leader in team, to manage projects and in multi-disciplinary environments

PO 12 : Ability to recognize the need and having the preparation and ability to engage independent and life-long learning in the broadest context of technological change

Program Specific Outcome's:

PSO 1: Ability to demonstrate the knowledge, skill to analyze the cause and effect on Electrical system, processes and systems

PSO 2: Ability to apply the acquired Electrical Engineering knowledge for the advancement of society and self

M.Tech. (PG):

Power Electronics and Drives:

Program Educational Objectives:

PEO 1: Post Graduates will become design engineers in top-notch power supply design and electrical drives industries

PEO 2: Post Graduates will pursue research in leading organizations to find innovative solutions for energy conservation through power converters and electric drive design

PEO 3: Post Graduates will become a part of teaching fraternity in shaping young graduates in

electrical and electronics engineering

PEO 4: Post Graduates will become lifelong learners and critical thinkers

Program Outcomes:

PO 1: Apply the knowledge of science and mathematics in designing, analyzing and using the power converters and drives for various applications for problem solving

PO 2: Design the modern electric machines, drives, power converters, and control circuits for specific applications

PO 3: Use modern tools, professional software platforms, embedded systems for the diversified applications

PO 4: Function as a member of a multidisciplinary team and correlate the domain knowledge for global problems.

PO 5: Demonstrate the communication at different levels effectively

PO 6: Explore ideas for inculcating research skills and appreciate, critical and independent thinking and engage in lifelong learning.

M.Tech. (PG):

Power Systems:

Program Educational Objectives:

PEO 1: To produce electrical power systems postgraduates, who are employable in public and private industries /institutes /organizations or pursue higher education.

PEO 2: To prepare postgraduates, who have the ability to identify and address current and future problems in the domain of power systems, power Electronics and electrical machines.

PEO 3: To inculcate research attitude and lifelong learning among postgraduates

PEO 4: To produce leaders and scholars to serve in the field of education

Program Outcomes:

PO 1: Acquire in- depth knowledge in the domain of power systems and understanding of engineering principles for project management

PO 2: Ability to critically analyze various power system components, models and their operation

PO 3: Ability to apply fundamentals and concepts to analyze, formulate and solve complex problems of electrical power systems and its components

PO 4: Apply advanced concepts of electrical power engineering to analyze, design and develop electrical components, apparatus and systems to put forward scientific findings at national and international levels

PO 5: Ability to use advanced techniques, skills and modern scientific and engineering tools for professional practice

PO 6: Preparedness to lead a multidisciplinary scientific research team, communicate effectively and lifelong learning

007. B.Tech. – Mechanical Engineering

Program Educational Objectives

•Practice Engineering in a broad range of industrial, societal and real world applications.

•Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

•Conduct themselves in a responsible, professional, and ethical manner.

•Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

M.Tech. – Machine Design

•Demonstrate a breadth of knowledge of Design of Machine elements.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Machine and Mechanical Systems.

•Demonstrate knowledge of contemporary issues in their chosen focused area.

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Robotics and Mechatronics

•Demonstrate a breadth of knowledge of Mechatronics.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Mechatronics.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Thermal Engineering

•Demonstrate a breadth of knowledge of Thermal Engineering.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Thermal Engineering.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

16. Bachelor Architecture

Program Educational Objectives

- Should be able to stimulate artistic sensitivity and creative powers. (SKILL)
- Strengthen intellectual growth and the capacity to develop creative and responsible solutions to unique and changing problems. (EMPL)
- Acquire leadership capabilities necessary for the competent practice of architecture and lifelong learning. (ETPR)
- Pursue advanced education, research and development, and other creative and innovative efforts in the field of Architecture. (SKILL).

Program Outcomes.

The B.Arch program in KLEF is designed to meet the Program Outcomes as identified by Council of Architecture (COA). These constitute a superset of program outcomes identified by National Board of Accreditation.

- PO1. Ability to gain knowledge of Humanities, Sciences and Architecture and the application of knowledge in practice.
- PO2. Use the elements of Architecture and apply basic principles in Architectural Design.
- PO3. Identify and solve the social, economical and cultural issues in Architectural Design.
- PO4. Ability to apply theoretical knowledge to achieve Architectural Design solutions.
- PO5. Recognize the ethical and professional responsibilities and the norms of Architectural practice.
- PO6. Ability to research, review, comprehend and report technological developments happening in the field of Architecture.
- PO7. Communicate effectively and work in interdisciplinary groups according to the project scale.
- PO8. To guide the Building construction workforce in the right direction.
- PO9. Ability to understand the real life situation in converting the On-paper design to On-site design of Architectural Practice.
- PO10. To make the student design aesthetically pleasing, structurally viable buildings and encourage technological advancements in the building construction industry.

Program Specific Outcomes.

- PS01: Ability to enhance creative design skills in attaining design solutions in architecture.
- PS02: To understand the architectonic complexity and use appropriate techniques and technology in the given project.

17. Bachelor Computer Applications

A. Program Outcomes (Common across all specializations)

PO 1: Problem analysis: Identify, formulate, research literature, and analyze complex computer application oriented problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and computer applications.

PO 2: Design/Development of Solutions: Design solutions for complex computer application problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO 3: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthes is of the information to provide valid conclusions.

PO 4: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 5: Communication: Communicate and engage effectively with diverse stakeholders.

PO 6: Ethics: Apply ethical principles and commit to professional ethics and responsibilities.

PO 7: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PO 8: Individual and team work:Function effectively as an individual, and as a member or lead erindiverseteams, and in multi disciplinary settings.

B. Program Specific Outcomes (CTIS)

PSO1: An ability to use and develop cloud software, administrative features. Infrastructure services and architectural patterns; ethical hacking and forensic security technologies.

PSO2: An ability to gain knowledge on design and control strategy; techniques to secure information and adapt to the fast changing world of information technology needs.

C. Program Specific Outcomes (DS)

PSO1: Ability to apply the knowledge of computing tools and techniques in the field of Data science for solving real world problems encountered in the Software Industries.

PSO2: Ability to identify the challenges in Data analytics with respect to IT Industry and pursue quality research in this field with social relevance.

C. Program Specific Outcomes (IoT)

PSO1: An ability to apply pattern recognition, machine learning, and artificial intelligent techniques including statistical data analysis and quantitative modelling techniques to solve real world problems from various domains such as healthcare, social computing, economics, etc.

PSO2: An ability to recognize and analyze problems related to AI and ML applications along with their ethical implications.

D. Program Specific Outcomes (IPA)

PSO1: An ability to recognize and analyze problems related to artificial intelligence and machine learning applications along with their ethical implications

PSO2: An ability to apply intelligent computer systems to a variety of applications.

18. Bachelor Pharmacy

Program Outcomes (POs):

1. Pharmacy Knowledge: Provide basic knowledge for understanding the principles and their applications in the area of Pharmaceutical Sciences and Technology.
2. Technical Skills: Develop an ability to use various instrument and equipment with an in-depth knowledge on standard operating procedures for the same.
3. Modern tool usage: Develop/apply appropriate techniques, resources, and IT tools including prediction and modelling to complex health issues and medicine effect with an understanding of the limitations.

4. Research and development: To demonstrate knowledge of identifying a problem, critical thinking, analysis and provide rational solutions in different disciplines of Pharmaceutical Sciences and Technology.

5. Lifelong learning: Develop an aptitude for continuous learning and professional development with ability to engage in pharmacy practice and health education programs.

6. Communication: Communicate effectively on health care activities with the medical community and with society at large, to comprehend drug regulations, write health reports and provide drug information.

7. The Pharmacist and society: Apply reasoning informed by the contextual knowledge to comprehend medical prescription, perform patient counselling and issue or receive clear instructions on drug safety and the consequent responsibilities relevant to the professional pharmacy practice. 8. Ethics: Follow the code of ethics and commit to professional values and Responsibilities and norms of the pharmacy practice.

Program Educational Objectives (PEOs):

1. To produce pharmacist workforce competent for the society.

2. To produce pharmacy graduates with employable skills and high technical competence in pharmaceutical industry and health care sectors.

3. To inculcate research activity and develop passion for discovery and innovations.

4. To develop entrepreneurship qualities that support growth of pharmaceutical intellectual property and contribute for economic development throughout the world.

Program Specific Objectives (PSOs):

1. Pharmaceutical product development: To apply the knowledge of manufacturing, formulation and quality control of various pharmaceutical and cosmetic products in the form of powders, tablets. capsules, parenteral, solutions, suspensions, emulsions, creams, lotions and aerosols etc.

2. Invention and Entrepreneurship: Find the application of modern tools to integrate health care systems, design an effective product with commercial advantage and societal benefit, perform risk analysis and become entrepreneur.

025. Programme - Bachelor of Fine Arts (Applied Arts & Crafts) // Programme Type – Under Graduation, Duration – Four Years

Programme Educational Objectives (PEO's)

PEO1 Graduate Apply appropriate communication skills across settings, purposes, and audiences.

PEO2 Graduates shall promote professionalism in the practice of Fine Arts.

PEO3 Graduates with sense of responsibility and rooted in community involvement with a global perspective.

PEO4 Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Department Mission vs PEO'S Mapping

	DM1	DM2	DM3	DM4
PEO 1	✔	✔	✔	
PEO 2		✔	✔	✔
PEO 3	✔	✔		✔
PEO4	✔			✔

Programme Outcomes (PO's)

PO1 Building a solid foundation in the elements, principles and process of visual design.

PO2 communicate effectively with clients and utilize the talents and strengths of design colleagues to develop the best design products.

PO3 applying fundamentals to solve increasingly complex design problems in technologically innovative ways

PO4 Engage in critical analysis of their own and their peer's creative work.

PO5 Explore media, communication and dissemination techniques to entertain via written, oral and visual media.

PO6 apply design principles to software in a manner that provides the skills to adapt to the newest technologies in expectation for the technologies which will emerge in the future.

PO7 Understanding of and ability develop strategies for planning, producing, and disseminating visual communications.

