



Where talent meets opportunity

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

SCHOOL OF ENGINEERING

**VISION, MISSION, PROGRAMME
OUTCOMES, PROGRAMME SPECIFIC
OUTCOMES & COURSE OUTCOMES**

www.sssutms.co.in

Opp.Oilfed Plant, Bhopal-Indore Road,Sehore (M.P), Pin - 466001



(+91) 07562-292740 | 7562292720

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for Undergraduate Degree Courses in Engineering & Technology Department of Aeronautical Engineering

(1) **Vision:** To develop technically competent Aeronautical Engineers of the highest academic standards, to meet the national and global requirements of industry and society.

(2) **Mission:**

To inculcate the students with well-designed teaching and learning process in all spheres of Aeronautical Engineering by nurturing them in to skillful and ethical professionals in their pursuit.

(3) **Program Educational Preambles (PEO's):**

PEO-1 Graduates of the programme will have successful professional careers in industry, government, academia, Space, and Defense with innovative ideas, sustained interest and potential to contribute for the development and current needs of the aeronautical industries in the country and the world.

PEO-2 To Prepare the exhibit skills to work individually and as part of the team with ethics as per needs of the aeronautical industries in the country and the world.

PEO-3 To develop the expertise in theoretical and experimental aspects of different domains of aeronautical engineering.

(4) **Programme Outcomes (PO's):**

PO-01: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of aircraft problems.

PO-02: Problem Analysis: To Identify the existing/future problem in aeronautical engineering and to formulate, review research literature, and analyze problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO-03: Design/development of solutions: Design solutions for aircraft and its components or processes that meet the needs with appropriate consideration for the public health and safety, and the cultural, Societal and environmental considerations.

PO-04: Investigation: To conduct investigation such as crashed aircraft and take the input as a research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-05: Modern Tool Usage: Create, select, and apply appropriate techniques in aviation, resources and modern aeronautical engineering and IT tools including prediction and modeling to complex aeronautical engineering activities with an understanding of the limitations.


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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for Undergraduate Degree Courses in Engineering & Technology Department of Aeronautical Engineering

PO06: 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.

PO-07: Environment and Sustainability: Understand the impact of the professional aeronautical engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development in aviation.

PO-08: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Aeronautical Engineering practice.

PO-09: Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings and environment of Aeronautical Engineering.

PO-10: Communication: Communicate effectively on aerospace engineering problem and 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.

PO-11: Project Management: Demonstrate aircraft knowledge and understanding of the aviation 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.

PO-12: Life-Long Learning: Recognize the need for aircraft, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change in aviation.

(5) Program Specific Outcomes (PSOs)

PSO-1 Design, analyze, interpret, formulate and to find the solution for Aerospace related problems.

PSO-2 Ability to excel in aero modeling, UAV design, Aircraft Structures, Computational Aerodynamics and Combustion related problems.


Faculty of
Sri Satya Sai University of Technology
& Medical Sciences, Sehore (M.P.)





SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for Undergraduate Degree Courses in Engineering & Technology Department of Aeronautical Engineering

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO 2	PO3	PO4	PO5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO 12	PSO 1	PSO 2	
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning			
1	BE (A E)	Humanities and Social Sciences including Management Courses	*	*			*	*		*		*		*			
2		Basic Science Courses	*	*	*	*	*		*								
3		Engineering Science Courses Including Workshop, Drawing, Basics of Electrical/Mechanical/Computer etc.	*	*	*			*							*	*	*
4		Professional Core Courses	*	*	*	*		*			*	*		*		*	*
5		Professional Elective Courses relevant to chosen specialization/branch	*	*	*	*		*	*		*	*		*	*	*	*
6		Open subjects – Electives from other Technical and /or Emerging *Subjects	*	*	*	*		*	*	*	*	*		*	*	*	*
7		Project Work, Seminar and Internship in Industry or elsewhere	*	*	*	*		*	*	*	*	*	*	*	*		*
8		Specific Core Subject		*	*	*											


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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for Undergraduate Degree Courses in Engineering & Technology Department of Aeronautical Engineering

9	Mandatory Course (Non Credit)																
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(07) Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO11	PO1 2	PSO 1	P S O 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life - Long Learning		
Semester-Ist	Mathematics-I	*	*	*	*								*	*	*
	Engineering Physics	*	*		*								*	*	
	Basic Computer Engineering	*	*	*	*	*			*		*		*		
	Basic Mechanical Engineering	*	*	*	*	*									
	Basic Civil Engineering & Mechanics	*	*	*				*							
	Language Lab					*		*	*	*			*		
	Self-Study / GD Seminar		*	*	*	*		*	*			*	*		
Semester-IIInd	Mathematics-II	*	*	*	*								*	*	*
	Engineering Chemistry	*	*	*	*									*	*
	English for Communication	*							*	*	*		*	*	
	Basic Electrical & Electronics Engineering	*	*	*	*										
	Engineering Graphics	*	*	*	*										*
	Manufacturing Practices	*				*		*	*	*	*	*	*	*	
	Industrial Training			*	*		*	*	*	*	*	*	*	*	*
Semester-IIIrd	Mathematics - III	*	*	*	*									*	*
	Elements of Aeronautics		*	*			*							*	*
	Fluid	*	*	*			*							*	*


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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for

Undergraduate Degree Courses in Engineering & Technology

Department of Aeronautical Engineering

	Mechanics																		
	Thermodynamics	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Strength of Materials	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Computer Programming	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Self-Study /GD Seminar		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Semester-IVth	Energy, Ecology, Environment & Society					*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Systems and Instrumentation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aerodynamics I	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Propulsion I	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Structure I	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Java Programming			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Industrial Training-I		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Semester-Vth	Aircraft Structure -II		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aerodynamics -II		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Propulsion -II		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Basics Aircraft Maintenance & Repair						*	*	*	*	*	*	*	*	*	*	*	*	*
	Theory of Vibration	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Nano Science & Technology	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Heat and Mass Transfer	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Industrial Training-II		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Semester VIth	Aircraft Design	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Stability & Control	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Aircraft Rules & Regulation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Wind Tunnel Techniques	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Fuel & Combustion	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Maintenance of Radio & Communication Systems	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Product Design &	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for Undergraduate Degree Courses in Engineering & Technology Department of Aeronautical Engineering

	Development																			
	Management and Entrepreneurship		*	*	*			*											*	
	Minor Project	*																		
Semester VIIIth	Computational Fluid Dynamics	*	*	*	*	*	*	*												*
	Rockets and Missiles	*	*	*	*															
	Air Traffic Control and Planning	*	*	*	*	*														
	Flight Instrumentation	*	*	*	*			*		*				*	*					
	UAV System	*	*	*	*															
	Fatigue and Fracture system	*	*	*	*			*												
	Project Stage-I			*	*															
	Self-Study/GD/Seminar		*	*	*	*	*	*	*	*				*	*					
	Finite Elements Methods	*	*	*	*														*	*
Semester VIIIth	Avionics	*	*	*	*													*	*	
	Industrial Aerodynamics	*	*	*	*	*				*			*	*						
	Economic Policies in India		*			*														
	Internet of Things		*	*					*											
	Project Stage-II	*	*		*														*	
I/III/V (preferred Semester)	Mandatory Courses							*	*	*	*	*	*	*						

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits*= 160


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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Aeronautical Engineering

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the EE Curriculum
1.	Humanities and Social Sciences including Management	11
2.	Basic Sciences	24
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	52
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	18
6.	Open Subjects: Electives from other technical and/or emerging subjects	18
7.	Project work, seminar and internship in industry or elsewhere	18
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

*Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Chemical Engineering

(1) **Vision:** To contribute towards service and development of the mankind, through quality education and research in the area of Science, Technology and Management.

(2) **Mission:** To create quality manpower equipped with technical skills, social values, leadership, creativity, and innovation for the benefits, betterment of mankind and sustainable development of the nation.

(3) **Program Educational Preambles (PEO's):**

PEO 1: To prepare students for advanced studies in Chemical Engineering and its allied fields.

PEO 2: To prepare students for successful practice in the fields of chemical engineering such as pharmaceuticals, chemicals, polymers / advanced materials, energy, biotechnology, and environmental engineering and in the fields of societal expectations on time.

PEO 3: To develop students' 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 engineering.

(4) **Programme Outcomes (PO's):**

PO-01: Engineering Knowledge: Students will have an ability to apply knowledge of mathematics, science, and engineering to chemical engineering problems.

PO-02: Problem Analysis: Ability to command chemical engineering fundamentals such as mass and energy balances, chemical thermodynamics, fluid dynamics, solid and fluid transport, mass and energy transport, chemical kinetics and integrate into a functional chemical process along with instrumentation and process control.

PO-03: Design/Development of Solution: 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.

PO-04: 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.

PO-05: Modern Tool Usage: Apply knowledge of chemical engineering to identify, formulate & solve recent industrial problems using modern engineering tools. Ability to develop proficiency in applying modern computational tools such as ASPEN, MATLAB, ANSYS for successful modeling and simulation.

PO-06: The Chemical engineer and society: Apply reasoning informed by the contextual knowledge of chemical engineering to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to chemical engineering practice.

PO-07: Environment and Sustainability: Ability to design equipments and processes in the field of chemical engineering considering the economic efficiency, safety, ethics and environmental responsibilities.

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Chemical Engineering

PO-08: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the chemical engineering practices.

PO-09: Individual and Team Work: Function effectively as a chemical engineering professional, individual and member or leader in diverse technical teams related to area of chemical engineering.

PO-10: Communication: Communicate effectively on complex engineering activities specifically chemical engineering related 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.

PO-11: Project management and finance: Demonstrate knowledge and understanding of the chemical 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.

PO-12: Life-Long Learning: Ability to carry out interdisciplinary research and engage in life-long learning process in the fields of environmental engineering, nano-science and technology, bio-energy, biochemical engineering, pharmaceutical engineering, material engineering.

(5) Program Specific Outcomes (PSOs)

PSO-1 Automate and control processes by applying mathematics, process control, instrumentation, simulation and process modeling.

PSO-2 Create successful Chemical Engineering graduates to understand the basic concepts of the Chemical Engineering and to apply them to various core and allied areas like petrochemical technology and environmental management etc.

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Chemical Engineering

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO 3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PSO 1	PSO 2
			Engi neeri ng Knowlodge	Probl em Anal ysis	Desi gn/ Develo pment of Solu tion	Con duct inve stigations of com plex prob lems	Mo der n Too l Usa ge	The Che mical engin eer and socie ty:	Enviro nment and Sustai nabilit y	Ethics	Indivi dual and Team Work	Com muni cation	Proje ct manage ment and finance	Life - Lon g Lear ning		
1	BE(CM)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*							*		
4		Professional core courses	*	*	*	*										
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*		*	*					
6		Open subjects - Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*			*	*	*
7		Project work, seminar and internship in industry or elsewhere		*	*	*		*	*	*	*	*	*	*		*
8		Specific core subject		*	*	*										
		Mandatory Course (Non credit)						*	*	*	*	*		*		



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Chemical Engineering

(07) Semester Wise PO's and SPO's Mapping

Semester	Name of the Courses/POs(Basic, Core, Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
Semester-Ist	Mathematics-I	*	*	*	*								*		
	Engineering Physics	*	*		*								*		
	Basic Computer Engineering	*	*	*	*	*			*		*		*		
	Basic Mechanical Engineering	*	*	*	*	*									
	Basic Civil Engineering & Mechanics	*	*	*				*						*	
	Language Lab					*			*	*	*		*		
	Self Study / GD Seminar	*	*	*	*	*			*	*		*	*		
Semester-IInd	Mathematics-II	*	*	*	*								*		
	Engineering Chemistry	*	*	*	*										
	English for Communication	*									*			*	
	Basic Electrical & Electronics Engineering	*	*	*	*										
	Engineering Graphics	*	*	*	*										*
	Manufacturing Practices					*			*	*	*	*	*		
	Industrial Training			*	*		*	*	*	*	*	*	*	*	
Semester-IIIrd	Mathematics -III	*	*	*	*										
	Chemical Engineering Thermodynamics	*		*	*				*	*			*		
	Advance Engineering Chemistry	*		*	*		*						*		
	Material & Energy Balance	*		*	*	*						*			
	Chemical Instrumentation	*	*			*		*		*					
	Computer Programming-I	*	*	*	*	*									
	Self study /GD Seminar		*	*	*	*	*	*	*		*	*	*		
Semester-IVth	Energy, Ecology, Environment & Society						*	*		*				*	
	Fluid Particle Mechanics	*		*	*	*			*						
	Fluid Mechanics	*	*	*	*	*		*							
	Fuel Technology	*	*	*	*	*	*								*

SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Chemical Engineering

	Inorganic Process Technology	*						*											
	Computer Programming-II			*	*	*													*
	Industrial Training-I		*	*		*	*	*	*	*			*	*					*
Semester-5th	Heat Transfer	*	*		*	*													
	Mass Transfer-I	*	*	*	*														
	Chemical Reaction Engineering-I	*	*	*	*														
	Organic Process Technology	*							*										
	Oil & Paint Technology		*			*			*	*									
	Petroleum Processing Technology		*	*				*											
	Conventional & Non-Conventional Energy Sources		*	*	*				*										
	Industrial Training-II		*	*	*	*	*	*	*	*	*			*	*				*
Semester-6th	Mass Transfer-II	*	*	*	*	*	*												
	Chemical Reaction Engineering-II	*	*	*	*														
	Transport Phenomena	*			*	*													
	Bio Chemical Engineering			*	*	*													
	Environmental Pollution & Pollution Control				*			*	*			*							
	Fertilizer Technology		*	*	*	*													
	Nano Technology in Catalysis				*	*	*					*							
	Fluidization Engineering		*		*	*													
	Minor Project		*	*	*	*	*	*	*	*	*			*	*				*
Semester-7th	Process Control	*		*	*	*				*									
	Numerical Method in Chemical Engineering	*		*	*	*	*												
	Polymer Technology	*	*	*			*												
	Multi-Phase Flow	*			*														
	Food Technology	*		*															



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Department of Chemical Engineering

	Optimization Methods			*			*			*				
	Project Stage-I		*	*	*	*	*	*	*	*	*	*	*	*
	Self Study/GD/Seminar		*	*	*	*	*	*	*	*	*	*	*	*
Semester VIIIth	Chemical Process Modeling and Simulation	*		*	*									
	Chemical Process Equipment Design		*			*	*	*	*					
	Novel Separation Technology	*		*	*	*								
	Safety and Risk Analysis		*	*			*	*						
	Petrochemical Technology						*	*	*	*	*	*	*	*
	Project Stage-II		*	*	*	*	*	*	*	*	*	*	*	*
VIIIIV (preferred Semester)	Mandatory Courses							*	*	*	*	*	*	*

(08) Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the CM Curriculum
1.	Humanities and Social Sciences including Management	11
2.	Basic Sciences	24
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	52
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	18
6.	Open Subjects: Electives from other technical and/or emerging subjects	18
7.	Project work, seminar and internship in industry or elsewhere	18
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Civil Engineering

Vision:

To become a School of Excellence that brings out Civil Engineers with high technical competencies and promotes high-end research to meet the current and future challenges in Civil Engineering.

Mission:

Accomplish excellence in curricular, co-curricular activities with a committed faculty through teaching and research which creates technically competent and dedicated civil engineers to serve their surroundings with pride.

> Programme Educational Objectives: (PEO's):

PEO-01: Practice civil engineering in construction industry, public sector undertaking and as an entrepreneur for successful professional career.

PEO-02: Pursue higher education for professional development

PEO-03: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs. And To develop students to use modern techniques, skill and mathematical engineering tools for solving problems in Civil Engineering.

> Programme Outcomes (PO's) :

PO-01: Engineering knowledge: a good civil engineer must possess solid knowledge of mathematics and physics and they also need to be able to use special design software packages, and has skills surrounding metal fabrication for Denver projects and other cities requirements.

(Apply laws of physics (eg. Hook's law, etc.,) to compute different types of response (stress and deformation) in the given materials).

PO-02: Problem analysis: Analyze structural elements for different force systems to compute design parameters (BM and SF).

PO-03: Design/development of solutions: demonstrate an ability to Design solutions for complex civil engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

(Design compression elements using civil engineering principles to resist any given loads).

PO-04: Conduct investigations of complex problems: Problems involve one or more of: design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; engineering operations; project management; research, development and commercialization.

PO-05: Modern tool usage: Creating of models of complex structural engineering activities with an understanding of the limitations by IT tools including prediction and modeling such as AutoCAD, ETABS, and SAP2000.

PO-06: The engineer and society: the field of construction, the building and the built environment have to satisfy some of the important criteria Biodiversity Enhancement, Support to the Community, Effective User of Resources, Pollution Reduction, Creating Healthy Environment and Process Management etc.

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Sri Satya Sai University of Technology
& Medical Sciences



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Civil Engineering

PO-07: Environment and sustainability: Construction has a direct impact on the environment due to Generation of waste materials, Emissions from vehicles, machineries, Noise pollution due to use of heavy vehicles and construction machineries, Releases of wastes and pollutants into water, ground and atmosphere.

PO-08: Ethics: Apply his/her technical skills to create, improve, and maintain "beautiful national land," "safe and comfortable livelihood," and "prosperous society", thus contributing to society through his/her knowledge and virtue with an emphasis upon his/her dignity and honor.

PO-09: Individual and team work: One of the main duties of a licensed civil engineer is to monitor and evaluate the progress of work completed at a jobsite, and making sure staff are in compliance with design documents, project plans, and other rules and regulations.

PO-10: Communication: The civil engineer is in charge of the entire construction process and supervises the work of everyone involved from Contractors and Architects to technicians and suppliers and handles the communication with government authorities as well, so very strong communication and organizing skills are also indispensable.

PO-11: Project management and finance: Civil Engineers usually work as part of a team or as team leaders, therefore they need advanced soft skills, such as problem solving and planning skills as well. Manage projects in multidisciplinary environments.

PO-12: Life-long learning: Civil Engineers apply the available solutions in physical environments and therefore need to be able to innovate, to find new ways of solving situations in a safe and efficient manner, which involves a great deal of creative thinking.

➤ **PROGRAM SPECIFIC OUTCOMES (PSOs) OF THE PROGRAMME**

These outcomes are specific to a program in addition to NBA defined POs

Civil Engineering can have PSOs as:

- PS01: Able to analyse and design building structural systems.
- PS02: Able to provide design solutions to water supply and sewage systems.
- PS03: Able to identify and analyse transportation engineering problems and provide solutions for the benefit of society.

➤ **COs, POs and PSOs Mapping**

Every course leads to some outcomes. All the courses must cover the stated list of PO/PSO outcomes. One way of verifying this is to prepare a match matrix as shown below. In the table below * could also be a number- typically in (*) indicating level of attainment.


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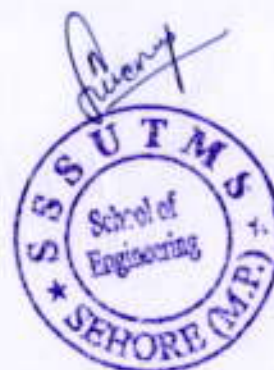


SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Civil Engineering

Programme PO's and PSO's Mapping

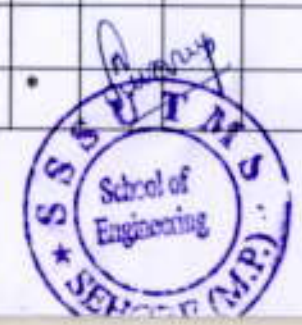
S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning			
1	BE(CE)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*			
2		Basic Science courses	*	*	*	*	*		*								
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*	*	*							*			
4		Professional core courses	*	*	*	*	*										
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*	*				*	*	
6		Open subjects – Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*				*		
7		Project work, seminar and internship in industry or elsewhere		*	*	*		*	*	*	*	*	*	*	*		
8		Specific core subject		*	*	*		*		*	*						*
9		Mandatory Course (Non credit)							*	*	*	*	*	*	*		

RESISTANCE
 Sri Satya Sai University of Technology
 & Medical Sciences, Sehore (M.P.)



Semester	Name of the Courses/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
		Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning			
Semester-Ist	Mathematics-I	*														
	Engineering Physics	*														
	Basic Computer Engineering	*	*													
	Basic Mechanical Engineering	*														
	Basic Civil Engineering & Mechanics	*	*					*					*			
	Language Lab										*					
	Self Study / GD Seminar		*			*			*							
Semester-IInd	Mathematics-II	*														
	Engineering Chemistry	*														
	English for Communication										*	*				
	Basic Electrical & Electronics Engineering	*														
	Engineering Graphics			*	*											
	Manufacturing Practices				*	*										
	Industrial Training									*	*	*	*	*	*	
Semester-IIIrd	Mathematics -III	*	*		*											
	Construction Materials			*	*											
	Surveying			*	*					*				*	*	
	Building Planning & Architecture			*		*								*		
	Strength of Materials	*	*	*										*		
	Ancient Construction Techniques												*		*	
	Self study /GD Seminar		*			*			*							

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 & Medical Sciences, Sec-1 (M.P.)



Semester-IV th	Energy, Ecology, Environment and Society					*	*							*		
	Construction Technology			*	*	*								*		*
	Structural Analysis-I		*	*	*										*	
	Transportation Engineering-I						*		*		*					*
	Engineering Geology & Remote Sensing	*														
	Software lab														*	*
	Industrial Training-I									*	*	*	*	*		
Semester-V th	Advanced Surveying			*	*				*							*
	Fluid Mechanics	*		*				*						*	*	*
	Structural Design & Drawing-I (RCC)		*	*	*	*								*		
	Professional Elective-I (A) Water Resources & Irrigation Engineering					*	*	*							*	
	(B) Renewable Energy Sources					*	*									*
	Open Core Elective - I (A) Remote Sensing & GIS			*	*	*			*						*	
	(B) Highway Engineering				*				*	*	*	*				*
Industrial Training-II								*	*	*	*	*	*	*	*	
Semester-VI th	Transportation Engineering-II							*	*	*	*			*		
	Geometrical Engineering-I			*	*	*		*						*		
	Professional Elective-II (A) Structural Analysis-II		*	*	*									*	*	*
	(B) Ground Water Engineering					*	*	*						*	*	*
	Professional Elective-III (A) Environmental Engineering-I						*	*	*					*	*	*
	(B) Industrial Waste Treatment					*	*	*						*	*	*
	Open Core Elective - II (A) Structural Design & Drawing - I (STEEL)	*		*	*											*
	(B) Highway Geometric Design				*			*	*	*	*	*				*
Minor Project-I								*	*	*	*	*	*	*	*	

Semester-VIth	Quantity Surveying & Costing				*	*						*		*	*
	Professional Elective-IV (A) Structural Design & Drawing-I (RCC-II)		*	*	*	*									*
	(B) Design of Hydraulic Structures			*	*		*		*					*	
	Open Core Elective-III (A) Traffic Engineering						*	*	*						*
	(B) Construction Planning & Management				*		*		*		*	*		*	*
	Major Project-I								*	*	*	*	*	*	
	Self Study/GD/Seminar		*			*			*						
Semester-VIITH	Geotechnical Engineering-II			*	*	*		*							
	Professional Elective-V (A) Structural Design & Drawing-II (STEEL-II)	*	*	*	*	*							*	*	
	(B) Earthquake Resistant Design of Structures			*	*	*							*	*	
	Open Core Elective-IV (A) Pavement Design				*			*							*
	(B) Urban Transportation Planning							*		*		*			*
	Major Project-II								*	*	*	*	*	*	

Semester wise PO's and SPO's Mapping

- **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

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Sri Sree Sree University of Technology
B. Model Engineering Scheme (M.P.)




Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the CE Curriculum
1.	Humanities and Social Sciences including Management	11
2.	Basic Sciences	24
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	52
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	18
6.	Open Subjects: Electives from other technical and/or emerging subjects	18
7.	Project work, seminar and internship in industry or elsewhere	18
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit


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 Sri Sanyal University of Technology
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School of Engineering

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Outcome Based Curriculum for

Post graduate Degree courses in Engineering & Technology

Department of Civil Engineering

Vision:

To be an excellent center for imparting quality higher education in Research work for a constantly changing societal needs with credibility, integrity and ethical standards.

Mission:

- Accomplish excellence in curricular, co-curricular activities with a committed faculty through teaching and research which creates technically competent and dedicated to serve their surroundings with pride.

Programme Educational Objectives:(POs)

PEO1: To expose the graduate students to advanced Structural Analysis, Structural Dynamics, allied theory in elasticity and plasticity, FEM etc.

PEO2: To impart training to graduate students in behavior and design of Advanced RC structures, behavior and design of Advanced Steel structure, latest procedures in earthquake resistant design practices and earthquake resistant design philosophies.

PEO3: To expose the graduate students to latest design codes, current national and international scenario on Structural Engineering and to motivate them in interdisciplinary involvement in problems related to Structural Design.

POs of the Programme: M.TECH. (STRUCTURAL DESIGN)

List of Program Outcomes (POs) of P.G. program in Structural Engineering:

PO-01: Scholarship of knowledge: Analyze, design, plan and research structural components and structural systems.

PO-02: Critical thinking: To achieve design goals and ensure the safety and comfort of users and occupants.

PO-03: Problem solving: Calculating the loads and the stresses acting on the building, analysis for the loads, design of sections of structures to sustain the loads, selection of materials, analysis of structures.

PO-04: Research skill: Site investigation, the structural engineers are involved in checking the condition of the soil for the construction of the project. kind of treatment required for the soil, testing the soil, develop the design ideas and detail.


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& Medical Sciences Sehore (M.P.)



PO-05: Usage of modern tools: Identify and analyze of structures by the software like ETABS, STAAD, SAP etc. Creating of models of complex structural engineering activities.

PO-06: Communication: Develop the design ideas and detail, the coordinate and consult other members like the site engineers, other design engineers, geotechnical engineers, landscape architects, architects, project managers etc.

PO-07: Project management and finance: Usually work as part of a team or as team leaders, therefore they need advanced soft skills, such as problem solving and planning skills as well. Manage projects in multidisciplinary environments.

PO-08: Lifelong learning: Apply the available solutions in physical environments and therefore need to be able to innovate, to find new ways of solving situations in a safe and efficient manner, which involves a great deal of creative thinking.

PO-09: Ethical practices and social responsibility: Technical skills to create, improve, and maintain "beautiful national land," "safe and comfortable livelihood," and "prosperous society".

PO-10: Independent and reflective learning: Structural engineers are gained through years of experience and some standard skills, more of safety issues, Proper knowledge of the National codes of the area.

PO-11: Individual and team work: One of the main duties of a licensed engineer is to monitor and evaluate the progress of work completed at a jobsite, and making sure staff are in compliance with design documents, project plans, and other rules and regulations.

PO-12: Conduct investigations of complex problems: Problems involve one or more of: design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; engineering operations; project management; research, development and commercialization.

Program Specific Outcomes (PSOs) :

Students will be able to:

- ✓ To expose the graduate students to advanced courses in Analysis, and Design of RC, PSC and Steel structures as per the latest design codes, current national and international scenario on Structural Engineering.
- ✓ To motivate the graduate students to address the societal needs by interdisciplinary approach through advanced courses such as Finite Element Analysis, Plates & Shell structures, Structural Dynamics, Soil Dynamics, and allied courses.
- ✓ To enrich the graduate students to get hands on training on latest equipment / software to be industry ready / pursue advanced research.

POs and PSOs Mapping

Every course leads to some outcomes. All the courses must cover the stated list of PO/PSO outcomes. One way of verifying this to prepare a match matrix as shown below. In the table below * could also be a number- typically in (*) indicating level of attainment.


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& Medical Sciences, Sohore (M.P.)



Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
		Scholarship of knowledge	Critical thinking	Problem solving	Research skill	Usage of modern tools	Communication	Project management and finance	Lifelong learning	Ethical practices and social responsibility	Independent and reflective learning	Individual and team work	Conduct investigations of complex problems			
Semester-I	Advanced Mathematics		*	*												
	Theory Of Elasticity And Plasticity	*	*	*							*					
	Optimization Techniques in Structural	*	*	*	*		*	*						*		
	Matrix Analysis of Structures	*		*	*		*		*		*		*			
	Advanced Concrete Technology	*	*	*			*	*	*	*	*				*	
	Lab -1 : CAD	*				*		*	*				*			*
	Lab -2 : Advanced Concrete Laboratory	*	*	*			*	*	*							*
Semester-II	Structural Dynamics	*	*	*			*			*	*					
	FEM in Structural Engineering	*	*	*	*	*		*	*		*		*	*	*	
	Design of steel Structures	*	*	*	*	*		*	*		*		*			
	Experimental Stress Analysis	*	*	*	*		*								*	
	Theory of Plates and Shells	*		*						*					*	
	Lab -1: structural engineering lab	*	*	*		*	*		*						*	
	Lab -2 Structural Software lab	*	*	*	*	*	*		*		*	*				*
Semester-III	Elective I															
	A) Advanced Foundation Engineering	*					*						*			
	B) Design of Earth Quake Resistant Structures	*				*					*			*	*	
	C) Design & Analysis of Steel Structures	*		*		*								*		
	D) Building Structure & Construction Management						*	*	*						*	
	Elective II	*					*						*		*	
	A) Design of Offshore Structures						*						*		*	
	B) Fracture Mechanism					*								*		
	C) Low cost Housing Techniques			*	*									*	*	
	D) Design of Bridges			*		*		*						*	*	
Seminar						*										
Semester-IV	Dissertation part-I (Literature Review/problem-formulation/synopsis)	*	*		*	*	*	*	*	*		*	*		*	*
	Dissertation Part-II	*	*		*	*	*	*	*	*		*	*		*	*

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SM Satya Sai University of Technology
& Medical Sciences School (M.P)



Signature

- **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit


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Sri Satya Sai University of Technology
& Medical Sciences, Sathya Sai (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering

(1) **Vision:** To contribute effectively to the important national endeavor to produce quality human resource in the Computer Science & Engineering and related areas for sustainable development of the country's IT industry needs.