Programme Specific Outcomes (PSO's)

PSO 1 Understand and make use the nature and basic concepts of print, electronic and new media productions.

PSO 2 Discover the relationships and adapt production procedures in contemporary print, electronic and new media industries.

BFA. Applied Arts & Crafts PEO'S vs PO'S Mapping

	PEO 1	PEO 2	PEO 3	PEO4
PO1	✔	✔		
PO2	✔	✔	✔	✔
PO3		✔	✔	
PO4	✔	✔		
PO5	✔		✔	✔

PO6		✔	✔	
PO7	✔	✔		✔

B.SC – VISUAL COMMUNICATION

Visual Communication is a program that crosses a wide range of disciplines such as Photography, Film Industry, Advertising, Cinematography, Animation, Journalism, Public Relation and NGO's. This Visual Communication discipline provides a sound theoretical base and insights that can work effectively to address rapidly changing global needs and local milieu.

Bachelor of Fine Arts is a four-year degree program, which emphasizes on the aesthetic and applied value of an art form. Students of BFA will be choosing a specialization from any of the four specializations that department offers. Painting, Sculpture, Film making and Animation being the specialization, a student is given complete liberty and made sure counselled to take up the specialization in the first semester of second year. First year forms the basis of foundation in which all the specializations are introduced at the basic level, which includes objects mainly created for concept and aesthetic value rather than utility. Conventional art forms are being converted into profitable sectors for commercial use now-a-days. Opportunities are increasing at a rapid rate in the fine arts and Electronic Media sector. Students of Fine Arts can obtain high remuneration, popularity and prestige in all the respective fields.

Programme - Bachelor of Science (Visual Communication) // Programme Type – Under Graduation, Duration – Three Years

Programme Educational Objectives (PEO's)

PEO1 Graduate Apply appropriate communication skills across settings, purposes, and audiences.

PEO2 Graduates shall promote professionalism in the practice of Visual Communication.

PEO3 Graduates with sense of responsibility and rooted in community involvement with a global perspective.

PEO4 Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Department Mission vs PEO'S Mapping

	DM1	**DM2**	**DM3**	**DM4**
PEO 1	✔	✔	✔	
PEO 2		✔	✔	✔
PEO 3	✔	✔		✔
PEO4	✔			✔

Programme Outcomes (PO's)

PO1 Building a solid foundation in the elements, principles and process of visual design.

PO2 communicate effectively with clients and utilize the talents and strengths of design colleagues to develop the best design products.

PO3 applying fundamentals to solve increasingly complex design problems in technologically innovative ways

PO4 Engage in critical analysis of their own and their peer's creative work.

PO5 Explore media, communication and dissemination techniques to entertain via written, oral and visual media.

PO6 apply design principles to software in a manner that provides the skills to adapt to the newest technologies in expectation for the technologies which will emerge in the future.

PO7 Understanding of and ability develop strategies for planning, producing, and disseminating visual communications.

Programme Specific Outcomes (PSO's)

PSO 1 Understand and make use the nature and basic concepts of print, electronic and new media productions.

PSO 2 Discover the relationships and adapt production procedures in contemporary print, electronic and new media industries.

BSc. Visual Communication PEO'S Vs PO'S Mapping

	PEO 1	PEO 2	PEO 3	PEO4
PO1	✔	✔		
PO2	✔	✔	✔	✔
PO3		✔	✔	
PO4	✔	✔		
PO5	✔		✔	✔
PO6		✔	✔	
PO7	✔	✔		✔
PSO 1	✔	✔		
PSO 2	✔	✔		✔

052. Bachelor of Commerce (Honors)

PEO'S

1. To produce best commerce (H) graduates in the country as well as in Global
2. To equip students with updated inputs in the field of accounting and finance
3. To provide practical explore as per corporate needs through summer intern ship and industrial training.

Program Specified Outcomes (PSO'S)

1. To introduce the students to the world of trade and commerce.
2. To make the students competent to deal with Accounting and Finance Practices.
3. To nurture students as real professional auditors and tax practitioners.
4.

Program Outcomes

PO 1	An ability to apply knowledge of Accounting, Finance and Taxation
PO 2	An ability to develop each graduate to be adept in identifying and understanding major commerce trends both locally and globally
PO 3	An ability to develop each graduate to be a critical thinker and strong decision maker.
PO 4	An ability to develop each graduate to be an effective and professional communicator.
PO 5	An understanding of professional and ethical responsibility
PO 6	Knowledge of contemporary issues.
PO 7	A recognition of the need for and an ability to engage in life-long learning

053. B.Sc-Hotel Management

DEPARTMENT PSO`S

1. To train and develop students to be leaders in hotel and food and beverage management through industry immersion and national and international linkages.
2. To intensify students skills in understanding the tasks, functions, duties and activities in the operation of the hotels, restaurants, travel, government and non-government agencies in accordance with the competency standards.
3. To produce quality graduates with balanced knowledge, skills based on international standards to have industry exposure in catering, hotel and management areas.

PROGRAM EDUCATION OBJECTIVES (PEO's)

1. Make students to be leaders in hospitality industry through industry immersion and national and international linkages in order to support business in the field of relevance.
2. To intensify student`s knowledge and skills with instruction based on international standards, to produce quality graduates with balanced knowledge, skills and industry exposure in catering, hotel and management.
3. Inculcate leadership skills needed for integration of hotel and restaurant development, to demonstrate community involvement in travel and tour operation, airlines and other related industries to strengthen their knowledge and skills.

PROGRAM OUTCOMES

a) Knowledge of techniques and equipment for planting, growing, and harvesting food products (both plant and animal) for consumption, including storage/handling techniques.
b) Knowledge of raw materials, production processes, quality control, costs, hygiene and sanitation and other techniques for maximizing the effective manufacture and distribution of goods.
c) Knowledge of business and management principles involved effectively in strategic planning, resource allocation, human resources modelling, leadership technique, production methods, and coordination of people and resources.

d) Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

e) Knowledge of economic and accounting principles and practices, the financial markets, banking, analysis and reporting of financial data involved in industrial sectors.

f) Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labour relations and negotiation, and personnel information systems.

g) Knowledge of the structure and content of different language including the meaning and spelling of words, rules of composition, and grammar.

h) Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques, and sales control systems.

i) Knowledge of principal methods of cleaning, controlling, recycling process, maintenance of equipment's, latest technology and its usage, safety measures to taken in hotel industry.

j) Knowledge on Tourism, hospitality industry history, sales, promotions, Audit, general knowledge, share market, excellent skill to communicate and computer knowledge.

054. KLU BUSINESS SCHOOL

BBA-MBA INTEGRATED PROGRAM

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

To be a globally renowned university, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the University's Mission and thereby the Mission has converged into the following **Program Educational Objectives (PEOs)** which are best suited to Undergraduate Management program, and are those that compliment the university vision, mission.

PROGRAM EDUCATIONAL OBJECTIVES

A. To educate the business graduates to respond effectively in meeting the competitive business needs of the society.

B. To nurture the spirit of Entrepreneurship among the students that propagates the business world.

C. To train the students in emerging as efficient managers equipped with innovation, rationality and application oriented decision-making in the context of the ever-changing business environment.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAM OUTCOMES (POs): PO	Description
a. **Core Business Knowledge**	Demonstrate competency in the underlying concepts, theory and tools taught in the core undergraduate curriculum.
b. **Critical Thinking skills**	Able to define, analyze and devise solutions for

	multifunctional business problems and issues in the areas like Marketing, Finance, Human Resources and Production.
c. **Global Perspective**	Identify and analyze relevant global factors that influences decision making in International Business Perspective
d. **Investigation of complex problems**	An ability to use research-based knowledge and research methods including design of innovative processes, analysis and interpretation of data and synthesis of the information to obtain solutions to organizational problems
e. **Application of Statistical and Analytical tools**	Ability to create, select and apply appropriate analytical tools, techniques and methods in the modern management activities.
f. **The Manager and society**	Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional management practices.
g. **Legal Environment and sustainability**	Ability to demonstrate the knowledge of contemporary issues in legal aspects, understanding and reporting their impact on societal and environmental contexts, leading towards sustainable organizational development through entrepreneurial orientation.
h. **Ethics & Corporate Social Responsibility**	An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of management practice. Identify and analyze ethical conflicts and social responsibility issues involving different stakeholders.

i. **Individual and Team Work**	An ability to perform different roles effectively as an individual and a member or leader in diverse teams and in multi-disciplinary streams with entrepreneurial edge.
j. Communication	Ability to communicate effectively oral, written reports and graphical forms on complex managerial and administrative activities.
k. **Project Management and Finance**	Ability to demonstrate knowledge and understanding of the business and operational activities and having sound knowledge in the financial aspects and applying those concepts to manage projects in multi-disciplinary environments.
l. **Lifelong Learning**	An ability to recognize the need for and having the preparation and ability to engage independent and life-long learning in global context of technological and organizational change.

PROGRAM SPECIFIC OUTCOMES –BBA- MBA INTEGRATED PROGRAM

1. Graduates will develop a goal-oriented sense of business purpose.

2. Graduates will be able to excel in their chosen career by experiential learning, critical and analytical thinking.

MISSION - PEO MAPPING

BBA-MBA INTEGRATED PROGRAM MISSION				
PEO				
To attain leadership in management education	To attain leadership in Research	To attain leadership in Consultancy	To nurture the students industry ready	To make the students as a responsible citizen of nation.
To educate the business graduates to respond effectively in meeting the competitive business needs of the society.				
To nurture the spirit of Entrepreneurship among the students that propagates the business world.				
To train the students in emerging as efficient managers					
To equip with innovation, rationality and application oriented decision-making in the					

context of the
ever-
changing
business
environment.

KLU BUSINESS SCHOOL

BBA-MBA INTEGRATED PROGRAM

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

To be a globally renowned university, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the University's Mission and thereby the Mission has converged into the following **Program Educational Objectives (PEOs)** which are best suited to Undergraduate Management program, and are those that compliment the university vision, mission.