(2) **Mission:**

- To accomplish state-of-the-art programmes in computer science & engineering.
- To provide one of the best working environments to motivate faculty and students to work towards vision of the department and to attract best faculty and students.
- To develop linkages with industry, other universities/institutes/research laboratories and work in collaboration with them.
- To use our expertise in computer engineering discipline for helping society in solving problems.

(3) **Program Educational Preambles (PEO's):**

PEO1: To produce engineering graduates who shall excel in a career utilizing their education in computer engineering.

PEO2: Pursue higher education for professional development

PEO3: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

(4) **Programme Outcomes (PO's):**

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and engg. Specialization to the solution of complex engineering problems.
2. **Problem Analysis:** Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.
3. **Design/Development Of Solutions:** Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct Investigations Of Complex Problems:** User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **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.


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& Medical Sciences, Seclore (M.P.)





SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering

6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual And Team Work:** Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
11. **Project Management And Finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.
12. **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.

(5) Program Specific Outcomes (PSOs)

PSO-1 Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment or commercial environment to deliver quality product for the organization success.

PSO- 2 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO 2	PO3	PO4	PO 5	PO 6	PO7	PO 8	PO9	PO10	PO11	PO 12	PSO 1	PSO 2
			Engi neering Know ledge	Pro blem Analy sis	Design/D evelopme nt of Solution	Investi gation	Mo der n To ol Us age	The Eng ineer and Soc iety	Envir onme nt and Sustai nabili ty	Eth ics	Indi vidu al and Tea m Wor k	Comm unici on	Proje ct Mana gemen t	Life - Lon g Lea rnin g		
1	BE(CS E)	Humanities and Social Sciences including Management	*	*			*	*		*		*		*		

Regular

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
 Outcome based Curriculum for
 Undergraduate Degree Courses in Engineering & Technology
 Department of Computer Science & Engineering

	courses																
2	Basic Science courses	*	*	*	*	*	*	*	*								
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*	*	*	*	*	*								
4	Professional core courses	*	*	*	*	*	*	*	*								
5	Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*								
6	Open subjects - Electives from other technical and/or emerging subjects	*	*	*	*	*	*	*	*					*	*	*	
7	Project work, seminar and internship in industry or elsewhere		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	Specific core subject		*	*	*	*	*	*	*								
9	Mandatory Course (Non credit)					*	*	*	*	*	*	*	*	*	*	*	*

(07) Semester wise PO's and SPO's Mapping

S.No.	Course Code	Name of the Courses	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
1	BEBSC-101	Mathematics-I	*	*	*	*								*		


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering

2	BEBSC- 202	Engineering Physics	*	*	*	*												*	*	*						
3	BEESC-203	Basic Computer Engineering	*	*	*	*	*																			
4	BEESC-204	Basic Mechanical Engineering						*		*	*										*					
5	BEESC-205	Basic Civil Engineering & Mechanics	*	*	*	*	*	*	*					*	*											
6	BEHSMC-206	Language Lab		*	*			*					*	*	*	*					*	*	*	*		
7	BELC-107	Self-Study / GD Seminar	*		*															*	*	*	*			
8	BEBSC-201	Mathematics-II	*	*	*	*															*	*	*	*		
9	BEBSC-102	Engineering Chemistry	*	*	*	*	*	*													*	*	*	*		
10	BEHSMC-103	English for Communication	*		*									*	*						*	*	*	*		
11	BEESC-104	Basic Electrical & Electronics Engineering	*	*	*																					
12	BEESC-105	Engineering Graphics	*		*	*			*				*								*	*	*	*		
13	BEESC-106	Manufacturing Practices							*			*	*								*	*	*	*		
14	BELC-207	Industrial Training	*	*	*	*	*				*										*	*	*	*		
15	BEA-301	Mathematics- III	*	*	*	*																				
16	CSA-302	Discrete Structure	*	*	*	*															*	*	*	*		
17	CSA-303	Data Structure	*	*	*	*	*														*	*	*	*		
18	CSA-304	Digital Systems	*	*	*	*	*	*						*								*	*	*	*	
19	CSA-305	Object Oriented Programming & Methodology	*											*								*	*	*	*	
20	CSA-306	Computer Workshop			*	*	*	*	*													*	*	*	*	
21	CSA-307	Self-Study/GD Seminar	*		*									*	*						*	*	*	*		
22	BEA-401	Energy, Ecology, Environment And Society	*	*	*																*	*	*	*		
23	CSA-402	Analysis Design of Algorithm	*	*	*																*	*	*	*		
24	CSA-403	Software Engineering	*	*	*	*								*	*						*	*	*	*		
25	CSA-404	Computer Org. & Architecture	*		*																*	*	*	*		
26	CSA-405	Operating Systems	*	*																	*	*	*	*		
27	CSA-406	Programming Practices	*		*	*															*	*	*	*		
28	CSA-407	Industrial Training-I	*	*	*	*	*	*	*				*	*							*	*	*	*		
29	CSA-501	Database Management Systems	*	*	*									*	*						*	*	*	*		
30	CSA-502	Computer Graphics	*	*	*																*	*	*	*		

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& Medical Sciences, Seclore (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering

31	CSA-503	PHP Technology	*		*		*										*	*
32	CSA-504(A)	Formal Language & Automata Theory	*	*	*												*	
33	CSA-504(B)	Simulation & Modeling	*	*	*	*					*							
34	CSA-505(A)	E-Commerce & Governance	*				*	*									*	*
35	CSA-505(B)	Signal & Systems	*	*	*	*												
36	CSA-506	Industrial Training-II	*	*	*	*	*	*		*	*			*	*		*	*
37	CSA-601	Compiler Design	*	*	*		*										*	*
38	CSA-602	Computer Network	*	*	*												*	*
39	CSA-603(A)	Advance Computer Architecture	*	*	*	*					*						*	
40	CSA-603(B)	Advanced Data Structure	*	*	*	*												*
41	CSA-604(A)	Data Mining and Data Warehousing	*	*	*	*								*			*	*
42	CSA-604(B)	Soft Computing	*	*	*												*	*
43	CSA-605(A)	Information Theory & Coding	*	*	*	*											*	*
44	CSA-605(B)	Cyber Law & Ethics	*	*	*	*											*	*
45	CSA-606	Minor Project		*	*					*							*	*
46	CSA-701	Ad-hoc and Sensor Network	*	*	*	*					*						*	*
47	CSA-702	Digital Image Processing	*	*	*	*					*						*	*
48	CSA-703(A)	Artificial Intelligence	*	*	*	*											*	*
49	CSA-703(B)	Neural Networks	*	*	*	*											*	
50	CSA-704(A)	Information and Storage Management	*	*													*	*
51	CSA-704(B)	Optimization Techniques	*	*	*	*											*	*
52	CSA-705	Project Stage-I	*	*	*						*	*		*			*	*
53	CSA-706	Self-Study/GD/Seminar	*	*	*						*	*		*			*	*
54	CSA-801	Web Engineering	*	*	*	*											*	*
55	CSA-802 (A)	Distributed Computing	*	*	*	*											*	
56	CSA-802(B)	Network Management	*	*	*	*											*	
57	CSA-803(A)	Internet of Things	*	*	*	*											*	
58	CSA-803(B)	Mobile computing	*	*	*	*	*	*									*	*
59	CSA-804	Project Stage-II	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the CSE Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering.

(1) Vision: Creating knowledge of fundamental principles and innovative technologies through research within the core areas of computer science and also in inter-disciplinary topics. Serving the communities to which we belong at local and national levels, combined with a deep awareness of our ethical responsibilities to our profession and to society.

(2) Mission:

- To provide quality education to meet the need of profession and society.
- Provide a learning ambience to enhance innovations, problem solving skills, leadership qualities, team-spirit and ethical responsibilities.
- Establish Industry Institute Interaction program to enhance the entrepreneurship skills
- Provide exposure of latest tools and technologies in the area of engineering and technology.
- Promote research based projects/activities in the emerging areas of technology convergence.

(3) Program Educational Preambles (PEO's):

PEO1: To produce engineering graduates who shall excel in a career utilizing their education in computer engineering.

PEO2: Pursue higher education for professional development.

PEO3: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

(4) Programme Outcomes (PO's) :

PO01. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and engg. Specialization to the solution of complex engineering problems.

PO02. Problem analysis: Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.


PO03. Design/development of solutions: Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO04. Conduct investigations of complex problems: User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO05. 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.

PO06. 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.

PO07. 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.


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering.

PO08. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO09. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

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

(5) Program Specific Outcomes (PSOs)

PSO-1 Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment or commercial environment to deliver quality product for the organization success.

PSO- 2 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

(06) Programme PO's and PSO's Mapping

Program	Courses Category	PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		Comp. Knowledge	Prob. Analysis	Design Sol	Invest. Probl	Tools	Ethics	Learn	Proj. Mgt	Comm n	Soc. Enviro	Team Work	Entrepreneurshp		
MTECH (CSE)	Foundation Courses	*						*		*			*		
	Professional Core	*	*	*	*	*	*	*	*		*	*		*	*
	Professional Electives	*	*	*	*	*	*	*	*		*	*		*	*
	Employability Enhancement Courses	*					*	*		*		*	*		

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
 Postgraduate Degree Courses in Engineering & Technology
 Department of Computer Science & Engineering.

(07) Semester wise PO's and SPO's Mapping

Semester	Name of the Course	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PS O 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
I	Advanced Mathematics	*	*	*	*							*			
	Internet Technology	*	*	*	*	*				*		*	*		
	Object Oriented Technology & UML	*	*	*	*	*				*		*	*		
	Computer Graphics & Multimedia	*	*	*	*	*				*	*	*	*		
	Advance Database Management System	*	*	*	*	*	*			*		*	*		
II	Information Security, Coding & Cryptography	*	*	*	*	*	*		*	*			*		
	Advanced Computer Architecture	*	*	*			*			*		*	*		
	Soft Computing	*	*	*	*	*	*			*		*	*		
	Cloud Computing	*	*	*	*	*	*	*	*	*		*	*	*	
	Advance Data Structures & Algorithm	*	*	*	*	*				*		*	*		
III	Data Mining and Warehousing	*	*	*	*	*	*	*	*	*		*	*		
	Simulation and Modeling	*	*	*	*	*	*		*		*	*			

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
 Postgraduate Degree Courses in Engineering & Technology
 Department of Computer Science & Engineering.

	High Performance Computing	*	*	*		*				*		*	*	
	Wireless LAN and Mobile Computing	*	*	*	*	*				*		*	*	
	Ad. Distributed System	*	*	*	*	*		*		*		*	*	
	Parallel Computation and Applications	*	*	*	*	*	*			*		*	*	
	Dissertation Part- I	*	*	*	*	*						*		
IV	Dissertation Part- II	*	*	*	*	*						*		

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Computer Science & Engineering.

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programmed structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

Structure of Post Graduate Engineering program:

S. No.	Course Category	Credits of the Curriculum
1.	Foundation Courses	8
2.	Professional Core	20
3.	Professional Electives	16
4.	Employability Enhancement Courses	60
	Total	104

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	1 Credit

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Postgraduate Degree Courses in Computer Technology & Application
Department of Computer Science & Engineering.

(1) Vision: Creating knowledge of fundamental principles and innovative technologies through research within the core areas of computer science and also in inter-disciplinary topics. Serving the communities to which we belong at local and national levels, combined with a deep awareness of our ethical responsibilities to our profession and to society.

(2) Mission:

- To provide quality education to meet the need of profession and society.
- Provide a learning ambience to enhance innovations, problem solving skills, leadership qualities, team-spirit and ethical responsibilities.
- Establish Industry Institute Interaction program to enhance the entrepreneurship skills
- Provide exposure of latest tools and technologies in the area of engineering and technology.
- Promote research based projects/activities in the emerging areas of technology convergence.

(3) Program Educational Preambles (PEO's):

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PO04. Conduct investigations of complex problems: User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO05. 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.

PO06. 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.

PO07. 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.

PO08. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO09. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Computer Technology & Application
Department of Computer Science & Engineering.

PO10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

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

(5) Program Specific Outcomes (PSOs)

PSO-1 Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment or commercial environment to deliver quality product for the organization success.

PSO- 2 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

(06) Programme PO's and PSO's Mapping

Program	Courses Category	PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		Comp. Knowledge	Prob. Analysis	Design Sol	Invest. Probl	Tools	Ethics	Learn	Proj. Mgt	Comm. n	Soc. Enviro	Team Work	Entrepreneurship		
MTECH (CTA)	Foundation Courses	*						*		*			*		
	Professional Core	*	*	*	*	*	*	*	*		*	*		*	*
	Professional Electives	*	*	*	*	*	*	*	*		*	*		*	*
	Employability Enhancement Courses	*					*	*		*		*	*		

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Computer Technology & Application
Department of Computer Science & Engineering.

(07) Semester wise PO's and SPO's Mapping

Semester	Name of the Courses	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PS O 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
Semester-Ist	Advanced Mathematics	*	*	*	*							*			
	Advanced Data Structures and Algorithm	*	*	*	*	*				*		*	*		
	Software Engg.	*	*	*	*	*	*	*	*	*		*	*		
	Object Oriented Technology & UML	*	*	*	*	*				*		*	*		
	Advanced Computer Networking	*	*	*	*	*	*	*	*	*		*	*	*	
Semester-IInd	Information Security, Coding & Cryptography	*	*	*	*	*	*		*	*		*	*		
	Advance Distributed System	*	*	*	*	*		*		*		*	*		
	Advance Database Management System	*	*	*	*	*	*			*		*	*		
	Artificial Intelligence	*	*	*	*	*	*			*		*	*		
Semester-IIIrd	Cellular Mobile Systems	*	*	*	*	*	*	*		*		*	*		*
	Data Mining and Warehousing	*	*	*	*	*	*	*	*	*		*	*		
	Web Engineering	*	*	*	*	*	*			*		*	*		
	Simulation & Modeling	*	*	*	*	*	*			*		*	*		
	Ad-hoc Networks	*	*	*	*	*	*	*		*		*	*		
	Software testing and quality assurance	*	*	*	*	*	*	*		*		*	*		
	Analysis Design & Embedded Systems	*	*	*		*				*		*	*		
	Parallel Computation & Applications	*	*	*	*	*	*			*		*	*		
Semester-IV	Dissertation Part- I	*	*	*	*	*						*			
	Dissertation Part- II	*	*	*	*	*						*			


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Computer Technology & Application
Department of Computer Science & Engineering.

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAAs, as per above mapping, the following semester wise programmed structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits*= 104

Structure of Post Graduate Engineering program:

S. No.	Course Category	Credits of the Curriculum
1.	Foundation Courses	8
2.	Professional Core	20
3.	Professional Electives	16
4.	Employability Enhancement Courses	60
	Total	104

*Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	1 Credit

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Sri Satya Sai University of Technology
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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Postgraduate Degree Course in Software Engineering
Department of Computer Science & Engg.

(1) Vision: Creating knowledge of fundamental principles and innovative technologies through research within the core areas of computer science and also in inter-disciplinary topics. Serving the communities to which we belong at local and national levels, combined with a deep awareness of our ethical responsibilities to our profession and to society.

(2) Mission:

- To provide quality education to meet the need of profession and society.
- Provide a learning ambience to enhance innovations, problem solving skills, leadership qualities, team-spirit and ethical responsibilities.
- Establish Industry Institute Interaction program to enhance the entrepreneurship skills
- Provide exposure of latest tools and technologies in the area of engineering and technology.
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PO04. Conduct investigations of complex problems: User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO05. 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.

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PO07. 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.

PO08. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Course in Software Engineering
Department of Computer Science & Engg.

PO09. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

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

(5) Program Specific Outcomes (PSOs)

PSO-1 Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment or commercial environment to deliver quality product for the organization success.

PSO- 2 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

(06) Programme PO's and PSO's Mapping

Program	Courses Category	PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		Comp. Knowledge	Prob. Analysis	Design Sol	Invest. Probl	Tools	Ethics	Learn	Proj. Mgt	Comm n	Soc, Enviro	Team Work	Entrepreneurship		
MTECH (SE)	Foundation Courses	*						*		*			*		
	Professional Core	*	*	*	*	*	*	*	*		*	*		*	*
	Professional Electives	*	*	*	*	*	*	*	*		*	*		*	*
	Employability Enhancement Courses	*					*	*		*		*	*		




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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
 Postgraduate Degree Course in Software Engineering
 Department of Computer Science & Engg.

(07) Semester wise PO's and SPO's Mapping

Semester	Name of the Course	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PS O 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
Semester-Ist	Advanced Mathematics	*	*	*	*							*			
	Programming System	*	*	*	*	*	*			*		*	*		
	Object Oriented Technology & UML	*	*	*	*	*				*		*	*		
	Advanced D.B.M.S.	*	*	*	*	*	*					*	*		
	Computer Graphics & Multimedia	*	*	*	*	*				*	*	*	*	*	
Semester-IIrd	Software Verification Validation & Testing	*	*	*	*	*	*			*		*	*		
	Advance Distributed System	*	*	*	*	*		*		*		*	*		
	Soft Computing	*	*	*	*	*	*			*		*	*	*	
	Advance Data Structures & Algorithms	*	*	*	*	*				*		*	*		*
	Software Project Management	*	*	*	*	*	*			*		*	*	*	*
Semester-IIIrd	Web Engineering	*	*	*	*	*	*			*		*	*		
	Parallel Computation and Applications	*	*	*	*	*	*			*		*	*		*
	Wireless LAN and Mobile Computing	*	*	*	*	*				*		*	*		*
	Cloud Computing	*	*	*	*	*	*	*	*	*		*	*		
	Data Mining and Warehousing	*	*	*	*	*	*	*	*	*		*	*		


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Course in Software Engineering
Department of Computer Science & Engg.

	Software Configuration Management	*	*	*	*	*	*			*		*	*		*
	Dissertation Part- I	*	*	*	*	*						*			
Semester-IV	Dissertation Part- II	*	*	*	*	*						*			

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programmed structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

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1.	Foundation Courses	8
2.	Professional Core	20
3.	Professional Electives	16
4.	Employability Enhancement Courses	60
	Total	104

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1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	1 Credit


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 & Medical Sciences, Sec-10 (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Communication Engineering

(1) Vision: "To be recognized by the society at large as a full- fledged department, offering quality higher education in the **Electronics and Communication Engineering** field with research focus catering to the needs of the public and staying in tune with the advancing technological revolution and challenging cultural changes."

(2) Mission

1. Establish a unique learning environment to enable the students to face the challenges of the Electronics and Communication Engineering field.
2. Promote the establishment of centres of excellence in niche technology areas to nurture the spirit of innovation and creativity among faculty and students.
3. Provide ethical and value based education by promoting activities addressing the societal needs.
4. Enable students to develop skills to solve complex technological problems of current times and also provide a framework for promoting collaborative and multidisciplinary activities.

(3) Program Educational Preambles (PEO's)

PEO 1: Practice the ethics of their profession consistent with a sense of social responsibility and develop their engineering design, problem –solving skills and aptitude for innovations as they work individually and in multi-disciplinary teams.

PEO 2: Communicate effectively and manage resources skillfully as members and leaders of the profession.

PEO 3: Be receptive to new technologies and attain professional competence through lifelong learning such as advanced degrees, professional registration, publications and other professional activities.

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SCHOOL OF ENGINEERING
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Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Communication Engineering

(4) Program Outcomes (POs)

PO-01: Engineering knowledge: Utilize the basic knowledge in mathematics, science and engineering in Electronics and Communication Engineering field.

PO-02: Design/development of solutions :Identify, formulate and solve complex problems to achieve demonstrated conclusions using mathematical principles and engineering sciences.

PO-03: Problem analysis: Design system components that meet the requirement of public safety and offer solutions to the societal and environmental concerns.

PO-04: Conduct investigations of complex problems: Apply research based knowledge to design and conduct experiments, analyze, synthesize and interpret the data pertaining to Electronics and Communication Engineering problems and arrive at valid conclusions.

PO-05: Modern Tool Usage :Construct, choose and apply the techniques, resources and modern engineering tools required for Electronics and Communication Engineering applications.

PO-06: The engineer and society: Apply the contextual knowledge to assess societal, health, safety and cultural issues and endure the consequent responsibilities relevant to the professional engineering practice.

PO-07: Environment and sustainability: Examine the impact of engineering solutions in global and environmental contexts and utilize the knowledge for sustained development.


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Communication Engineering

PO-08: Ethics: Develop consciousness of professional, ethical and social responsibilities as experts in the field of Electronics and Communication Engineering.

PO-09: Individual and team work: Perform effectively as a member/leader in multidisciplinary teams.

PO-10: Communication: Communicate the engineering activities to engineering society for documentation and presentation.

PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles to manage projects in multidisciplinary environment.

PO-12: Life-long learning: Demonstrate resourcefulness for contemporary issues and lifelong learning.

(5) Program Specific Outcomes (POs)

PSO-1: Apply the fundamental concepts of electronics and communication engineering to design a variety of components and systems for applications including signal processing, image processing, communication, networking, embedded systems, VLSI and control system

PSO-2: Select and apply cutting-edge engineering hardware and software tools to solve complex Electronics and Communication Engineering problems


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Communication Engineering

(06) Program PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO 8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
1	BE(EC)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*							*		
4		Professional core courses	*	*	*	*	*									
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*	*					
6		Open subjects - Electives from other technical and /or emerging subjects	*	*	*	*	*	*	*	*	*	*		*	*	*
7		Project work, seminar and internship in industry or elsewhere		*	*	*	*	*	*	*	*	*	*	*	*	*
8		Specific core subject		*	*	*	*									
9		Mandatory Course (Non credit)						*	*	*	*	*		*		


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(07) Semester wise PO's and SPO's Mapping

S. NO	Semester	Name of the Courses/POs(Basic, Core, Electives, Projects, Internships etc.)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
1	Semester	Core, Electives, Projects, Internships etc.)	Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Professionalism	Lifelong Learning		
2	Semester-Ist	Mathematics-I	*	*	*	*								*		
		Engineering Physics	*	*		*								*		
		Basic Computer Engineering	*	*	*	*	*				*	*		*		
		Basic Mechanical Engineering	*	*	*	*	*									
		Basic Civil Engineering & Mechanics	*	*	*					*					*	
		Language Lab					*				*	*	*	*	*	
		Self Study / GD Seminar	*	*	*	*	*				*	*	*	*	*	
3	Semester-IInd	Mathematics-II	*	*	*	*								*		
		Engineering Chemistry	*	*	*	*								*		
		English for Communication	*										*		*	
		Basic Electrical & Electronics Engineering	*	*	*	*										
		Engineering Graphics	*	*	*	*										*
		Manufacturing Practices					*				*	*	*	*	*	
		Industrial Training			*	*	*	*	*	*	*	*	*	*	*	*
4	Semester-IIIrd	Mathematics -III	*	*	*	*								*		
		Electromagnetic Theory		*	*	*								*		
		Measurement Science & Techniques	*	*	*	*								*		
		Electronic Devices	*	*	*	*								*		
		Network Analysis and Synthesis	*	*	*	*								*		
		Simulation Lab-I	*	*	*	*	*							*		
		Self Study /GD Seminar		*	*	*	*	*	*	*	*	*	*	*	*	
Semester-IVth	Energy, Ecology, Environment and Society							*	*	*	*	*	*	*	*	

Responsible for
Dr. Kavin Selvaraj
University of Technology
V. V. Pitamber Institute of Technology
(M.P.)



		Digital Electronics	*	*															*
		Signals and System	*	*	*														
		Analog Communication	*	*	*	*													
		Electronics Instrumentation	*	*	*														
		Simulation Lab-II			*	*	*											*	
		Industrial Training-I		*	*		*	*	*	*	*	*			*	*			
5	Semester-Vth	Computer Architecture		*	*	*	*												
		Digital Signal Processing		*	*	*		*											
		CMOS Design			*	*													
		Power Electronics						*											
		Nano Electronics	*																
		Neural Network	*																
		Scientific computing	*	*			*							*					*
		Data Compression & Cryptography	*	*															
		Operating System	*	*	*	*													*
		Industrial Training-I	*	*	*	*													
		6	Semester-VIth	Control Systems	*	*	*	*											
Optical Communication	*			*	*	*													
(A) Computer Networks	*			*	*	*													
(B) Information Theory and Coding	*			*	*	*	*	*	*										
(A) Digital Image & Video Processing	*			*	*	*													
(B) Speech and Audio Processing	*							*	*	*	*								*
(A) Introduction to MEMS	*			*	*	*	*						*						
(B) Bio-Medical Electronics Minor Project	*			*			*	*											
7	Semester-VIIIth	Microwave Theory and Techniques	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Antennas and Propagation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*


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	Satellite Communication	*	*	*	*	*												
	Mixed Signal Design	*	*	*	*		*	*		*	*							
	Wireless Sensor Networks	*	*	*	*													
	High Speed Electronics	*	*	*	*		*											
	Project Stage-I			*	*													
	Self Study/GD/Seminar		*	*	*		*	*										
Semester VIIIth	T.V & Radar Engineering	*	*												*	*		
	Mobile Communication and Networks	*													*	*		
	Embedded systems	*					*			*		*	*					
	CAD of Digital Systems	*	*				*											
	Engineering and Acoustics		*	*					*									
	Project Stage-II	*	*			*									*			

(08) Structure of Program: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise program structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S.No.	Course Category	Credits of the EC Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21


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School of Engineering

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Curriculum for

Postgraduate Degree Courses in Engineering & Technology

Master of Technology (Electronics and communication Engineering)

Specialization: Digital communication

1) **Vision** : To achieve academic excellence in Electronics Engineering for advance masters by imparting in depth knowledge to the students, facilitating research activities and cater to the ever changing industrial demands, global and societal needs.

2) **Mission** :

1. To impart quality engineering education in DIGITAL COMMUNICATION & VLSI Field.
2. To provide technical expertise along with professional ethics as per societal needs.
3. To provide a creative environment through structured teaching - learning process.
4. To achieve academic excellence.
5. To strive towards efficient industry-institute interaction.
6. To serve the needs of the society through R&D activities.
7. To inculcate self learning attitude , entrepreneurial skills and professional ethics.


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3) Program Educational Objectives (PEO's)

PEO-1 To postgraduate in Digital Communication with expert and professionals in the present generation of communication techniques.

PEO-2 To develop the capability of independent research project in Digital Communication applying research principles and methods.

PEO-3 To train the postgraduate in Digital Communication with the depth knowledge of various subject of present day interest like Advanced Digital, Satellite & mobile Communication, Modern DSP and signal theory.

4) Program Outcomes (PO's):

PO-1 Engineering knowledge: Acquire successful careers in core, allied industry and teaching in national & international institutes to deliver technical knowledge.

PO-2 Problem Analysis; Apply knowledge of mathematics, science and engineering in solving the problems related to digital communication and conduct experiments as well as analyze and interpret data.

PO-3 Design/development of solutions: Design and implement an independent research project in Digital Communication applying research principles and methods.

PO-4 Conduct investigations of complex problems: Compiling and interpreting research data and presenting them in an appropriate format, taking into consideration scientific principles and methodology, as well as practical applicability.

PO-5 Modern tool usage: Acquire skills in handling instruments, tools, techniques and modeling using advanced software & tools.

PO-6 The engineer and society: Apply knowledge & creativity to identify, formulate and solve engineering problems.

PO-7 Environment and sustainability: Handle the different communication system problems, related channel coding techniques, modulation techniques, spread spectrum & equalization techniques, DSP, Antenna Design, and a number of telecommunication problems.

PO-8 Ethics: Analysis of complex situations and problems, Identifying alternative solutions and Successful implementation of problem-solving strategies and make the ethical principles for industry .