PROGRAM EDUCATIONAL OBJECTIVES

A. To educate the business graduates to respond effectively in meeting the competitive business needs of the society.

B. To nurture the spirit of Entrepreneurship among the students that propagates the business world.

C. To train the students in emerging as efficient managers equipped with innovation, rationality and application oriented decision-making in the context of the ever-changing business environment.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAM OUTCOMES (POs): PO	Description
a. **Core Business Knowledge**	Demonstrate competency in the underlying concepts, theory and tools taught in the core undergraduate curriculum.
b. **Critical Thinking skills**	Able to define, analyze and devise solutions for multifunctional business problems and issues in the areas like Marketing, Finance, Human Resources and Production.
c. **Global Perspective**	Identify and analyze relevant global factors that influences decision making in International Business Perspective
d. **Investigation of complex problems**	An ability to use research-based knowledge and research methods including design of innovative processes, analysis and interpretation of data and synthesis of the information to obtain solutions to organizational problems
e. **Application of Statistical and Analytical tools**	Ability to create, select and apply appropriate analytical tools, techniques and methods in the modern management activities.
f. **The Manager and society**	Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional management practices.
g. **Legal Environment and sustainability**	Ability to demonstrate the knowledge of contemporary issues in legal aspects, understanding and reporting their impact on societal and environmental contexts, leading towards sustainable organizational development through entrepreneurial orientation.
h. **Ethics & Corporate Social Responsibility**	An ability to apply ethical principles and

	commit to professional ethics and responsibilities and norms of management practice. Identify and analyze ethical conflicts and social responsibility issues involving different stakeholders.
i. **Individual and Team Work**	An ability to perform different roles effectively as an individual and a member or leader in diverse teams and in multi-disciplinary streams with entrepreneurial edge.
j. Communication	Ability to communicate effectively oral, written reports and graphical forms on complex managerial and administrative activities.
k. **Project Management and Finance**	Ability to demonstrate knowledge and understanding of the business and operational activities and having sound knowledge in the financial aspects and applying those concepts to manage projects in multi-disciplinary environments.
l. **Lifelong Learning**	An ability to recognize the need for and having the preparation and ability to engage independent and life-long learning in global context of technological and organizational change.

56. BFA

Programme - Bachelor of Fine Arts (Applied Arts & Crafts) // Programme Type – Under Graduation, Duration – Four Years

Programme Educational Objectives (PEO's)

PEO1	Graduate Apply appropriate communication skills across settings, purposes, and audiences.

PEO2 Graduates shall promote professionalism in the practice of Fine Arts.

PEO3 Graduates with sense of responsibility and rooted in community involvement with a global perspective.

PEO4 Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Department Mission vs PEO'S Mapping

	DM1	DM2	DM3	DM4
PEO 1	✔	✔	✔	
PEO 2		✔	✔	✔
PEO 3	✔	✔		✔
PEO4	✔			✔

Programme Outcomes (PO's)

PO1 Building a solid foundation in the elements, principles and process of visual design.

PO2 communicate effectively with clients and utilize the talents and strengths of design colleagues to develop the best design products.

PO3 applying fundamentals to solve increasingly complex design problems in technologically innovative ways

PO4 Engage in critical analysis of their own and their peer's creative work.

PO5 Explore media, communication and dissemination techniques to entertain via written, oral and visual media.

PO6 apply design principles to software in a manner that provides the skills to adapt to the newest technologies in expectation for the technologies which will emerge in the future.

PO7 Understanding of and ability develop strategies for planning, producing, and disseminating visual communications.

Programme Specific Outcomes (PSO's)

PSO 1 Understand and make use the nature and basic concepts of print, electronic and new media productions.

PSO 2 Discover the relationships and adapt production procedures in contemporary print, electronic and new media industries.

BFA. Applied Arts & Crafts PEO'S vs PO'S Mapping

	PEO 1	PEO 2	PEO 3	PEO4
PO1	✔	✔		
PO2	✔	✔	✔	✔
PO3		✔	✔	
PO4	✔	✔		
PO5	✔		✔	✔
PO6		✔	✔	
PO7	✔	✔		✔

B.SC – VISUAL COMMUNICATION

Visual Communication is a program that crosses a wide range of disciplines such as Photography, Film Industry, Advertising, Cinematography, Animation, Journalism, Public Relation and NGO's. This Visual Communication discipline provides a sound theoretical base and insights that can work effectively to address rapidly changing global needs and local milieu.

Bachelor of Fine Arts is a four-year degree program, which emphasizes on the aesthetic and applied value of an art form. Students of BFA will be choosing a specialization from any of the four specializations that department offers. Painting, Sculpture, Film making and Animation being the specialization, a student is given complete liberty and made sure counselled to take up the specialization in the first semester of second year. First year forms the basis of foundation in which all the specializations are introduced at the basic level, which includes objects mainly created for concept and aesthetic value rather than utility. Conventional art forms are being converted into profitable sectors for commercial use now-a-days. Opportunities are increasing at a rapid rate in the fine arts and Electronic Media sector. Students of Fine Arts can obtain high remuneration, popularity and prestige in all the respective fields.

Programme - Bachelor of Science (Visual Communication) // Programme Type – Under Graduation, Duration – Three Years

Programme Educational Objectives (PEO's)

PEO1 Graduate Apply appropriate communication skills across settings, purposes, and audiences.

PEO2 Graduates shall promote professionalism in the practice of Visual Communication.

PEO3 Graduates with sense of responsibility and rooted in community involvement with a global perspective.

PEO4 Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Department Mission vs PEO'S Mapping

	DM1	DM2	DM3	DM4
PEO 1	✔	✔	✔	
PEO 2		✔	✔	✔
PEO 3	✔	✔		✔
PEO4	✔			✔

Programme Outcomes (PO's)

PO1 Building a solid foundation in the elements, principles and process of visual design.

PO2 communicate effectively with clients and utilize the talents and strengths of design colleagues to develop the best design products.

PO3 applying fundamentals to solve increasingly complex design problems in technologically

innovative ways

PO4 Engage in critical analysis of their own and their peer's creative work.

PO5 Explore media, communication and dissemination techniques to entertain via written, oral and visual media.

PO6 apply design principles to software in a manner that provides the skills to adapt to the newest technologies in expectation for the technologies which will emerge in the future.

PO7 Understanding of and ability develop strategies for planning, producing, and disseminating visual communications.

Programme Specific Outcomes (PSO's)

PSO 1 Understand and make use the nature and basic concepts of print, electronic and new media productions.

PSO 2 Discover the relationships and adapt production procedures in contemporary print, electronic and new media industries.

BSc. Visual Communication PEO'S Vs PO'S Mapping

	PEO 1	**PEO 2**	**PEO 3**	**PEO4**
PO1	✔	✔		
PO2	✔	✔	✔	✔
PO3		✔	✔	
PO4	✔	✔		
PO5	✔		✔	✔
PO6		✔	✔	
PO7	✔	✔		✔
PSO 1	✔	✔		
PSO 2	✔	✔		✔

57. Bachelor of Arts

A. PROGRAMME OUTCOMES

PO1: Provide knowledge and understanding of various fields of study in core disciplines in the Humanities and social sciences

PO2: Develop critical and analytical skills to identify and resolve of problems with in complex changing social, linguistic and literary context.

PO3: Understanding the general concepts and principles of selected areas of study outside core disciplines of the Humanities, Social Science and Languages

PO4: Follow independence in learning appropriate theories and methodologies with intellectual honesty and an understanding of ethical and human values

PO5: Encourage students to analyze the problems and apply this knowledge for remedies thereof

PO6: Enhance student's skills of effective communication and language learning i.e. reading, writing, listing and speaking another language with fluency and understand its cultural value.

PO7: Become well informed and updated member of the community and responsible citizen

PO8: Work with self esteem, self reliance, self reflection and creativity to face adversities in the work and personal life

B. PROGRAM SPECIFIC OUTCOMES

PSO1: Inculcate leadership and administrative abilities for their future career

PSO2: Increase inclination for higher studies and research in social sciences.

PSO3: Gain comprehensive knowledge to succeed in competitive examinations

PSO4: Enhance their knowledge to communicate effectively to understand the problems of Society and solve the societal problems

C. PROGRAMME EDUCATIONAL OBJECTIVES

PEO1 : Graduate will be able to exhibits their skills in Literature and diverse literary works.

PEO2 : A graduate student able to analyze the aspects of History, Geography, Public Administration and Economy

PEO3 : Graduate will be to apply knowledge, information and research skills to complex problems in the field of Social Science and Humanities.

2010-

M.TECH BIOTECHNOLOGY

PROGRAM EDUCATIONAL OBJECTIVES

1. Illustrate the importance of techniques in bioengineering
2. Illustrate practical application of various instrumentation methods in bioengineering sciences.
3. Understand the importance of professional and ethical issues in human and animal health.
4. Demonstrate the ability to work independently and in group in projects related to biosciences

PROGRAM OUTCOMES

- Knowledge of basic and advanced concepts and techniques in bioengineering sciences
- Practical and hands-on-training in various instrumentation methods and tools used in bioengineering
- Knowledge of the applications of specific technologies or approaches leading to the design of a method or formulation
- Knowledge of professional, ethical and societal issues in industry and research fields
- Knowledge of work plan and management strategies related to the Science and Technology which includes data interpretation, preparing report, compilation and submission

PROGRAM SPECIFIC OUTCOMES

- 1: Knowledge and hands on training to solve engineering and scientific problems.
- 2: Ability to work in interdisciplinary areas of science and technology towards industrial and academic research applications.

2021. M.Tech -Structural Engineering

B. Tech. - CIVIL ENGINEERING PROGRAMME

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

To be a globally renowned KLEF, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the KLEF's Mission and thereby the Mission has converged into the following Program Educational Objectives (PEOs) which are best suited to Undergraduate Engineering programs, and are those that compliment the KLEF vision, mission.

- PEO1. Practice engineering in a broad range of industrial, societal and real world applications.
- PEO2. Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
- PEO3. Conduct themselves in a responsible, professional, and ethical manner.
- PEO4. Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAMME OUTCOMES (POs):

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO 1. Function as design consultants in construction industry for the design of civil engineering structures.
- PSO 2. Provide sustainable solutions to the Civil Engineering Problems.