PO-9 Individual and team work: Empowers the candidate with confidence and leadership qualities such as ability to communicate effectively, ability to engage in life-long learning and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice and environmental and Society context.

PO-10 Communication: A balanced understanding of software and hardware to support product design and development related to digital communication engineering.

PO-11 Project management and finance: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

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PO-12 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

5) Programme Specific Outcomes (PSO's):

PSO-1 Apply the knowledge of electronics and communication to solve complex engineering problems in Electronic Devices and Circuits, VLSI, Embedded systems, Analog & Digital communication and other associated topics.

PSO-2 Select and apply modern engineering hardware and software tools to analyze complex Electronics and Communication engineering problems.

6) PEO/PO Mapping


PEO	PROGRAMME OUTCOMES											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	√	√	√	√	√	√	√	√	√	√	√	√
II			√	√			√			√	√	
III				√	√	√			√			
IV					√		√		√		√	√
V				√						√	√	√


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7) Programme PO's and PSO's Mapping

S.N O	Name of the Courses/P Os(Basic, Seme ster	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO 8	PO9	PO10	PO11	PO1 2	P S O 1	P S O 2
		Core Electives, Projects, Internships etc.)	Engin eerin g Know ledge	Pro ble m Ana lysi s	Design/De velopme nt of Solution	Invest igatio n	Mo der n Too l Usa ge	The Eng ineer and Soci ety	Enviro nment and Sustai nabilit y	Et hic s	Indi vidu al and Tea m Wor k	Communi cation	Projec t Mana geme nt		
1	Advanced Mathemati cs	*	*	*	*								*		
	Digital Communi cation	*	*		*								*		
	VLSI Technolo gy & Design	*	*	*	*	*			*		*		*		
	Advanced Digital Signal Processin g	*	*	*	*	*								*	
	Informati on Theory & Coding	*	*	*					*					*	
	Lab -1 : Digital Communi cation	*	*	*	*	*	*			*	*	*		*	*
	Lab -2 : Digital Signal Processin g	*	*	*	*	*			*	*					


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		g																	
2	Seme-ster-IIrd	Advanced Optical Communication	*	*	*	*										*	*		
		Wireless Communications and Networks	*	*	*	*			*	*								*	
		Advanced Data Communications	*	*	*	*			*								*	*	
		Telecommunication Switching & Networks	*	*	*	*													*
		Cellular And Mobile Communications	*	*	*	*	*	*	*	*				*					
		Lab -1 : Modeling & Simulation Lab	*	*	*	*	*	*											*
		Lab -2 : Simulation in MATLAB Environment	*	*	*	*	*	*											*
3	Seme-ster-IIIrd	(A) Wireless LAN	*	*	*	*	*											*	
		(B) Soft Computing Techniques	*	*	*	*	*											*	
		Network Design Technology	*	*	*	*	*												*


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 & Medical Sciences Seshore (M.P.)



		gy																	
		(B) Micro Controller System Design	*	*	*	*	*										*	*	
		Seminar			*		*	*	*	*		*	*	*					
		Dissertation Part I	*	*	*	*			*		*								
4	Semester-IV	Dissertation Part-II	*	*	*	*	*	*	*	*							*	*	*

8) Structure of Program.

To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise program structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits*= 104

Structure of Post Graduate Engineering program:

S. No.	Course Category	Credits of the DC Curriculum
1.	Program Core Course	64
2.	Program Elective Course	08
4.	Project	32
5.	Audit Course	Nil
	Total	104


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Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit

Recd.
Dr. Gopal Sir, University of Technology
& Medical Sciences, Sohoni (M.P.)



School of Engineering
Sri Satya Sai University of Technology and Medical Sciences, Sehore
Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Master of Technology (Electronics and Communication Engineering)
Specialization: VLSI

2) **Vision** : To achieve academic excellence in Electronics Engineering for advance masters by imparting in depth knowledge to the students, facilitating research activities and cater to the ever changing industrial demands, global and societal needs.

2) **Mission** :

1. To impart quality engineering education in DIGITAL COMMUNICATION & VLSI Field.
2. To provide technical expertise along with professional ethics as per societal needs.
3. To provide a creative environment through structured teaching - learning process
4. To achieve academic excellence.
5. To strive towards efficient industry-institute interaction.
6. To serve the needs of the society through R&D activities.
7. To inculcate self learning attitude , entrepreneurial skills and professional ethics.

3) Program Educational Objectives (PEO's)

PEO-1 The post-graduates of VLSI Design will demonstrate their outstanding education skills that will enable them to integrate undergraduate fundamentals with the knowledge acquired to evaluate and analyse new developments in VLSI industry.

PEO-2 The post-graduates of VLSI Design will demonstrate advanced technology in engineering to engage in perpetual learning in order to suit multidisciplinary situations.

PEO-3 The post-graduates of VLSI Design would undertake a significant research or development projects.

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4) Program Outcomes (PO's):

PO-1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.

PO-2 Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO-3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4 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.

PO-5 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-6 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.

PO-7 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.

PO-8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.


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PO-10 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.

PO-11 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.

PO-12 Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

5) Programme Specific Outcomes (PSO's):

PSO-1 Solve problems asked in competitive examinations of repute such as GATE and IES.

PSO-2 Design algorithms and systems for applications in communications, signal processing, embedded system, electromagnetics and VLSI by using software tools such as MATLAB and Xilinx and hardware platforms such as Arduino, Spartan and Raspberry Pi.

PSO-3 Prepare technical reports and presentations using international document preparation software tools such as LATEX.

6) PEO/PO Mapping


PEO	PROGRAMME OUTCOMES											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	√	√	√	√	√	√	√	√	√	√	√	√
II			√	√			√			√	√	
III				√	√	√			√			
IV					√		√		√		√	√
V				√						√	√	√

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 & Medical Sciences, Sathara (M.P.)



7) Programme PO's and PSO's Mapping

S.N O	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
1	Semester	Core Electives, Projects, Internships etc.)	Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
	Semester-1st	Advanced Mathematics	*	*	*	*								*		
		VLSI Design Concepts	*	*		*								*		
		Modeling of Digital Systems using HDL	*	*	*	*	*			*		*		*		
		Advanced Digital Signal Processing	*	*	*	*	*								*	
		VLSI Technology	*	*	*				*						*	
		Lab-1 : VLSI Design	*	*	*	*	*			*	*	*	*	*	*	*
		Lab-2 : Hardware Description Languages	*	*	*	*	*			*	*	*	*	*	*	*


 Asst. Prof.
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 & Medical Sciences, Sathur (M.P.)



2	Seme-ster-IIrd	Design of Analog/ Mixed Mode VLSI Circuits	*	*	*	*								*	*
		ASIC Design And FPGAs	*	*	*	*	*	*	*						*
		Embeded Real Time Operati ng Systems	*	*	*	*	*		*					*	*
		Embeded Systems	*	*	*	*									*
		System on Chip	*	*	*	*	*	*	*				*		
		Lab -1 : Designi ng with FPGAs	*	*	*	*	*								*
		Lab -2 : Digital Signal Processi ng And Embeded System	*	*	*	*	*								*
3	Seme-ster-IIIrd	(a)CAD for VLSI Circuits	*	*	*	*	*						*	*	
		(B) Design for Testabilit y	*	*	*	*	*							*	
		(A) VLSI SIGNAL PROCESS	*	*	*	*	*							*	

Registrar
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 Registrar
 Jyoti Sahai
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 Anil Kumar Singh
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 Jyoti Sahai



		ING																		
		(B) Low Power and High Speed VLSI	*	*	*	*	*												*	*
		Seminar			*		*	*	*	*		*	*	*					*	*
		Dissertation Part I	*	*	*	*				*	*									
4	Semester -IV	Dissertation Part- II	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

8) Structure of Program:

To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise program structure are as under:

[L= Lecture, T = Tutorials, P = Practicals & C = Credits]

Total Credits = 104

Structure of Post Graduate Engineering program:

S. No.	Course Category	Credits of the VLSI Curriculum
1.	Program Core Course	64
2.	Program Elective Course	08
4.	Project	12
5.	Audit Course	
	Total	

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical Engineering

(1) **Vision:** Developing Center of Excellence in Electrical Engineering by creating Innovative, Professionally Competent and Research Oriented Engineers for the betterment of Society.

(2) **Mission:**

- Bring-up professionally competent Engineers in Generation, Transmission and Distribution system.
- To mould ethically sound and socially responsible Electrical Engineers with leadership qualities.
- To inculcate research attitude among students for pursuing higher studies.

(3) **Program Educational Preambles (PEO's):**

PEO 1: Having successful technical and professional careers in power system, including supportive and leadership roles on multidisciplinary teams.

PEO 2: To acquire, use and develop skills as required for effective professional practices.

PEO 3: Exhibit demonstrable attributes for life-long learning to remain alongside in their profession and be leaders in technologically vibrant society.

(4) **Programme Outcomes (PO's) :**

PO-01: Engineering Knowledge: An ability to apply knowledge of mathematics, science, engineering fundamentals and electrical engineering concepts to the solution of complex electrical engineering problems.


PO-02: Problem Analysis: An ability to identify, formulate, research literature and analyze complex electrical engineering and related problems to design electrical and electronics system to meet specific social needs using principles of mathematics, natural sciences and engineering sciences.

PO-03: Design/Development of Solution: Design circuits, electrical drive systems, processes and optimal electrical components and solutions for complex electrical engineering problems using their core technical skills with appropriate consideration for public health, safety, cultural, societal, and environmental considerations.

PO-04: Investigation: To investigate complexity in electrical engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data and synthesis of information to derive valid conclusions.

PO-05: Modern Tool Usage: To analyze, identify, formulate and solve hardware and software based computing problems using modern engineering and software tools such as Matlab simulation, C++, Ansys, CAD design of electrical machines and soft computing techniques including resources such as national laboratories and standard data's with an understanding of the limitations.




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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical Engineering

PO06: The Engineer and Society: An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.

PO-07: Environment and Sustainability: Analyze the impact of industrial activities on global warming and finding the sustainable technical solution through independent and reflective learning.

PO-08: Ethics: Apply ethical principles and commit to professional ethics, social responsibilities and norms of electrical and power engineering practice such as IEEE, IE.

PO-09: Individual and Team Work: An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

PO-10: Communication: An ability to communicate effectively, orally as well as in writing, with society at large, and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO-11: Project Management: Ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

PO-12: Life-Long Learning: An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

(5) Program Specific Outcomes (PSOs)

PSO-1 Make use of the basic concepts in Electrical Engineering and its specialization to solve the complex problems in power systems, power electronics, control systems, electrical drives and embedded systems and machine learning.

PSO- 2 Analyze suitable controllers and Power converters for the electrical system and drives considering the impact on the society and health.




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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical Engineering

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO 8	PO9	PO10	PO11	PO1 2	P S O 1	P S O 2	
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life - Long Learning			
1	BE(EE)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*			
2		Basic Science courses	*	*	*	*	*		*								
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*							*			
4		Professional core courses	*	*	*	*											
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*			*	*					
6		Open subjects - Electives from other technical and/or emerging subjects	*	*	*	*	*	*	*	*	*	*			*	*	*
7		Project work, seminar and internship in industry or elsewhere		*	*	*	*	*	*	*	*	*	*	*	*	*	*
8		Specific core subject		*	*	*	*										
9		Mandatory Course (Non credit)							*	*	*	*	*	*	*		



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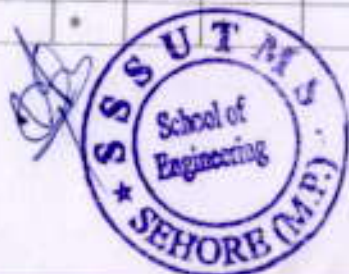
(07) Semester wise PO's and PSO's Mapping

Semester	Name of the	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
	Courses/POs(Basic, Core Electives, Projects, Internships etc.)														
Ist - Semester	Mathematics-I	*	*	*	*								*		
	Engineering Physics	*	*		*								*		
	Basic Computer Engineering	*	*	*	*	*			*		*		*		
	Basic Mechanical Engineering	*	*	*	*	*									
	Basic Civil Engineering & Mechanics	*	*	*		*		*						*	
	Language Lab					*			*	*	*		*		
	Self Study / GD Seminar	*	*	*	*	*		*	*	*		*	*	*	
IInd - Semester	Mathematics-II	*	*	*	*								*		
	Engineering Chemistry	*	*	*	*										
	English for Communication	*									*			*	
	Basic Electrical & Electronics Engineering	*	*	*	*	*									
	Engineering Graphics	*	*	*	*	*									*
	Manufacturing Practices						*		*	*	*	*	*	*	
	Industrial Training	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IIIrd - Semester	Mathematics -III	*	*	*	*										
	Electromagnetic Fields		*	*											
	Electrical Machines - I	*	*	*											
	Analog Electronics	*	*	*											
	Electrical Circuit Analysis	*	*	*											



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	Java Programming	*	*	*	*	*													
	Self study /GD Seminar		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	
IVth - Semester	Energy, Ecology, Environment & Society						*	*		*							*		
	Digital Electronics	*	*															*	
	Electrical Machines - II	*	*	*															
	Power System-I	*	*	*	*														
	Power Electronics	*	*	*															
	Software Lab I (Circuit Simulator)				*	*											*		
Vth - Semester	Control Systems		*	*		*	*												
	Microprocessors		*	*		*		*											
	Electrical Machine Design						*												
	Signal and System		*	*															
	Line Commutated and Active Rectifiers	*	*			*				*							*		
	Electrical Materials	*	*	*		*												*	
	Embedded Systems	*	*	*		*													
	Industrial Training-I	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
VIth - Semester	Power Systems - II	*	*	*	*														
	Measurements and Instrumentation	*	*	*	*														
	Electrical and Hybrid Vehicles	*	*	*	*	*	*	*	*										
	Digital signal processing	*	*	*	*														
	Industrial Electrical Systems	*	*	*	*	*	*									*			
	Computer Architecture	*	*	*	*	*	*			*				*		*			
	Wind and Solar Energy Systems	*	*	*	*	*	*	*	*										
	Computational Electromagnetics	*	*	*	*	*	*			*									
	Internet of	*	*	*	*	*	*			*									



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	Things															
	Power Plant Engineering	*	*	*	*		*		*		*					
	Modern Manufacturing Process		*	*	*	*	*	*					*			
	Minor Project		*	*	*	*	*	*	*	*	*	*	*	*		
VIII Semester	Power System Protection	*	*	*	*	*	*	*								
	Electrical Drives	*	*	*	*											
	High Voltage Engineering	*	*	*	*		*									
	Power Quality and FACTS	*	*	*	*											
	Image Processing	*	*	*	*	*										
	VLSI Circuits	*	*													
	Evolutionary Techniques	*	*	*	*								*	*		
	Data Structures and Algorithms	*	*	*	*	*							*			
	Project Stage -I	*	*	*	*	*	*	*	*	*	*	*	*	*		
	Self Study/GD/ Seminar		*	*	*	*	*	*	*	*	*	*	*	*		
	VIII Semester	Power System Dynamics and Control	*	*	*	*	*									
Generalised Theory of Electrical Machines																
HVDC Transmission Systems		*	*	*	*	*	*	*	*	*	*	*	*			
Advanced Electric Drives		*	*	*	*								*	*		
Cyber Law and Ethics					*	*			*						*	
Project Management					*	*	*	*	*	*	*	*	*			
Big data Analysis		*	*		*	*			*							
Project Stage -II		*	*	*	*	*	*	*	*	*	*	*	*	*	*	
I/III/IV (preferred Semester)	Induction Program					*	*	*	*	*	*	*	*	*		
	NSS/NCC							*	*	*	*	*	*	*		



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(08) Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the EE Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit



Sri Satya Sai University
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School of Engineering

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Curriculum for

Postgraduate Degree Courses in Engineering & Technology

Master of Technology (Electrical Engineering)

Specialization: Electrical Power System

(01) Program Educational Objectives (PEO's)

PEO1: To strengthen the knowledge in the domain of power system its applications in power sectors and core Industries and enhance analytical skills to solve complex problems using Soft controllers appropriate to its solutions that are technically sound, economically feasible and socially acceptable

PEO2: To develop the graduate to identify and address current problems in the domain of power system engineering.

PEO3: Engage in research & development in cutting edge and sustainable technologies and to inculcate research and lifelong learning attitude among the graduates.

(02) Program Outcomes (PO's):

PO-01: Engineering Knowledge: Acquire in-depth knowledge in the domain of power systems.

PO-02: Problem Analysis: To design, analyze, test and evaluate the performance of the electrical machines and transformers and the Development of the design of a number of problems, relating to the constraints of fault levels and voltage regulation on power systems

PO-03: Design/Development of Solution: Design and choice of equipment are to ensure maximum security of supplies with operational flexibility at an acceptable cost.

PO-04: Investigation: Apply advanced concepts of electrical power engineering to analyze, design and develop electrical components, apparatus and systems and to put forward scientific findings at national and international levels.

PO-05: Modern Tool Usage: Ability to use advanced techniques like artificial intelligence, expert system, fuzzy concepts etc..skills and modern scientific and engineering tools like matlab, c++ for professional practice.



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& Medical Sciences, Sehore

PO06: The Engineer and Society: An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems.

PO-07: Environment and Sustainability: Ability to design electrical and related system component, to meet desired needs and finding its solution within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

PO-08: Ethics: Understand the impact of Electrical Engineering solutions and implement the norms of professional societies like IEEE, IE (I) in ethical way.

PO-09: Individual and Team Work: Preparedness to lead a multidisciplinary scientific research team and communicate effectively.

PO-10: Communication: An ability to communicate effectively, orally as well as in writing, with society at large.

PO-11: Project Management: Demonstrate and apply knowledge and understanding of engineering principles for project management.

PO-12: Life-Long Learning: The in-depth research necessary to understand the impact of power system and its application and the advance recent trends, problems and their solutions in a global, economic, environmental and societal context.

(03) Programme Specific Outcomes (PSO's):

PSO1: Apply knowledge of power system configuration, electrical equipment and protection practices to the design and specification of electrical generation, transmission, distribution and utilization systems.

PSO2: Design advanced level power system, components, or processes to meet identified needs within economic, environmental and social constraints.



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(04) Semester wise PO's and PSO's Mapping

Semester	Name of the Courses /POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO 2	PO3	PO4	PO 5	PO 6	PO7	PO 8	PO9	PO10	PO11	PO 12	PSO 1	PSO 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
Semester-Ist	Advanced Mathematics	*	*	*	*								*		
	Power System Analysis And Control	*	*		*								*		
	Advanced Power System Analysis	*	*	*	*	*			*		*		*		
	Advanced Electrical Machines	*	*	*	*	*								*	
	Advanced Power System Protection Relays	*	*	*					*					*	
	Lab -1 : Power Electro	*	*	*	*	*				*			*	*	



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	Electronics Lab																			
	Lab -2 Power System Lab	*	*	*	*	*			*	*		*	*							
Semester - II	Flexible AC Transmission Systems (FACTS)	*	*	*	*													*	*	
	Energy Conservation Management and Auditing	*	*	*	*			*	*											*
	Power Quality and Monitoring	*	*	*	*													*	*	
	Transient Over Voltages in Power Systems	*	*	*	*			*				*								*
	Power System Security and Deregulations	*	*	*	*	*	*	*	*	*				*						
	Lab - III: Advance Power System Lab	*	*	*	*	*	*													*
	Lab - IV: Power Electronics Application to Power	*	*	*	*	*	*													*



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	System Lab (Software Based)																				
Semester-III rd	Power Controller	*	*	*	*	*													*	*	
	Special Machines	*	*	*	*	*	*														
	Artificial Intelligence & Machine Learning	*		*		*														*	
	Smart Grid Technologies	*		*		*		*		*		*								*	
	Power System Instrumentation	*	*	*	*	*	*			*											
	Advanced Electrical Drives	*	*	*	*	*														*	*
	Economics of Regulation and Restructuring of Energy Industries	*								*	*										*
	DSP & its Applications	*	*			*														*	*
	Seminar			*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Dissertation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*



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& Medical Sciences, Sehore (M.P.)

	tion Part I													
Sem este r- IVth	Dissert ation Part- II	*	*	*	*	*	*	*	*	*	*	*	*	*

(05) Structure of Programme:

To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

S. No	Course Category	Credits of the EPS Curriculum
1.	Program Core Course	64
2.	Program Elective Course	08
4.	Project	32
	Total	104

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	1 Credit



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Sri Satya Sai University of Technology
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School of Engineering

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Curriculum for

Postgraduate Degree Courses in Engineering & Technology

Master of Technology (Electrical Engineering)

Specialization: Power Electronics

(01) Program Educational Objectives (PEO's)

PEO1: To develop professional knowledge in the field of Power Electronics and its applications in power sectors and core industries and enhance analytical skills to solve complex problems using Soft and hard Power controllers appropriate to its solutions that are technically sound, economically feasible and socially acceptable

PEO2: To enhance the student's capacity in pursuing Research in emerging areas of Power Electronics and inculcate the culture of taking up Research oriented Projects.

PEO3: To exhibit professionalism, ethical attitude, communication skills, team work in their profession and adapt to current trends by engaging in lifelong learning

(02) Program Outcomes (PO's):

PO1 Acquire in-depth knowledge of specific module of power electronic devices in real time applications and an ability to evaluate, analyze and synthesize using existing modern tools for enhancement of knowledge in electrical engineering.

PO2 Analyze complex engineering problems critically; apply independent judgement for synthesizing information to make intellectual and or creative advances for conducting research on power electronic systems in a wider theoretical, practical and policy context.

PO3 An ability to think independently and conceptualize methods to solve problems in PE, after considering public health and safety, cultural, social and environmental factors.

PO4 An ability to do research work in application of power electronics in power systems and drives.

PO5 An ability to create, select, learn and apply appropriate techniques and resources in power electronic control of drives with modern software's like PSIM, MATLAB, PSPICE,XYLINK,3D Modelling etc. which are helpful to design and modeling of power electronic system



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PO6 An ability to do research work in power electronic applications in non conventional energy sources to achieve program objectives.

PO7 An ability to demonstrate knowledge and understanding of power electronic control of drives which are applied in their own work, as a member or leader in a team to manage efficiently in PE as well as in multi-disciplinary environments after consideration of economic viability.

PO8 An ability to communicate with the engineering community and with society at large, regarding power electronic system confidently and effectively, such as being able to comprehend and write effective reports and design documentation by adhering to appropriate standards make effective presentations and give & receive clear instructions.

PO9 To recognize the need for, and have the preparation and ability to engage in lifelong learning in the area of power electronic and systems independently with a high level of enthusiasm and commitment to improve knowledge and competence continuously.

PO10 Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on power electronic systems and an understanding of responsibility to contribute to the community for sustainable development of society.

PO11 To identify the shortcomings and examine the outcomes of one's actions without depending on external feedback and implement the corrective measures subsequently to develop their career.

PO-12: Life-Long Learning: The in-depth research necessary to understand the impact of power electronics and its application and the advance recent trends, problems and their solutions in a global, economic, environmental and societal context.

(03) Programme Specific Outcomes (PSO's):

PSO1: Apply knowledge of power electronic configuration, electrical equipment and protection practices to the design and specification of electrical generation, transmission, distribution and utilization systems with latest controllers.

PSO2: Design advanced level power electronic systems, components, or processes to meet identified needs within economic, environmental and social constraints and to develop the expertise in the technology associated with efficient conversion and control of electrical power by static means from available form to the required form.



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& Medical Sciences Sehore (M.P.)

(04) Semester wise CO's, PO's, and PSO's Mapping

Semester	Name of the Courses/POs(Basic,	PO 1	PO 2	PO3	PO 4	PO 5	PO6	PO7	PO 8	PO 9	PO1 0	PO 11	PO1 2	PSO 1	PSO 2	
	Core Electives, Projects, Internships etc.)	Eng ineer ing Knowl edge	Pr ob lem Ana lysis	Design /Devel opment of Soluti on	Inv esti gati on	M od er n Tool Us age	Th e En gi neer and Socie ty	Env iron ment and Sust aina bilit y	E thic s	In dividu al and Team Work	Com muni catio n	Pro ject Ma nag ement	Lif e-Lo ng Le arning			
Semester I	Advanced Mathematics	*	*	*	*								*			
	Power Electronics	*	*		*								*			
	Modern Control Systems	*	*	*	*	*			*		*		*			
	Forced Commutation Circuits	*	*	*	*	*								*		
	Electrical Drives	*	*	*				*						*		
	Lab -1 : Power Elex Devices and Phase Controlled Circuits	*	*	*	*	*	*			*	*	*		*	*	*
	Lab -2 : Software &	*	*	*	*	*			*	*		*	*	*		
Semester II	Flexible AC Transmission Systems (Facts)	*	*	*	*			*	*				*	*		
	Special Electrical Machines	*	*	*	*								*	*		
	Advance Microprocessors & Applications	*	*	*	*	*		*							*	
	Solid State DC Drives	*	*	*	*	*						*				



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	Lab -III: Ad. Microprocess or Lab	*	*	*	*	*			*		*		
	Lab IV : Power Electronics Application to Power System Lab(Software Based)	*	*	*	*	*			*		*		*
Semester-III	Power Electronic Converters	*	*	*	*	*							*
	Micro-Controllers Based Power Electronics	*	*	*	*	*							*
	EHV AC and DC transmission	*	*	*	*	*	*						
	Energy Efficient Electrical systems	*	*	*	*	*							*
	Seminar			*		*	*	*	*	*	*	*	
	Dissertation Part I	*	*	*	*	*	*	*	*	*	*	*	
Semester-IV	Dissertation Part-II	*	*	*	*	*	*	*	*	*	*	*	

(05) Structure of Programme:

To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

S. No.	Course Category	Credits of the EPS Curriculum
1.	Program Core Course	64
2.	Program Elective Course	08
4.	Project	32
	Total	104



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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Instrumentation
Engineering

ELECTRONICS AND INSTRUMENTATION ENGINEERING DEPARTMENT

1) **Vision** : "To be an acknowledged leader in providing quality education, training and research in the area of **Electronics and Instrumentation Engineering** to meet the industrial and societal needs"

2) **Mission:**

1. To impart technical knowledge, leadership and managerial skills to meet the current industrial and societal needs
2. To maintain active linkages with industries and research institutions
3. To create passion for learning and foster innovation by nurturing talents towards serving the society with high moral, ethical and professional standards
4. To prepare and build the ability for independent and lifelong learning in the context of technological changes
5. To enrich the knowledge and skills of student and faculty through continuous learning and active research

(3) Program Educational Preambles (PEO's)

PEO-1. The graduates will have core competency in mathematical, science and engineering fundamentals required for employment and higher studies.

PEO-2. The graduates will be able to analyze, design, control and provide solutions to various process industries.

PEO-3. The graduates will exhibit professional knowledge and ethical attitude, along with skills like team work, leadership, effective communication, multi-disciplinary approach.

(4) Program Outcomes (PO's)

PO-1. Knowledge of Basic Sciences and Basic Engineering:


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Instrumentation
Engineering

The students shall be able to apply the principles of Basic Sciences and Mathematical skills in learning in Basic Engineering subjects from allied branches like Electrical engineering, Electronics etc. The knowledge gained thus enables the students to apply them in learning the core branch viz. The Instrumentation Engineering.

PO-2. Computational Skills:

The students shall acquire Analytical Thinking; Problem solving abilities, get exposure to the modern computational procedures and apply them in the core Instrumentation Engineering.

PO-3. Design and Development of Solutions:

The background knowledge gained, the Analytical and computational skills acquired by the students shall enable the students to apply them in the core Instrumentation Engineering to design Electronic circuits, highly sensitive sensors networks for monitoring and control of various physical, chemical, pharmaceutical and Industrial parameters and processes.

PO-4. Conduct of Investigations into Complex Problems:

The students shall be able to apply the knowledge and adopt research methodologies for the modernization of existing designs of Instruments, design sophisticated instrumentation systems interfaced to dedicated embedded controllers or High-end computers. They shall be able to Acquire, Analyze, Interpret and Control any complex processes or problems in Industry and R&D.

PO-5. Usage of Modern Tools:

The students gain expertise in the utilization of modern software tools like C, JAVA, Multisim, Signal and Image processing tools for applications in communications, Biomedical (ECG, EEG, MRI) etc; Hardware gadgets like the Digital Storage Oscilloscopes, Function Generators, Spectrum Analyzers; and ultra-sensitive instruments like the UV-VIS and Infra-Red Spectrophotometers, Chromatographs, Process control stations etc. for applications in Industry and R&D.

PO-6. Engineers and Society:

The students of engineering should be motivated to utilize their Scientific, Technological, Computational and Instrumentation skills for the better addressing the societal needs. Design

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& Medical Sciences (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Instrumentation
Engineering

new sophisticated instruments for the high-end Research and Process Industries, Pharmaceutical, Bio-medical fields. They should utilize their expertise to develop indigenous technologies, instruments, gadgets, affordable by common people. Design inexpensive healthcare systems and extend the same to the remote areas through tele-medical network system making use of INSAT facility.