M.Tech -Structural Engineering

Program Outcomes(POs):

- PO1 knowledge of a broad range of structural methodologies and underlying civil engineering, commonly used in the development and analysis of Structural Engineering systems.
- PO2 Knowledge of fundamental design issues relevant to Structural Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts.
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques.
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry.
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry.
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects.
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems in design aspects.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of Civil Engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Construction Technology & Management

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Construction Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Construction Technology and Management systems
- PO2 Knowledge of fundamental design issues relevant to Construction Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problem in construction technology and management.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Geospatial Technology

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Geospatial Technology methodologies and underlying civil engineering, commonly used in the development and analysis of geo spatial systems.
- PO2 Knowledge of fundamental design issues relevant to Geospatial Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry

- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems by mapping using geospatial technologies.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Energy and environmental Technology

Program Outcomes (POs):

- PO1 Knowledge of a broad range of Energy and environmental Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Energy and environmental systems.
- PO2 Knowledge of fundamental design issues relevant to Energy and environmental Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the environmental Problems by energy and environmental technologies.

Course Outcomes for M.Tech Construction Technology & Management

Course Outcomes for M.Tech Geospatial Technology

Course Outcomes for M.Tech Structural engineering

Extramural

2022. M.Tech-Construction Technology & Management

B. Tech. - CIVIL ENGINEERING PROGRAMME

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

To be a globally renowned KLEF, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the KLEF's Mission and thereby the Mission has converged into the following Program Educational Objectives (PEOs) which are best suited to Undergraduate Engineering programs, and are those that compliment the KLEF vision, mission.

- PEO1. Practice engineering in a broad range of industrial, societal and real world applications.
- PEO2. Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
- PEO3. Conduct themselves in a responsible, professional, and ethical manner.
- PEO4. Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAMME OUTCOMES (POs):

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO 1. Function as design consultants in construction industry for the design of civil engineering structures.
- PSO 2. Provide sustainable solutions to the Civil Engineering Problems.

M.Tech -Structural Engineering

Program Outcomes(POs):

- PO1 knowledge of a broad range of structural methodologies and underlying civil engineering, commonly used in the development and analysis of Structural Engineering systems.
- PO2 Knowledge of fundamental design issues relevant to Structural Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts.
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques.
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry.
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry.
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects.
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems in design aspects.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of Civil Engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Construction Technology & Management

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Construction Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Construction Technology and Management systems
- PO2 Knowledge of fundamental design issues relevant to Construction Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problem in construction technology and management.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Geospatial Technology

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Geospatial Technology methodologies and underlying civil engineering, commonly used in the development and analysis of geo spatial systems.
- PO2 Knowledge of fundamental design issues relevant to Geospatial Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry

- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems by mapping using geospatial technologies.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Energy and environmental Technology

Program Outcomes (POs):

- PO1 Knowledge of a broad range of Energy and environmental Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Energy and environmental systems.
- PO2 Knowledge of fundamental design issues relevant to Energy and environmental Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the environmental Problems by energy and environmental technologies.

Course Outcomes for M.Tech Construction Technology & Management

Course Outcomes for M.Tech Geospatial Technology

Course Outcomes for M.Tech Structural engineering

Extramural

2024. M.Tech-Geo Informatics

B. Tech. - CIVIL ENGINEERING PROGRAMME

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

To be a globally renowned KLEF, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the KLEF's Mission and thereby the Mission has converged into the following Program Educational Objectives (PEOs) which are best suited to Undergraduate Engineering programs, and are those that compliment the KLEF vision, mission.

- PEO1. Practice engineering in a broad range of industrial, societal and real world applications.
- PEO2. Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
- PEO3. Conduct themselves in a responsible, professional, and ethical manner.
- PEO4. Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

These PEOs are designed to be attained by all the graduates within 3 to 5 years of their graduation.

PROGRAMME OUTCOMES (POs):

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO 1. Function as design consultants in construction industry for the design of civil engineering structures.
- PSO 2. Provide sustainable solutions to the Civil Engineering Problems.

M.Tech -Structural Engineering

Program Outcomes(POs):

- PO1 knowledge of a broad range of structural methodologies and underlying civil engineering, commonly used in the development and analysis of Structural Engineering systems.
- PO2 Knowledge of fundamental design issues relevant to Structural Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts.
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques.
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry.
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry.
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects.
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems in design aspects.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of Civil Engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Construction Technology & Management

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Construction Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Construction Technology and Management systems
- PO2 Knowledge of fundamental design issues relevant to Construction Engineering and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problem in construction technology and management.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Geospatial Technology

Program Outcomes(POs):

- PO1 Knowledge of a broad range of Geospatial Technology methodologies and underlying civil engineering, commonly used in the development and analysis of geo spatial systems.
- PO2 Knowledge of fundamental design issues relevant to Geospatial Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry

- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the Civil Engineering Problems by mapping using geospatial technologies.

Program Specific Outcomes(PSOs):

- PSO1- Function as design consultants in construction industry for the design of civil engineering structures.
- PSO2- Provide sustainable solutions to the Civil Engineering Problems.

M.Tech-Energy and environmental Technology

Program Outcomes (POs):

- PO1 Knowledge of a broad range of Energy and environmental Technology methodologies and underlying civil engineering, commonly used in the development and analysis of Energy and environmental systems.
- PO2 Knowledge of fundamental design issues relevant to Energy and environmental Technology and an understanding of how to formulate and analyse design solutions in various engineering contexts
- PO3 In-depth knowledge of one or more of the following (depending of selection of option modules and project area): specific engineering systems, design methods, modeling techniques
- PO4 Knowledge of basic research and development principles and practices relevant to main stream engineering industry
- PO5 Knowledge of key professional, safety and ethical issues arising in modern engineering industry
- PO6 Knowledge of time management and work planning issues related to the organization implementation and successful completion, including reporting, of an individual, masters level, Engineering based projects
- PO7- Knowledge of sustainable solutions to the environmental Problems by energy and environmental technologies.

Course Outcomes for M.Tech Construction Technology & Management

Course Outcomes for M.Tech Geospatial Technology

Course Outcomes for M.Tech Structural engineering

Extramural

2031. M.Tech - Computer Science and Engineering

PROGRAM OUTCOMES

PO 1 Apply the knowledge of computer engineering principles and paradigms in the design of system components and processes that meet the specific needs of the industry.

PO 2 Identify, analyze and formulate solutions to complex engineering problems using innovative and emerging technologies.

PO 3 Effectively communicate technical information in speech, presentation and documentation.

PO 4 Extract information relevant to novel problems and apply appropriate research methodology to develop scientific knowledge.

PO 5 Self-learn and pursue higher studies to upgrade qualifications and attain constructive growth in profession.

PROGRAM SPECIFIC OUTCOMES

PSO1 Make valuable contributions to design, development, and production in the practice of computer science and related engineering applications, particularly in software systems and algorithmic methods.

PSO2 Provide exposure to latest software tools and technologies in Computer Science Engineering and technology.

PSO3 Publish research papers on the research findings in specialization domains.

PROGRAM EDUCATIONAL OBJECTIVES

PEO 1 Enhance technological competence to stand out in today's IT centric scenario through training in the contemporary software engineering principles and paradigms.

PEO 2 Provide students a deep insight into various cutting edge technologies & tools creating diverse career opportunities.

PEO Improve analytical, logical and presentation skills of the students applying evolving

3	technologies of software engineering in developing practical solutions to complex problems in consonance with the legal and ethical responsibilities.
PEO 4	Provide students with project engineering and management skills, catering to the changing industry needs and constraints across the advancing domains of computing.

COURSE OUTCOMES (CO)

S NO	course code	Course Title	CO NO	Description of the Course Outcome
1	18CS5101	Mathematical Foundations for Computer Science	CO1	Evaluate mathematical expressions using different types of operations on numbers.
			CO2	Simplify expressions and solve equations & in-equations.
			CO3	Apply different types of arithmetic expressions to solve given problems.
			CO4	Apply methods to find areas , volumes and use graphs to reduce non-linear to linear forms.
2	18CS5103	Data Structures & Algorithms	CO1	Apply measures of efficiency to algorithms and Compare various linear data structures like Stack ADT, Queue ADT, Linked lists.
			CO2	Analyze and compare linear data structures and analyze different searching and hashing techniques.
			CO3	Analyze and compare various non – linear data structures like Trees and

					Graphs.
				CO4	Analyze and compare various sorting algorithms, to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular context.
				CO5	Understand and execute lab experiments and develop a small project along with his/ her team members.
3	18 5102	CS	Computer Organization & Architecture	CO1	Student will be able to Understand the Overview of von Neumann architecture and Pipelining
				CO2	Student will be able to Demonstrate Hierarchical Memory Technology
				CO3	Student will be able to Explain the Instruction level parallelism
				CO4	Student will be able to Analyze the Multiprocessor Architecture
				CO5	Student will be able to Analyze the Multiprocessor Architecture
4	18 5205	CS	Operating System Design	CO1	Understand the basic concepts of operating system, OS structure and process concepts.

			CO2	Apply the concepts Process Scheduling algorithms and Process Synchronization Problems.
			CO3	Solve the concept of the Deadlock, Memory Management and Virtual Memory Concepts.
			CO4	Demonstrate file system interface, structure, file allocation methods, free space management and threads.
			CO5	Create and develop a project along with his/her team members.
5	18 CS5104	Distributed Database Management	CO1	Understand the fundamentals of query optimization and database recovery protocols.
			CO2	Analyze emerging database technologies and distributed databases.
			CO3	Discriminate object oriented and relational database systems.
			CO4	Analyze multimedia databases.
6	18 CS5206	CSComputer Networks & Security	CO1	Understand OSI and TCP/IP Models and basics of physical layer and their issues
			CO2	Demonstrate Data Link

				layer issues and medium access control sub layers concepts
			CO3	Analyze and implement the algorithms of network and transport layers and concerned services
			CO4	Evaluate and execute the concepts of TCP ,UDP and the application layer conceptions
7	15 5207	CSObject Oriented Analysis and Design	CO1	Understanding the concepts of UML (Unified Modeling Language)and UP(Unified Processing)
			CO2	Analyze the requirements using UML
			CO3	Create class and objects using UML.
			CO4	Design and implement the software using UML.
8	18 5208	CSEnterprise Programming	CO1	Learn the basic concepts of ObjectOrientation and how they are handled in Java
			CO2	Understand Exceptions. How and when they should be handled
			CO3	Learn how to use Servlet and JSP and XML with JSP
			CO4	A presentation of Enterprise JavaBeans and how to use it
9	18 52D2	CSVISUAL PROGRAMMING	CO1	Contrast forward and backward rendering
			CO2	Construct CSG models from

				simple primitives, such as cubes and quadric surfaces.
			CO3	Analyze affine and vector geometry
			CO4	Understand Bezier and B-Spline Curves
10	18 52C2	CSMOBILE COMPUTING	CO1	Define Mobile Computing and look at current trends
			CO2	Distinguish between types of Mobility
			CO3	Examine Theory Research in Mobility
			CO4	Examine Systems Research in Mobility
11	18 51A3	CSDATA MINING	CO1	Student will be able to Understand the necessity of data preprocessing in construction of data warehouse.
			CO2	Student will be able to Analyze multidimensional data using OLAP tools to facilitate effective data mining.
			CO3	Student will be able to Apply the concepts of data analysis and clustering to postulate accurate classification model for a given problem.
			CO4	Student will be able to Recommend a methodology forming complex data types and detection of anomaly for

					the given application.
				CO1	Describe the uses of Digital Image Processing and its Applications, Image Acquisition and Image Enhancement
				CO2	Analyze image enhancement algorithms such as histogram modification, contrast manipulation, edge detection and restoration
12	18 52D3	CS	DIGITAL IMAGE PROCESSING	CO3	Inspect how Wavelet, Multi-resolution, Compression and Morphological Image Processing are realized
				CO4	Illustrate Image Segmentation, Representation and Description and Object Recognition process
13	18 51A1	CS	Soft Computing	CO1	Explain soft computing differentiating hard and soft computing and enumerate briefly overview of fuzzy systems , neural networks and genetic algorithms
				CO2	Demonstrate a fuzzy controller using fuzzy logic systems
				CO3	Interpret pattern recognition using artificial neural network
				CO4	Interpret Genetic algorithms

					and operations,.
			Machine Learning and pattern	CO1	Understand and apply the differences among the styles of learning: supervised, reinforcement, unsupervised and parametric methods
			Classification	CO2	Comprehend probabilistic methods for learning and for classification
14	18 51A2	CS		CO3	Analyze the non parametric methods and decision trees to take the proper decision making.
				CO4	Understand rule based knowledge and Kernel machines to reduce the cost of various statistical methods , Bayesian Estimation, HMM models
15	18 51A4	CS	Natural Language Processing	CO1	Understand the concept of Essential Information Theory , Linguistic Essentials and Statistical Inference n-gram models
				CO2	Analyze Word Sense Disambiguation ,HMM and CFG
				CO3	Illustrate Text and Sentence Alignment, Clustering in detail.
				CO4	Explain Information Retrieval and Text Categorization, Perceptron

					in detail.
16	18 51B1	CSRequirements Engineering		CO1	This module aims to provide students comprehensive details to software engineering
				CO2	It gives an introduction to basic concepts, principles and techniques used in software engineering
				CO3	It discusses the nature of software and software projects, review of object orientation,
				CO4	software development on reusable technology, developing requirements, modelling with classes, design patterns,
17	18 51B2	CSPrinciples of Programming Languages			To introduce the major programming paradigms, and principles and techniques involved in
				CO1	design and implementation of modern programming languages.
				CO2	To introduce notations to describe syntax and semantics of programming languages.
					To introduce notations to describe syntax and semantics of programming languages.

				CO3	To introduce the concepts of ADT and object oriented programming for large scale software development.
				CO4	To introduce the concepts of concurrency control and exception handling
18	18 51B3	CSCompiler Design		CO1	To understand the overall compiler architecture and design of Lexical Analyzer
				CO2	To construct the parser using the Yacc tool
				CO3	To analyze Syntax directed definition and its translations schemes, intermediate code
				CO4	To apply the code optimization and generation techniques in the development of a compiler.
19	18 51B4	CSSoftware Testing & Quality Assurance		CO1	To develop methods and procedures for software development that can scale up for large systems and can be used to produce high-quality, cost effective software at low cost and less time
				CO2	To nurture systematic

				learning approach to development, operation, maintenance, and retirement of software	
		CO3	To impart methods and tools of testing and maintenance of software		
		CO4	To enlighten students on the usage of available resources for software development and quality maintenance with less budget.		
20	18 CS 52C1			Cryptography & Network Security	CO1 To understand the classic ciphers and world war II ciphers
		CO2	To understand the Stream Ciphers		

						and Block Ciphers	
					CO3	To illustrate and examine Hash Functions	
					CO4	To describe the Public Key System and analyze attacks on Public Key System	
21	18	CS	High Performance Computing	52C3	CO1 CO2	fundamental concepts and techniques in parallel computation structuring including parallelization methodologies and paradigms, parallel programming models, their implementation, and related cost models	
					CO3		architectures of high performance

						computing systems,
		performance computing systems,				
		CO4	including shared memory multiprocessors, distributed memory multicomputers, clusters, and others.			
	22	18 CS 52C4		Network management Systems	CO1	Understand general concepts and architecture behind standards based network management
		CO2	Understand concepts and terminology associated			

					with SNMP and TMN
CO3					Appreciate network management as a typical distributed application
CO4					Understand Advanced Information Processing Techniques
23	18 52D1	CS	Service Oriented Architecture	CO1 CO2 CO3 CO4	introduce the concepts and design principles of SOA, Non-technical aspects such as governance, impact on culture and organization, various interoperability standards, technology infrastructure security considerations associated with SOA implementations.
24	18	CS	Big Data	CO1	Explain the big data that is

			emerging from multiple big data sources in terms of velocity, variety and veracity
52D4	Analytics	CO2	Illustrate the technologies, processes and methods for analyzing big data
		CO3	Demonstrate the key principles of data analysis using the R tool
		CO4	Examine advanced Graphs, Regression, Forecasting and Time Series models using R analytical platform.

2032. M.Tech-Machine Learning and Computing

PROGRAM OUTCOMES

PO 1	Apply the knowledge of computer engineering principles and paradigms in the design of system components and processes that meet the specific Artificial intelligence and Machine learning needs of the industry.
PO 2	Identify, analyze and formulate solutions to complex engineering problems using innovative and emerging technologies in Artificial intelligence and Machine learning.
PO 3	Effectively communicate technical information in speech, presentation and documentation.
PO 4	Extract information relevant to novel problems and apply appropriate research methodology to develop scientific knowledge in Artificial intelligence and Machine learning.
PO 5	Self-learn and pursue higher studies to upgrade qualifications and attain constructive growth in profession as a Artificial intelligence and Machine learning expert.

PROGRAM EDUCATIONAL OUTCOMES

PEO 1	Develop technologically competent computer professionals in today's IT centric scenario by training them in the contemporary software engineering principles and paradigms.
PEO 2	Provide students a deep insight into various cutting edge technologies& tools and thereby creating diverse career opportunities.
PEO 3	Improve analytical, logical and presentation skills of the students by applying evolving technologies of software engineering in developing practical solutions to complex problems in consonance with the legal and ethical responsibilities.
PEO 4	Provide the students with project engineering and management skills catering to the changing industry needs and constraints across the advancing domains of computing.

PROGRAM SPECIFIC OUTCOMES

PSO1	Make valuable contributions to design, development, and production in the practice of computer science and related engineering or application areas, particularly in Artificial intelligence and Machine learning.
PSO2	Provide exposure of latest software tools and technologies in the area of engineering and technology in Artificial intelligence and Machine learning.
PSO3	Publish a research paper on the findings of research conducted in the domain of Artificial intelligence and Machine learning.

COURSE OUTCOMES (CO)

S NO	Course Code	Course Title	CO NO	Description of the Course Outcome

1	18 CS 5109	Optimization Techniques	CO1	Describe and explain the basics of linear, non linear, and discrete optimization
			CO2	analyze in depth key network optimization problems
			CO3	give detailed descriptions of applications of network optimization to practical engineering problems
			CO4	develop a research project and contribute to research frontiers in the area
2	18 CS 5110	Applied Statistics	CO1	Implement and apply appropriate statistical models
			CO2	Implement a variety of mathematical, statistical, and data analysis techniques to model and analyze complex problems, and demonstrate competence in analyzing data using methods embedded in their courses.
			CO3	Solve a real-world problem using appropriate statistical procedures with a focus on precision and accuracy
			CO4	Communicate statistical ideas clearly, in verbal form, using appropriate statistical terminology
3	18 CS 5111	Data Mining	CO1	Student should be able to Understand the necessity of data preprocessing in construction of data warehouse.
			CO2	Student should be able to Analyze multidimensional data using OLAP tools to facilitate effective data mining.
			CO3	Student should be able to Apply the concepts of data analysis and clustering to postulate accurate classification model for a given problem.
			CO4	Student should be able to Recommend a methodology formining complex data types and detection of anomaly for the given Application.
4	18 CS 5112	Matrix Computation	CO1	Use sophisticated scientific computing and visualization environments to solve application problems involving matrix computation algorithms
			CO2	Analyze numerical algorithms, and understand the relationships between the computational effort and the accuracy of these algorithms
			CO3	Interpret the results produced by computer implementations of numerical algorithms
			CO4	Demonstrate the necessary analytical background for

				further studies leading to research in applied mathematics or related disciplines
5	18 CS 5113	Evolutionary And Natural Computing	CO1	The practicalities of natural computing methods: How to design algorithms for particular classes of problems
			CO2	Some of the underlying theory: How such algorithms work and what is provable about them.
			CO3	ssues of experimental design: How to decide whether an metaheuristic algorithm works well
			CO4	Swarm intelligence, particle swarms, differential evolution.
6	18 CS 5114	Discrete Mathematics		- Greedy randomized adaptive search procedure
			CO1	In this course, students should develop mathematical thinking and problem-solving skills associated with writing proofs.
			CO2	construction different of truth table
			CO3	Students should also be exposed to a wide variety of mathematical concepts that are used in the Computer Science discipline,
			CO4	which may include concepts drawn from the areas of Number Theory
7	18 CS 5115	Pattern Recognition And Machine Learning	CO1	Understand and apply the differences among the styles of learning: supervised, reinforcement, unsupervised and parametric methods
			CO2	Comprehend probabilistic methods for learning and for classification
			CO3	Analyze the non parametric methods and decision trees to take the proper decision making.
			CO4	Understand rule based knowledge and Kernel machines to reduce the cost of various statistical methods , Bayesian Estimation, HMM models
8	18 CS 5116	Computer Modeling And Simulation	CO1	Understand the foundations of computer simulations
			CO2	Use simulations tools to analyse computer networks and data communications
			CO3	Understand the interaction between simulation, planning, dimensioning, design
			CO4	implementation of computer networks

9	18 CS 51E1	Computer Vision And Image Processing	CO1	Describe the uses of Digital Image Processing and its Applications, Image Acquisition and Image Enhancement
			CO2	Analyze image enhancement algorithms such as histogram modification, contrast manipulation, edge detection and restoration
			CO3	Inspect how Wavelet, Multi-resolution, Compression and Morphological Image Processing are realized
			CO4	Illustrate Image Segmentation, Representation and Description and Object Recognition process
10	18 CS 51E2	Service Oriented Architecture	CO1	introduce the concepts and design principles of SOA,
			CO2	Non-technical aspects such as governance, impact on culture and organization,
			CO3	various interoperability standards, technology infrastructure
			CO4	security considerations associated with SOA implementations.
11	18 CS 51E3	Data Analysis	CO1	Explain the big data that is emerging from multiple big data sources in terms of velocity, variety and veracity
			CO2	Illustrate the technologies, processes and methods for analyzing big data
			CO3	Demonstrate the key principles of data analysis using the R tool
			CO4	Examine advanced Graphs, Regression, Forecasting and Time Series models using R analytical platform.
12	18 CS 51E4	Cloud Computing	CO1	Identify the appropriate cloud services for a given application
			CO2	Analyze Cloud infrastructure including Google Cloud and Amazon Cloud.
			CO3	Analyze authentication, confidentiality and privacy issues in Cloud computing environment.
			CO4	Determine financial and technological implications for selecting cloud computing platforms
13	18 CS 51F1	Artificial Neural Networks	CO1	The student will learn importance of data communications and the Internet in supporting business communications and daily activities.
			CO2	The student Explain how communication works in data

				networks and the Internet.
			CO3	The student Recognize the different internetworking devices and their functions.
			CO4	The student Explain the role of protocols in networking
14	18 CS 51F2	Application Development Frameworks	CO1	Describe and compare different mobile application models/architectures and patterns.
			CO2	Apply mobile application models/architectures and patterns to the development of a mobile software application.
			CO3	Describe the components and structure of a mobile development framework (Google's Android Studio).
			CO4	Demonstrate advanced Java programming competency by developing a maintainable and efficient cloud based mobile application.
15	18 CS 51F3	Big Data Analytics	CO1	Explain the big data that is emerging from multiple big data sources in terms of velocity, variety and veracity
			CO2	Illustrate the technologies, processes and methods for analyzing big data
			CO3	Demonstrate the key principles of data analysis using the R tool
			CO4	Examine advanced Graphs, Regression, Forecasting and Time Series models using R analytical platform.
16	18 CS 51F4	Cloud Security	CO1	Demonstrate knowledge of cloud security principles and mechanisms
			CO2	Demonstrate computer programming and configuration skills required to develop a cloud security infrastructure
			CO3	Identify cloud security weaknesses by recognising and discovering threats and vulnerabilities to cloud computing
			CO4	Demonstrate knowledge and skills to prepare for industry cloud security certificate exams e.g. CCSK, CCSP
17	18 CS 52G1	Control Theory	CO1	Test the controllability and observability of a given system; Design of pole assignment and observer using state feedback
			CO2	Identify and analyze non-linear systems using describing function analysis

				CO3	Analyze linear and non-linear systems using Lyapunov function and design Lyapunov function for stable systems
				CO4	Formulate an optimal control problem and design optimal control signal.
18	18 CS 52G2	Web Semantics		CO1	understand the concept structure of the semantic web technology and how this technology revolutionizes the World Wide Web and its uses.
				CO2	understand the concepts of metadata, semantics of knowledge and resource, ontology, and their descriptions in XML-based syntax and web ontology language (OWL).
				CO3	describe logic semantics and inference with OWL.
				CO4	Program semantic applications with Java API.
19	18 CS 52G3	Map Reduce Design Patterns		CO1	What is Hadoop and how can it help process large data sets
				CO2	How to use HDFS (the Hadoop Distributed Filesytem), from the command line and API, for effectively loading and processing data in Hadoop.
				CO3	How to ingest data from a RDBMS or a data warehouse to Hadoop
				CO4	Get introduced to tools like Pig, Hive, HBase, Elastic MapReduce etc. and understand how they can help in BigData projects.
20	18 CS 52G4	Data Centre Virtualization		CO1	Understand the value of data business and data management.
				CO2	Understand the physical components of a disk d rive and their functions.
				CO3	Understand the different storage systems used in data centres.
				CO4	Explain the different terminology used with Fibre Channel over Ethernet.
21	18 CS 52H1	Reinforcement Learning		CO1	Define the key features of reinforcement learning that distinguishes it from AI and non-interactive machine learning
				CO2	Given an application problem (e.g. from computer vision,

				robotics, etc), decide if it should be formulated as a RL problem
			CO3	Implement in code common RL algorithms such as a deep RL algorithm, including imitation learning
			CO4	Describe the exploration vs exploitation challenge and compare and contrast at least two approaches for addressing this challenge
			CO1	Understand the notion of an agent, how agents are distinct from other software paradigms (eg objects) and understand the characteristics of applications that lend themselves to an agent-oriented solution;
			CO2	Understand the key issues associated with constructing agents capable of intelligent autonomous action, and the main approaches taken to developing such agents;
22	18 CS 52H2	Multi Agent Systems	CO3	Understand the key issues in designing societies of agents that can effectively cooperate in order to solve problems, including an understanding of the key types of multi-agent interactions possible in such systems
			CO4	Understand the main application areas of agent-based solutions, and be able to develop a meaningful agent-based system using a contemporary agent development platform.
			CO1	Understand the classic ciphers and world war II ciphers
23	18 CS 52H3	Network Security	CO2	Understand the Stream Ciphers and Block Ciphers
			CO3	Illustrate and Examine Hash Functions
			CO4	Understand the classic ciphers and world war II ciphers
			CO1	Develop and deploy cloud application using popular cloud platforms,
			CO2	Design and develop highly scalable cloud-based applications by creating and configuring virtual machines on the cloud and building private cloud.
24	18 CS 52H4	Cloud Application Architectures	CO3	Explain and identify the techniques of big data analysis in cloud.
			CO4	Make recommendations on cloud computing solutions for an enterprise

2035. M.Tech-Digital Foremsics & Cyber Security

PROGRAM OUTCOMES

PO 1	Apply the knowledge of computer engineering principles and paradigms in the design of system components and processes that meet the Cyber Security And Digital Forensics needs of the industry.
PO 2	Identify, analyze and formulate solutions to complex engineering problems using innovative and emerging technologies in Cyber Security And Digital Forensics.
PO 3	Effectively communicate technical information in speech, presentation and documentation.

PO 4 Extract information relevant to novel problems and apply appropriate research methodology to develop scientific knowledge in Cyber Security And Digital Forensics.

PO 5 Self-learn and pursue higher studies to upgrade qualifications and attain constructive growth in profession as a Cyber Security And Digital Forensics expert.

PROGRAM EDUCATIONAL OUTCOMES

PEO 1 Develop technologically competent computer professionals in today's IT centric scenario by training them in the contemporary software engineering principles and paradigms.

PEO 2 Provide students a deep insight into various cutting edge technologies& tools and thereby creating diverse career opportunities.

PEO 3 Improve analytical, logical and presentation skills of the students by applying evolving technologies of software engineering in developing practical solutions to complex problems in consonance with the legal and ethical responsibilities.

PEO 4 Provide the students with project engineering and management skills catering to the changing industry needs and constraints across the advancing domains of computing.

PROGRAM SPECIFIC OUTCOMES

PSO1 Make valuable contributions to design, development, and production in the practice of computer science and related engineering or application areas, particularly in Cyber Security And Digital Forensics.

PSO2 Provide exposure of latest software tools and technologies in the area of Cyber Security And Digital Forensics.

PSO3 Publish a research paper on the findings of research conducted in the domain of Cyber Security And Digital Forensics.

COURSE OUTCOMES

Course Code	Course Title	SNO	CO NO	Description of the Course Outcome
18CS5117	Introduction to Cyber Security & ICS	1	CO1	understand Privacy, Cyber Laws and Ethics
		2	CO2	apply Cyber Security Threats
		3	CO3	understand Malware Fundamentals
		4	CO4	apply BCP, DR planning & Audit
18CS5118	Digital Forensics	5	CO1	understand Digital Forensics and Investigations
		6	CO2	apply Computing Device Forensics
		7	CO3	apply Mobile Phone Forensics
		8	CO4	apply Artifact analysis & Anti Forensics
18CS	Advance Network Security	9	CO1	understand Network Connectivity

5119	& Investigations	10	CO2	apply Network Protocols & Email Forensics
		11	CO3	analyse Network Attacks
		12	CO4	apply Network Penetration Testing
		13	CO5	analyse Network Investigation
18 CS 5120	Software Security	14	CO1	understand Web Security
		18	CO2	understand Web Hacking
		16	CO3	understand Protocol based Attacks
		17	CO4	understand Web Investigation
18 CS 5221	Cryptography for Cyber Defense	18	CO1	understand Encryption & Decryption
		19	CO2	apply cryptographic algorithms
		20	CO3	apply Security engineering principles
		21	CO4	To apply systems in public transportation
18 CS 5222	Malware Analysis & Reverse Engineering	22	CO1	to understand Introduction to Malware
		23	CO2	to understand Introduction to RE
		24	CO3	to analyse Malware Analysis
		25	CO4	to apply Malware Handling
18 CS 5223	Cyber Incident Response & Resilience	26	CO1	to understand Incident Response
		27	CO2	to understand Incident Response and Handling Process
		28	CO3	to understand Incident Response and Handling Process
		29	CO4	to understand Incident Response Team Members Roles and Responsibilities
18 CS 5224	Cyber Law, Governance & Compliance	30	CO1	to understand Computer ethics, Privacy & Legislation
		31	CO2	to understand Intellectual property issues in cyberspace
		32	CO3	to understand Cyber Forensics legal aspects
		33	CO4	to understand Compliances & Standards
18 CS 51I1	Mobile Device Threats & Investigation	34	CO1	to understand Mobile Application Functions
		35	CO2	to understand Mobile Hacking & Investigation
		36	CO3	to understand Securing smart OS
		37	CO4	to understand Mobile Device Management
18 CS 51I2	Fundamentals of E-Discovery	38	CO1	to understand General framework of e-Discovery
		39	CO2	To understand E-Discovery Data Collection
		40	CO3	to understand The role of sampling in ESI production disputes
		41	CO4	to understand Enterprise class e-mail vs.

				private email systems
			42	CO1 to Understand fuzzy sets and relations
18	CS	Fuzzy sets and Fuzzy Logic	43	CO2 to Apply fuzzification and defuzzification
51I3			44	CO3 to Apply membership functions
			45	CO4 to Analyse fuzzy optimization
			50	CO1 to understand Big Data and Database Evolution in Big Data
18	CS	Introduction to Big Data	51	CO2 to understand Comparison between SQL and NoSQL
51J1		Analytics	52	CO3 to understand Basics for Data Analytics
			53	CO4 to understand Using R
			54	CO1 To understand Social Networking
			55	CO2 to understand Graph Theory and Social Networks
18	CS	Social Media Forensics	56	CO3 to understand Intelligence gathering
51J2			57	CO4 to understand Semantic markup and common sense collide
			58	CO1 to understand different types of SCADA control systems
18	CS	Critical Information	59	CO2 to understand SCADA Physical and Logical Security
51J3		Infrastructure Security	60	CO3 to understand SCADA Remote Access
			61	CO4 to understand Understanding SCADA protocols
			66	CO1 to understand Operating System Internals
			67	CO2 to understand Mobile Operating System
18	CS	Infrastructure Attacks and	68	CO3 to understand Introduction to Network Security and Wireless Attacks
52S1		Defense	69	CO4 to understand Introduction to Cloud
			70	CO1 to understand Basics of Software Engineering
			71	CO2 to understand Introduction to Security & Authentication
18	CS	Software Vulnerability	72	CO3 to understand Application Security & Malicious Code
52S2		Analysis	73	CO4 to understand Programming Security fundamentals
18	CS	Parallel & Cloud Computing	74	CO1 to understand High Performance Computing
52S3			75	CO2 to understand Threats and Vulnerabilities
			76	CO3 to understand Basics of Cloud Computing

		77	CO4	to understand Cloud Forensics
18 52K1	CS Applied Cryptography	82	CO1	to understand Application of Cryptographic Concepts
		83	CO2	understand Cryptosystem
		84	CO3	understand Basic Steganography and Fundamentals of Steganalysis
		85	CO4	understand Applied Steganography
18 52K2	CS Software Modeling	86	CO1	understand UML & Testing
		87	CO2	understand Feasibility Analysis
		88	CO3	understand Java
		89	CO4	understand Python
18 52K3	CS Digital Image Processing	90	CO1	understand Image Enhancement in Spatial Domain
		91	CO2	understand Image Restoration
		92	CO3	understand Morphological Image Processing
		93	CO4	understand Segmentation

2041. M.Tech - Radar & Communication

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: Practice engineering in a broad range of industrial, societal and real world applications.

PEO2: Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Conduct themselves in a responsible, professional, and ethical manner.

PEO4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Program Outcomes

PO1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give

and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES

PSO1 An ability to Understand the theoretical and mathematical concepts to analyze real time problems.

PSO2 An Ability to Design and Analyze systems based on the theoretical and Practical Knowledge

2042. M.Tech - VLSI

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: Practice engineering in a broad range of industrial, societal and real world applications.

PEO2: Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Conduct themselves in a responsible, professional, and ethical manner.

PEO4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Program Outcomes

PO1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex

	engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES

PSO1	An abilityto Understand the theoretical and mathematical concepts to analyze real time problems.

PSO2 An Abilityto Design and Analyze systems based on the theoretical and Practical Knowledge

2044. M.Tech- Atmospheric Science

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: Practice engineering in a broad range of industrial, societal and real world applications.

PEO2: Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Conduct themselves in a responsible, professional, and ethical manner.

PEO4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Program Outcomes

PO1 **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and

design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES

PSO1 An abilityto Understand the theoretical and mathematical concepts to analyze real time problems.

PSO2 An Abilityto Design and Analyze systems based on the theoretical and Practical Knowledge

2052. M.Tech - Embedded Systems

PROGRAM EDUCATIONAL OBJECTIVES (PEOS) :

M. Tech. in Embedded Systems Program, graduates will be able to

PEO1: To mould the students to become effective global engineering students in the competitive environment of modern society.

PEO2: To develop communication, analytical, decision-making, motivational, leadership, problem solving and human relations skills of the students.

PEO3: To pursue lifelong learning as a means of enhancing knowledge and skills necessary to contribute to the betterment of profession.

PROGRAM OUTCOMES(PO's)

M. Tech. in Embedded Systems Program, Graduates will be able to:

PO1: To demonstrate the skills to meet the current and future industrial challenges in the field of embedded systems engineering.

PO2: Able to create, develop, apply, and disseminate knowledge within the embedded systems development environment.

PO3: Ability to communicate effectively and professionally.

PO4: Develop the professional and ethical attitude and become socially responsible citizens.

PO5: Ability to carry out cutting edge research in the emerging areas of Embedded Systems.

PO6: Demonstrate their role as engineers or entrepreneurs and contribute to society.

2061. M.Tech - Power Systems

Program Educational Objectives:

PEO 1: Acquiring engineering knowledge in a wide range of industrial, societal and real world applications

PEO 2 :Pursuing advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers

PEO 3: Managing themselves in a committed professional and ethical manner

PEO 4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world

Program Outcomes:

PO 1 : Ability to apply knowledge of mathematics, science, engineering fundamentals and engineering specialization for the solution of complex engineering problems

PO 2 : Ability to identify, formulate, research literature, analyze complex engineering problems using first principles of mathematics, natural sciences and engineering sciences

PO 3 : Ability to find solutions for complex engineering problems and system component of processes that meet the specified needs considering public health, safety and cultural, societal & environment

PO 4: Ability to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to obtain solutions to critical engineering problems

PO 5 : Ability to create, select and apply appropriate techniques, resources and modern engineering activities, with an understanding of the limitations

PO 6: Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO 7: Ability to demonstrate the knowledge of engineering solutions, contemporary issues understanding their impacts on societal and environmental contexts, leading towards sustainable development

PO 8: Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

PO 9 : Ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings

PO 10: Ability to communicate effectively verbal, written reports and graphical forms on complex engineering activities

PO 11: Ability to demonstrate knowledge and understanding of the engineering and management principles and apply those one's own work, as a member and leader in team, to manage projects and in multi-disciplinary environments

PO 12 : Ability to recognize the need and having the preparation and ability to engage independent and life-long learning in the broadest context of technological change

Program Specific Outcome's:

PSO 1: Ability to demonstrate the knowledge, skill to analyze the cause and effect on Electrical system, processes and systems

PSO 2: Ability to apply the acquired Electrical Engineering knowledge for the advancement of society and self

M.Tech. (PG):

Power Electronics and Drives:

Program Educational Objectives:

PEO 1: Post Graduates will become design engineers in top-notch power supply design and electrical drives industries

PEO 2: Post Graduates will pursue research in leading organizations to find innovative solutions for energy conservation through power converters and electric drive design

PEO 3: Post Graduates will become a part of teaching fraternity in shaping young graduates in electrical and electronics engineering

PEO 4: Post Graduates will become lifelong learners and critical thinkers

Program Outcomes:

PO 1: Apply the knowledge of science and mathematics in designing, analyzing and using the power converters and drives for various applications for problem solving

PO 2: Design the modern electric machines, drives, power converters, and control circuits for specific applications

PO 3: Use modern tools, professional software platforms, embedded systems for the diversified applications

PO 4: Function as a member of a multidisciplinary team and correlate the domain knowledge for global problems.

PO 5: Demonstrate the communication at different levels effectively

PO 6: Explore ideas for inculcating research skills and appreciate, critical and independent thinking and engage in lifelong learning.

M.Tech. (PG):

Power Systems:

Program Educational Objectives:

PEO 1: To produce electrical power systems postgraduates, who are employable in public and private industries /institutes /organizations or pursue higher education.

PEO 2: To prepare postgraduates, who have the ability to identify and address current and future problems in the domain of power systems, power Electronics and electrical machines.

PEO 3: To inculcate research attitude and lifelong learning among postgraduates

PEO 4: To produce leaders and scholars to serve in the field of education

Program Outcomes:

PO 1: Acquire in- depth knowledge in the domain of power systems and understanding of engineering principles for project management

PO 2: Ability to critically analyze various power system components, models and their operation

PO 3: Ability to apply fundamentals and concepts to analyze, formulate and solve complex problems of electrical power systems and its components

PO 4: Apply advanced concepts of electrical power engineering to analyze, design and develop electrical components, apparatus and systems to put forward scientific findings at national and

international levels

PO 5: Ability to use advanced techniques, skills and modern scientific and engineering tools for professional practice

PO 6: Preparedness to lead a multidisciplinary scientific research team, communicate effectively and lifelong learning

2062. M.Tech - Power Electronics and Drives

B.Tech.

Program Educational Objectives:

PEO 1: Acquiring engineering knowledge in a wide range of industrial, societal and real world applications

PEO 2 :Pursuing advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers

PEO 3: Managing themselves in a committed professional and ethical manner

PEO 4: Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world

Program Outcomes:

PO 1 : Ability to apply knowledge of mathematics, science, engineering fundamentals and engineering specialization for the solution of complex engineering problems

PO 2 : Ability to identify, formulate, research literature, analyze complex engineering problems using first principles of mathematics, natural sciences and engineering sciences

PO 3 : Ability to find solutions for complex engineering problems and system component of processes that meet the specified needs considering public health, safety and cultural, societal &

environment

PO 4: Ability to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to obtain solutions to critical engineering problems

PO 5 : Ability to create, select and apply appropriate techniques, resources and modern engineering activities, with an understanding of the limitations

PO 6: Ability to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO 7: Ability to demonstrate the knowledge of engineering solutions, contemporary issues understanding their impacts on societal and environmental contexts, leading towards sustainable development

PO 8: Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

PO 9 : Ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings

PO 10: Ability to communicate effectively verbal, written reports and graphical forms on complex engineering activities

PO 11: Ability to demonstrate knowledge and understanding of the engineering and management principles and apply those one’s own work, as a member and leader in team, to manage projects and in multi-disciplinary environments

PO 12 : Ability to recognize the need and having the preparation and ability to engage independent and life-long learning in the broadest context of technological change

Program Specific Outcome's:

PSO 1: Ability to demonstrate the knowledge, skill to analyze the cause and effect on Electrical system, processes and systems

PSO 2: Ability to apply the acquired Electrical Engineering knowledge for the advancement of society and self

M.Tech. (PG):

Power Electronics and Drives:

Program Educational Objectives:

PEO 1: Post Graduates will become design engineers in top-notch power supply design and electrical drives industries

PEO 2: Post Graduates will pursue research in leading organizations to find innovative solutions for energy conservation through power converters and electric drive design

PEO 3: Post Graduates will become a part of teaching fraternity in shaping young graduates in electrical and electronics engineering

PEO 4: Post Graduates will become lifelong learners and critical thinkers

Program Outcomes:

PO 1: Apply the knowledge of science and mathematics in designing, analyzing and using the power converters and drives for various applications for problem solving

PO 2: Design the modern electric machines, drives, power converters, and control circuits for specific applications

PO 3: Use modern tools, professional software platforms, embedded systems for the diversified

applications

PO 4: Function as a member of a multidisciplinary team and correlate the domain knowledge for global problems.

PO 5: Demonstrate the communication at different levels effectively

PO 6: Explore ideas for inculcating research skills and appreciate, critical and independent thinking and engage in lifelong learning.

M.Tech. (PG):

Power Systems:

Program Educational Objectives:

PEO 1: To produce electrical power systems postgraduates, who are employable in public and private industries /institutes /organizations or pursue higher education.

PEO 2: To prepare postgraduates, who have the ability to identify and address current and future problems in the domain of power systems, power Electronics and electrical machines.

PEO 3: To inculcate research attitude and lifelong learning among postgraduates

PEO 4: To produce leaders and scholars to serve in the field of education

Program Outcomes:

PO 1: Acquire in- depth knowledge in the domain of power systems and understanding of engineering principles for project management

PO 2: Ability to critically analyze various power system components, models and their operation

PO 3: Ability to apply fundamentals and concepts to analyze, formulate and solve complex problems of electrical power systems and its components

PO 4: Apply advanced concepts of electrical power engineering to analyze, design and develop

electrical components, apparatus and systems to put forward scientific findings at national and international levels

PO 5: Ability to use advanced techniques, skills and modern scientific and engineering tools for professional practice

PO 6: Preparedness to lead a multidisciplinary scientific research team, communicate effectively and lifelong learning

2071. M.Tech - Thermal Engineering

Program Educational Objectives

B.Tech. – Mechanical Engineering

•Practice Engineering in a broad range of industrial, societal and real world applications.

•Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

•Conduct themselves in a responsible, professional, and ethical manner.

•Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

M.Tech. – Machine Design

•Demonstrate a breadth of knowledge of Design of Machine elements.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Machine and Mechanical Systems.

•Demonstrate knowledge of contemporary issues in their chosen focused area.

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Robotics and Mechatronics

•Demonstrate a breadth of knowledge of Mechatronics.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Mechatronics.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Thermal Engineering

•Demonstrate a breadth of knowledge of Thermal Engineering.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Thermal Engineering.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

2072. M.Tech - Robotics and Mechatronics

Program Educational Objectives

B.Tech. – Mechanical Engineering

•Practice Engineering in a broad range of industrial, societal and real world applications.

•Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

•Conduct themselves in a responsible, professional, and ethical manner.

•Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

M.Tech. – Machine Design

•Demonstrate a breadth of knowledge of Design of Machine elements.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Machine and Mechanical Systems.

•Demonstrate knowledge of contemporary issues in their chosen focused area.

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Robotics and Mechatronics

•Demonstrate a breadth of knowledge of Mechatronics.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Mechatronics.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Thermal Engineering

•Demonstrate a breadth of knowledge of Thermal Engineering.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Thermal Engineering.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

2073. M.Tech - Machine Design

Program Educational Objectives

B.Tech. – Mechanical Engineering

•Practice Engineering in a broad range of industrial, societal and real world applications.

•Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

•Conduct themselves in a responsible, professional, and ethical manner.

•Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

M.Tech. – Machine Design

•Demonstrate a breadth of knowledge of Design of Machine elements.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Machine and Mechanical Systems.

•Demonstrate knowledge of contemporary issues in their chosen focused area.

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Robotics and Mechatronics

•Demonstrate a breadth of knowledge of Mechatronics.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Mechatronics.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

M.Tech. – Thermal Engineering

•Demonstrate a breadth of knowledge of Thermal Engineering.

•Demonstrate a depth of knowledge in a chosen focus area, inside or outside of Thermal Engineering.

•Demonstrate knowledge of contemporary issues in their chosen focused area

•Demonstrate the ability to independently complete a technical project.

2220. M.Sc (Physics)

PROGRAMME OUT COMES: (PO :)

1. Ability to understand the scope and principle of Physics
2. Ability to solve the physical problems by applying physics principles
3. Ability to analyse the outcomes of Physics and electronics experiments and their product.
4. Ability to demonstrate the knowledge in physics for managing the physics projects effectively.
5. Ability to connect the latest developments in Physics with the knowledge attained during academics and come up with better ideas.
6. Excellence in the research related to Physics and Materials characterization.

2230. M.Sc (Chemistry)

Program Educational Objectives

- **PEO-1:** To prepare students in diverse fields of Chemical Sciences such as pharmaceutical, chemical, polymer, advanced material, energy, and in the fields of Societal expectations on time.
- **PEO-2:** To prepare students for advanced studies in Chemistry and its allied fields.
- **PEO-3:** To ensure our students to achieve excellence and get selected for Government and other professional positions and inculcate leadership qualities.
- **PEO-4:** To develop graduate's skills and awareness to become socially, ethically and morally responsible individual in all the challenges they take over, in our communities and in the field of chemical Sciences.

2510. Master of Business Administration

KLU BUSINESS SCHOOL

MBA PEO'S & PO'S

PROGRAM EDUCATIONAL OBJECTIVES (PEOS) :

To be a globally renowned university, as per our vision, we need to produce quality products (graduates) into the market who have potential strengths to meet all the professional and personal challenges prevailing at global levels and who can serve in all the possible positions of their respective job domains and contribute towards holistic growth of their respective employment providers as well as the nation, world. The graduates must also possess cutting edge R&D skills in their domain areas.

This, is exactly what has been framed into the University's Mission and thereby the Mission has converged into the following **Program Educational Objectives (PEOs)** which are best suited to Post-graduate Management program, and are those that compliment the university vision, mission.

PROGRAM EDUCATION OBJECTIVES:

1. Make students to apply techniques of business analysis, data management and problem-solving skills in order to support business management decision-making in the field of relevance.

2. Inculcate leadership skills needed for implementing and coordinating organizational activities and managing change to explore business problems in depth for developing their functional knowledge to think strategically and to lead, motivate and manage teams across borders.
3. Nurture with abilities to integrate business knowledge and management techniques to aid planning and control in a changing environment and to enhance better career paths.

These PEOs are designed to be attained by all the post-graduates within 2 years of their education.

PROGRAM OUTCOMES (PO's) PO Number	**Description**
a. **Core Business Knowledge**	Able to synthesize the knowledge, management skills, and tools acquired in the program, which will be helpful to shape the organizations effectively.
b. **Career Planning and Decision Making**	Able to excel in their chosen career paths, by learning on how to live, adapt and manage business environmental change through decision making.
c. **Critical Thinking and Leadership**	Able to reflect upon and explore business and research problems in depth, to demonstrate leadership skills and to demonstrate ability to pursue new knowledge necessary to succeed in dynamic domestic and international business environments.
d. Manager & Society	Able to emerge as efficient managers equipped with innovation, rationality and application oriented decision-making in the context of the ever-changing business environment.
e. Team Building & Business Communication	Able to communicate effectively and to perform different roles efficiently as an individual or in a team in multi-disciplinary streams with entrepreneurial edge.

f. Business perspective and Sustainability	Able to gain an understanding of professional, legal, financial, marketing, production & operational activities, logistics, ethical, social issues and responsibilities
g. Application of Statistical and Analytical tools	Able to gain knowledge of contemporary issues and develops an art of using current techniques, skills and necessary analytical tools for managerial practice.