PO-7. Environment and Sustainability:

Instrumentation Engineering is a multi-disciplinary branch. The students shall be motivated to utilize their knowledge for design of highly sensitive and low energy consumption, low radiation emitting, lower environment polluting instruments, operating on renewable energy sources and implement all such measures to sustain the quality of the environment.

PO-8.Ethics:

The students are motivated to follow a code of ethics and moral perspectives at the individual level as well as at the professional level to protect the interests of all the stakeholders, with a concern for societal responsibilities.

PO-9.Individual and Team work:


Communication skills, Aptitude development programs, Team activities like POGIL, Seminar Presentations etc contribute greatly for the development of individual talents/skills. Involvement in Professional, Cultural, Sports activities provided in the institute shall also develop capabilities of a student to mould oneself as an Individual member, Team leader or an Organizer.

PO-10.Communication Skills:

The intensity of inputs (Listening, Speaking, Reading and Writing Skills) inputs and trainings imparted through all these activities, the students shall acquire excellent communication skills both orally as well as writing. They shall be able to transform their innovative ideas into excellent technical reports for presentation/publication in seminars/journals.

PO-11. Project Management and Finance:

The students shall be able to conceptualize ideas, formulate projects, visualize their execution and realized final product. The students shall demonstrate the skills required for drafting of proposals for projects with thorough understanding of the procurement plans (materials, software, hardware), project management and financial allocations and management during the execution of the project.


Registrar
Sri Satya Sai University of Technology
& Medical Sciences, Sohore (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Instrumentation
Engineering


PO-12. Life-Long learning:

The students shall be motivated to keep themselves in-tune with the contemporary changes in technological processes through life-long learning and also contribute their expertise for the benefit of the current stake holders and the society.

(5) Program specific outcomes (PSOs)

PSO-1. Ability to establish talents in designing, implementing, evaluating, measurement and control of systems in process industries.

PSO-2 . Ability to design analog and digital systems for various projects and applications.


Sri Satya Sai University of Technology
& Medical Sciences, Puttaparthi (A.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electronics and Instrumentation
Engineering

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO 2	PO3	PO4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO 12	PSO 1	PSO 2
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
1	BE (EI)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*								*	
4		Professional core courses	*	*	*	*										
5		Professional Elective courses	*	*	*	*	*	*			*	*				


 Sri Satya Sai University of Technology
 & Medical Sciences, Puttur (AP)



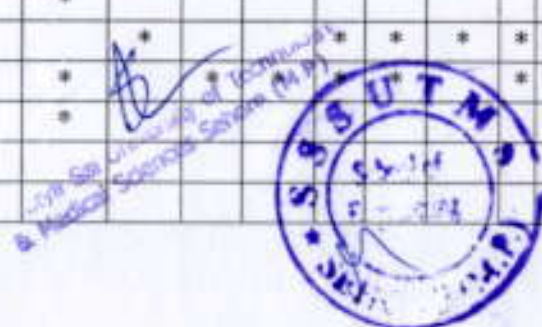
	relevant to chosen specialization/branch																	
6	Open subjects – Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*	*				*	*	*	
7	Project work, seminar and internship in industry or elsewhere		*	*	*		*	*	*	*	*	*	*	*	*	*	*	*
8	Specific core subject		*	*	*													
9	Mandatory Course (Non credit)						*	*	*	*	*				*			


 Head of Department
 in Sahya Sai University of Technology
 & Medical Sciences, Solapur (M.P.)



(07) Semester wise PO's and SPO's Mapping

S. No	Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO 2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PS O 2
			Engineering Knowledge	Problem Analysis	Design /Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Leadership		
1	Semester -Ist	Mathematics-I	*	*	*	*								*		
		Engineering Physics	*	*		*								*		
		Basic Computer Engineering	*	*	*	*	*				*		*	*		
		Basic Mechanical Engineering	*	*	*	*	*								*	
		Basic Civil Engineering & Mechanics	*	*	*					*						*
		Language Lab					*			*	*	*	*	*	*	
		Self Study / GD Seminar	*	*	*	*	*	*		*	*			*	*	
2	Semester -IInd	Mathematics-II	*	*	*	*								*		
		Engineering Chemistry	*	*	*	*									*	
		English for Communication	*										*		*	
		Basic Electrical & Electronics Engineering	*	*	*	*										
		Engineering Graphics	*	*	*	*									*	
		Manufacturing Practices					*				*	*	*	*	*	
		Industrial Training			*	*	*				*	*	*	*	*	
3	Semester -	Mathematics -III	*	*	*	*								*		
		Electromagnetic Theory	*	*	*	*								*		
		Electrical	*	*	*	*								*		



IIIrd	Instrumentation																		
	Electronic Devices	*	*	*															
	Network Analysis and Synthesis	*	*	*	*												*		
	Simulation Lab-I	*	*	*	*	*													
	Self Study /GD Seminar		*	*		*	*	*	*			*	*	*					
Sem ester - IVth	Energy,Ecology ,Environment and Society						*	*		*								*	
	Digital Electronics	*	*															*	
	Signals and System	*	*	*															
	Analog Communication	*	*	*	*														
	Electronic Measurement and Instrumentation	*	*	*															
	Simulation Lab-II			*	*	*												*	
	Industrial Training-I		*	*		*	*	*	*	*						*	*		
Sem ester -Vth	Linear Control Systems		*	*	*	*													
	Digital Signal Processing		*	*	*				*										
	CMOS Design		*	*															
	Power Electronics						*												
	Instrumentation Systems	*																	
	Data Compression & Cryptography	*																	
	Advanced Sensors	*	*		*						*				*			*	
	Industrial Training-I	*	*	*	*														
Sem ester VIth	Microcontroller & Microprocessor	*	*	*	*														
	Biomedical Instrumentation	*	*	*	*														
	Instrumentation in	*	*	*															

Sri Sarda Sai University of Technology & Medical Sciences Solapur (M.P.)



		Aerospace and Navigation																			
		Reliability Engineering	*	*	*	*	*	*	*												
		Digital Image & Video Processing	*	*	*	*															
		Speech and Audio Processing	*					*	*	*	*					*					
		Introduction to MEMS	*	*	*	*	*				*										
		Bio-Medical Electronics Digital System Design using HDL Verilog	*	*																	
		Minor Project	*	*	*	*	*														
		Opto-Electronic Instrumentation	*	*	*	*	*	*	*												
		Analytical Instrumentation	*	*	*	*															
		Non-Conventional Energy Sources	*	*	*	*	*														
		Mixed Signal Design	*	*	*	*	*			*	*				*	*					
		Road Safety Engineering	*	*	*	*															
		Principles of Electronic Communications	*	*	*	*				*											
		Project Stage-I			*	*															
		Self Study/GD/Seminar		*	*	*	*	*	*												
		Transducers and Sensors	*	*												*	*				
		Digital Control Systems	*																	*	*
		Embedded systems	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*
		CAD of Digital Systems	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Engineering and Acoustics		*	*					*											

Dr. J. S. Bhat
 Head of Department
 Department of Medical Sciences
 JSSUT Mysore



Project Stage-II	*	*	*							*
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(08) Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S.No.	Course Category	Credits of the EI Curriculum
1.	Humanities and Social Sciences including Management	8
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) perweek	0.5 Credit
2 Hours Practical(Lab)/week	1 Credit



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical and Electronics Engineering

(1) **Vision:** Developing Center of Excellence in Electrical Electronics Engineering by creating Innovative, Professionally Competent and Research Oriented Engineers for the betterment of Society.

(2) **Mission:**

- To provide high quality programs in education, scientific and technical research in the field of Electrical Engineering.
- To formulate higher quality human capital development agenda for contribution to the competitiveness of national and international industries in the field of Electrical and Electronics Engineering.
- To conduct strong basic and applied research, to disseminate knowledge, and to contribute to advancement of science and technology. Contribute to the socio-economic development of the Society through scientific and technological solutions.

(3) **Program Educational Preambles (PEO's):**

PEO 1: fundamental knowledge in Mathematics, Physical Sciences, electrical sciences and engineering

PEO 2: intensive training in problem solving, real life and complex, laboratory skills, and design skills. Specialization in specific areas of interest and excel as a professional at national level

PEO 3: development of an analytical and research mind, adapt and innovate in a world of constantly evolving technology through lifelong learning, a well balanced education that includes communication skills, the ability to function well on a team, leadership quality, an appreciation for social commitments and ethical attitude and the ability to engage in lifelong learning.

(4) **Programme Outcomes (PO's) :**

PO-01: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO-02: 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.

PO-03: Design/Development of Solution: 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.

PO-04: Investigation: 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.

PO-05: 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.



P. Ganapathy


Registrar
Sri Satya Sai University of Technology
& Medical Sciences Srikara (M.P.)

SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical and Electronics Engineering

Ansys, CAD design of electrical machines and soft computing techniques including resources such as national laboratories and standard data's with an understanding of the limitations.

PO06: 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.

PO-07: 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.

PO-08: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-09: Individual and Team Work: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO-10: 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.

PO-11: Project Management: 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.

PO-12: 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.

(5) Program Specific Outcomes (PSOs)

PSO-1 apply principles of engineering, electronics and computer science; physics, chemistry, environmental science, mathematics (including differential equations, discrete mathematics, linear algebra and complex variables) and laboratory skills for building, testing, operation and maintenance of high currents electrical systems, such as, electrical machines, power and energy systems.

PSO-2 model, analyse, design, and realize physical systems, components or processes related to high current electrical engineering systems.



Registrar 2

Sri Satya Sai University of Technology
& Medical Sciences Sehora (M.P.)

SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Electrical and Electronics Engineering

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO 8	PO9	PO10	PO11	PO1 2	P S O 1	P S O 2
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life - Long Learning		
1	BE(EX)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*							*		
4		Professional core courses	*	*	*	*										
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*	*	*				
6		Open subjects - Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7		Project work, seminar and internship in industry or elsewhere		*	*	*	*	*	*	*	*	*	*	*	*	*
8		Specific core subject		*	*	*										
9		Mandatory Course (Non credit)						*	*	*	*	*	*	*		



Rammy

Rajiv
 Sri Satya Sai University of Technology & Medical Sciences Sehom (M.P.)

(07) Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs/Basic, Core Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12	PSO 1	PS 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning		
Semester-Ist	Mathematics-I	*	*	*	*								*		
	Engineering Physics	*	*		*								*		
	Basic Computer Engineering	*	*	*	*	*			*		*		*		
	Basic Mechanical Engineering	*	*	*	*	*									
	Basic Civil Engineering & Mechanics	*	*	*				*						*	
	Language Lab					*			*	*	*		*		
	Self Study / GD Seminar	*	*	*	*	*			*	*		*	*		
Semester-IInd	Mathematics-II	*	*	*	*								*		
	Engineering Chemistry	*	*	*	*								*		
	English for Communication	*									*			*	
	Basic Electrical & Electronics Engineering	*	*	*	*										
	Engineering Graphics	*	*	*	*									*	
	Manufacturing Practices					*			*	*	*	*	*	*	
	Industrial Training			*	*		*	*	*	*	*	*	*	*	*
Semester-IIIrd	Mathematics - III	*	*	*	*										
	Signals & Systems		*	*											
	Electrical Measurement & Measuring Instruments	*	*	*	*										
	Network Analysis	*	*	*	*										
	Analog Electronics	*	*	*	*										



Rampuram

[Signature]
Registrar

	Java Programming	*	*	*	*	*													
	Self study /GD Seminar		*	*		*	*	*	*		*	*	*						
Semester IVth	Energy, Ecology, Environment & Society							*	*		*							*	
	Digital Electronics	*	*																*
	Electrical Machine-I	*	*	*															
	Power System-I	*	*	*	*														
	Control System	*	*	*															
	Software Lab I (Circuit Simulator)			*	*	*												*	
	Industrial Training-I		*	*			*	*	*	*	*	*	*	*	*	*	*	*	*
	Electrical Machines - II		*	*	*	*													
Semester Vth	Microprocessors		*	*	*			*											
	Power Electronics		*	*															
	Electrical Machine Design						*												
	Computer Networks	*																	
	Analog and Digital Communication		*	*															
	Electromagnetic Field	*	*	*	*														*
	Project Management							*	*	*	*	*	*	*	*	*	*	*	*
	Industrial Training-I		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Semester VIth	Power Systems - II	*	*	*	*														
	Electrical Drives	*	*	*	*														
	Computer Architecture	*	*	*	*	*				*			*	*	*				
	Digital signal processing	*	*	*	*														
	Electrical Energy Conservation and Auditing	*				*	*	*	*									*	
	Industrial Electrical Systems	*	*	*	*			*										*	
	Digital Control System	*																	
	VLSI Circuits	*	*																
	Image Processing	*	*	*	*	*													
	Power Plant Engineering	*	*	*	*	*			*	*	*	*	*	*	*	*	*	*	*
	Project - I (Motor)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Semester VIth	Power System	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	



R. Karjunn

Registrar
 Sri Sai Institute of Technology & Medical Sciences, Warangal (M.P.)

Semester VIII	Protection																				
	Power System Dynamics and Control	*	*	*	*	*															
	HVDC Transmission Systems	*	*	*	*			*		*		*		*							
	Special Machines	*	*	*	*																
	High Voltage Engineering	*	*	*	*			*													
	Control system design			*	*																
	Wind and Solar Energy Systems	*	*	*	*	*	*	*											*	*	
	Project Training-II(Major)		*	*	*	*	*	*	*	*	*								*	*	
	Self Study/GD/Seminar		*	*	*	*	*	*	*	*	*								*	*	
Semester VIII	Advanced Electric Drives	*																	*	*	
	EHVAC & DC		*	*				*													
	machine learning	*	*		*															*	
	modern manufacturing process		*	*	*	*	*	*	*											*	
	Economic Policies in India							*	*	*										*	
	cyber law and ethics				*	*					*										*
	internet of things	*		*	*	*			*												
	Entrepreneurship Development		*	*				*		*	*	*	*	*	*	*	*	*	*	*	
	Project-II (Major)																				
I/III/IV (preferred Semester)	Mandatory Courses							*	*	*	*	*	*	*	*	*	*	*	*		

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160



Ramya

Registrar
 SASTRA University of Technology
 Medical Sciences Gateway (M11)

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the EX Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

*Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit



Kammy

B
Registrar
Sri Setya Sat University of Technology
& Medical Sciences Sehore (M.P.)

**SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
SCHOOL OF ENGINEERING**

**Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Mechanical Engineering**

Vision

The Mechanical Engineering Department to be recognized globally for outstanding education and research leading to well qualified mechanical engineers, who are innovative, entrepreneurial and successful in advanced fields of mechanical engineering to provide the ever changing industrial demands and social needs.

Mission

1. To imparting highest quality education to the students to build their capacity and enhancing their skills to make them globally competitive mechanical engineers.
2. To maintaining state of the art research facilities to provide collaborative environment that stimulates faculty, staff and students with opportunities to create, examine, apply and disseminate knowledge.
3. To develop alliances with world class R&D organizations, educational institutions, industry and alumni for excellence in teaching, research and consultancy practices. academic environment of excellence, leadership, ethical guidelines and lifelong learning needed for a long productive career

Programme Educational Objectives:

PEO1: Practice Mechanical engineering in manufacture industries, public sector undertaking and as an entrepreneur for successful professional career.

PEO2: Pursue higher education for professional development

PEO3: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

POs of the Programme :

POs.1.Mechanical Engineering knowledge: Students will have an ability to apply knowledge of mathematics, science, and engineering to mechanical engineering problems.

POs.2. Problem analysis: Identify, formulate, research literature, and analyze engineering problems in research and development of industries to arrive at substantiated conclusions using first principles of Mechanical engineering.

POs.3. Design/development of solutions: Design solutions for complex engineering problems and create innovative components by mechanical designing , processes to meet the specifications with consideration for the program execution



Department of Mechanical Engineering

Regular
Sri Satya Sai University of Technology
& Medical Sciences, Shoranur (M.P)

**SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
SCHOOL OF ENGINEERING**

**Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Mechanical Engineering**

POs.4. Conduct investigations of complex problems: User research-based knowledge including design of experiments, analysis and interpretation of data by condition monitoring, and synthesis of the information to provide valid conclusions.

POs.5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering including prediction and modeling to complex mechanical engineering activities during production with an understanding of the limitations.

POs.6. The engineer and society: Apply reasoning informed by the appropriate knowledge to upgrade the machinery to assess technical issues and the consequent responsibilities relevant to the professional mechanical engineering practice.

POs.7. Environment and sustainability: Understand the impact of the professional engineering solutions in Mechanical, and demonstrate the knowledge of, and need for sustainable development of the Industries and buildup the nation.

POs.8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

POs.9. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

POs.10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

POs.11. Project management and finance: Demonstrate knowledge and understanding of mechanical engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary situations.

POs.12. 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 OUTCOMES (PSOs) OF THE PROGRAMME

These outcomes are specific to a program in addition to NBA defined POs
Mechanical Engineering can have PSOs as:

PSO1: Able to analyse and design and development of industrial systems.

PSO2: Able to provide model and analyse products, meeting quality and reliability standards.

PSO3: Able to identify and analyse industrial problems and provide solutions for the benefit of society.



Department of Mechanical Engineering


Registrar
Sri Satya Sai University of Technology
& Medical Sciences School (M P)

**SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
SCHOOL OF ENGINEERING**

**Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Mechanical Engineering**

Programme- PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO1 2	PSO 1	PSO 2	PSO 3
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life-Long Learning			
1	BE (ME)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*			
2		Basic Science courses	*	*	*	*	*		*								
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*								*		
4		Professional core courses	*	*	*	*											
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*	*	*			*		
6		Open subjects - Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*	*			*	*	*
7		Project work, seminar and internship in industry or elsewhere		*	*	*			*	*	*	*	*	*	*		*
8		Specific core subject		*	*	*											
9		Mandatory Course (Non credit)							*	*	*	*	*	*	*		



Department of Mechanical Engineering

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
SCHOOL OF ENGINEERING
Outcome based Curriculum for
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Department of Mechanical Engineering

Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS O 1	PS O 2	PS O 3ss	
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Life - Long Learning				
Semester-Ist	Mathematics-I	*	*	*	*								*				
	Engineering Physics	*	*		*								*				
	Basic Computer Engineering	*	*	*	*	*			*		*		*				
	Basic Mechanical Engineering	*	*	*	*	*								*		*	
	Basic Civil Engineering & Mechanics	*	*	*					*					*	*	*	
	Language Lab					*			*	*	*		*				
	Self Study / GD Seminar	*	*	*	*	*			*	*		*	*				
Semester-IInd	Mathematics-II	*	*	*	*								*				
	Engineering Chemistry	*	*	*	*								*				
	English for Communication	*									*			*			
	Basic Electrical & Electronics Engineering	*	*	*	*												
	Engineering Graphics	*	*	*	*											*	
	Manufacturing Practices					*			*	*	*	*	*	*	*	*	
	Industrial Training			*	*		*	*	*	*	*	*	*	*	*	*	
Semester-IIIrd	Mathematics -III	*	*	*	*												
	Thermodynamics	*	*	*			*	*					*	*	*	*	
	Materials Technology	*	*	*	*		*	*				*	*	*	*	*	
	Manufacturing Process	*	*	*	*	*				*		*	*	*	*	*	
	Strength of Material	*	*	*					*	*		*	*	*	*	*	
	Thermal Engineering Lab g	*	*	*	*		*	*	*	*	*	*	*	*	*	*	
	Self Study / GD Seminar		*	*		*	*	*	*	*	*	*	*				
Semester-IVth	Energy , Ecology, Environment and Society						*	*		*				*		*	
	Instrumentation & Control		*			*	*	*		*	*	*	*	*	*	*	



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	Theory of Machines	*	*	*		*	*			*		*	*	*	
	Fluid Mechanics	*	*			*	*	*	*			*	*	*	
	Manufacturing Technology	*	*	*	*	*		*		*		*	*	*	
	Software Lab			*	*	*						*			
	Industrial Training-I		*	*		*	*	*	*	*	*	*	*	*	
Semester Vth	Machine Component Design	*	*	*		*	*	*		*	*	*	*	*	
	Dynamics of Machines	*			*	*	*		*	*	*	*	*	*	
	Metal Cutting & CNC Machines	*		*		*	*		*	*	*	*	*	*	
	Turbo Machinery	*			*	*	*		*	*	*	*	*	*	
	Production & Operation Management	*	*	*		*	*		*	*	*	*	*	*	
	Work Study and Ergonomics	*	*		*	*	*		*	*	*	*	*	*	
	Industrial Safety Engineering	*			*	*	*	*	*	*	*	*	*	*	
	Industrial Training-I	*	*		*	*	*	*	*	*	*	*	*	*	
Semester VIth	NC and CNC Machine tools	*		*		*	*	*	*	*	*	*	*	*	
	Heat and Mass Transfer	*	*			*	*	*	*		*		*	*	
	IC Engines	*				*	*	*	*	*	*	*	*	*	
	Mechanical Measurement & Control	*	*		*	*	*		*		*	*	*	*	
	Power Plant Engineering	*				*	*	*	*	*	*	*	*	*	
	Renewable Energy System	*	*	*		*	*	*	*	*	*	*	*	*	
	Operation Research		*		*	*	*		*	*	*	*	*	*	
	Ergonomics Engineering	*	*		*	*	*	*	*	*	*	*	*	*	*
	Project -I(Minor)	*	*			*	*	*	*	*	*	*	*	*	*
Semester VIIth	Mechanical Vibration & Noise Engineering	*	*			*	*	*	*	*	*	*	*	*	
	Automobile Engineering	*	*	*	*	*	*	*	*	*	*	*	*	*	
	Design of Heat Exchanger	*	*	*		*	*	*	*	*	*	*	*	*	
	Industrial Robotics	*	*	*		*	*	*	*	*	*	*	*	*	
	Project Management	*	*	*		*	*	*	*	*	*	*	*	*	

Department of Mechanical Engineering



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Department of Mechanical Engineering

	Nano Manufacturing	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Project stage-I	*	*					*			*	*	*			*
	Self Study/GD/Seminar	*						*	*	*						
Semester VIIIth	Refrigeration & Air Conditioning	*	*	*	*	*	*	*				*	*	*		*
	Advance Machine Design	*	*	*				*			*		*			*
	Computer Integrated Manufacturing	*	*	*				*			*		*	*	*	*
	Industrial Organization & Management	*	*			*	*	*			*	*	*	*	*	*
	Computational Fluid dynamics	*	*			*	*	*			*		*			*
	Project stage-II	*	*			*	*	*			*	*	*	*	*	*
I/III/IV (preferred Semester)	Mandatory Courses															

Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits*= 160

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the EE Curriculum
1.	Humanities and Social Sciences including Management	11
2.	Basic Sciences	24
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	52
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	18
6.	Open Subjects: Electives from other technical and/or emerging subjects	18
7.	Project work, seminar and internship in industry or elsewhere	18



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8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit



Department of Mechanical Engineering

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Sri Satya Sai University of Technology
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Sri Satya Sai University of Technology & Medical Sciences, Sehore
School of Engineering
Outcome based Curriculum for
Post Graduate Degree Courses in Engineering & Technology
Department of Mechanical Engineering
Master of Technology (Thermal Engineering)

Vision: The Mechanical Engineering Department to be recognized globally for outstanding education and research leading to well qualified mechanical engineers, who are innovative, entrepreneurial and successful in advanced fields of mechanical engineering to provide the ever changing industrial demands and social needs.

Mission:

1. To imparting highest quality education to the students to build their capacity and enhancing their skills to make them globally competitive mechanical engineers.
2. To maintaining state of the art research facilities to provide collaborative environment that stimulates faculty, staff and students with opportunities to create, examine, apply and disseminate knowledge.
3. To develop alliances with world class R&D organizations, educational institutions, industry and alumni for excellence in teaching, research and consultancy practices. academic environment of excellence, leadership, ethical guidelines and lifelong learning needed for a long productive career

Program Educational Preambles (PEO's):

PEO .1: To motivate students to excel in research and to practice the technologies in the field of Thermal Engineering with Specialization in Refrigeration and Air conditioning.

PEO .2: To provide students with a solid understanding of Thermal Engineering fundamentals and applications required to solve real life problems.

PEO .3: To train students with scientific and engineering knowledge so as to comprehend, analyze, and design products and systems pertaining to Refrigeration and Air conditioning.

(4) Programme Outcomes (PO's):




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POs.1. Mechanical Engineering knowledge: Apply the knowledge of Demonstrate knowledge of Numerical methods in solving complex advanced heat and mass transfer problems in general and Refrigeration and Air conditioning problems in particular

POs.2. Problem analysis: Able to identify, define and solve Thermal Engineering problems ,Identify, formulate, research literature, and analyze in research and development of industries to arrive at substantiated conclusions using first principles of thermal engineering .

POs.3. Design/development of solutions: Research Potential to design and conduct experiments, analyze and interpret data, processes to meet the specifications with consideration for the program execution

POs.4. Conduct investigations of complex problems: User research-based knowledge including design of Demonstrate an ability to understand thermal design systems, components or process as per needs and interpretation of data by condition monitoring , and synthesis of the information to provide valid conclusions.

POs.5. Modern tool usage: Demonstrate skills to use Thermal engineering tools to Create modal with the help of software and equipment to analyze problems, and apply appropriate techniques, resources, and modern technologies including prediction and implementation activities during processes with an understanding of the limitations.

POs.6. The engineer and society: Broad perspective of the research on the Thermal behavior of commercial and Industrial Refrigeration and Air conditioning systems.

POs.7. Environment and sustainability: Possess a sound understanding in the advanced Refrigeration & Air Conditioning system to resolve the issue with respect to Environment and sustainability.

POs.8. Ethics: Demonstrate a sincere attitude towards professional and ethical responsibilities

POs.9. Individual and team work: Able to works as team member and lead in different areas of advanced Refrigeration and Air-conditioning industries,

POs.10. Communication: Find out the research gap to Understand published literature and technically communicate. Be able to comprehend and write



Master of Technology (Thermal Engineering)

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effective reports documentation. Make effective presentations, and give and receive clear instructions.

POs.11. Project management and finance: Contribution of the research in new technologies Implement cost effectiveness and improved sustainable solution.

POs.12. Life-long learning: Continue professionals development in the field of thermal engineering because learning is a lifelong activity

Program Specific Outcomes (PSOs)

Students will be able to

1. Apply the knowledge of thermal and design aspects of engineering
2. To develop the problems solving skills by imbibing different simulation and advanced mathematical tools.
3. Conduct independent research in the field of thermal Engineering by using different software tools in the area of fluid mechanics. The student shall be eligible to take up the fluid flow problems of industrial base.

PEO/PO Mapping

PEO	PROGRAMME OUTCOMES											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	√	√	√	√	√	√	√	√	√	√	√	√
II			√	√			√			√	√	
III				√	√	√			√			
IV					√		√		√		√	√




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Master of Technology (Thermal Engineering)

Sri Satya Sai University of Technology & Medical Sciences, Sehore
School of Engineering

Outcome based Curriculum for
 Post Graduate Degree Courses in Engineering & Technology
 Department of Mechanical Engineering

Master of Technology (Thermal Engineering)

Mapping of Course Outcome and Programmer Outcome

S.no	Semester	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
I	Semester-Ist	Advance Mathematics		*	*	*		*								*		
		Advanced Fluid Dynamics	*	*				*						*			*	
		Advanced Heat Tran	*	*				*	*		*						*	*
		Advanced Internal Combustion Engine	*	*					*	*					*			
		Advanced Thermodynamics	*	*					*	*							*	
		Lab Practice-I									*	*	*	*	*	*		
		Lab Practice-II									*	*	*	*	*	*		*
II	Semester-IIInd	Equipment Design For Thermal Systems		*	*	*	*					*	*		*		*	
		Refrigeration And Air Conditioning	*					*	*								*	
		Fundamentals Of Gas Dynamics	*	*					*	*							*	
		Thermal And Nuclear Power Plants	*	*		*			*	*				*	*	*		*
		Renewable Energy Engineering	*	*							*			*	*	*	*	
		Lab Practice-III									*	*	*	*	*	*	*	*
		Lab Practice-IV									*	*	*	*	*	*	*	*
III	Semester-IIIInd	Elective I(Thermal Power Plant Engineering)	*	*				*						*	*			
		Elective I (Computational Fluid Dynamics)	*	*					*	*					*		*	
		Elective I (Computer Aided Design of Thermal System)	*	*	*			*	*						*	*		
		Elective II (Design of Heat Exchangers)	*	*	*	*			*						*		*	



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Elective II (Solar Energy Technology)	*	*				*									*	
Elective II (Modelling and Analysis of I.C. Engine)	*	*				*	*								*	*
Thesis phase-1				*	*	*		*	*	*	*				*	
Seminar												*			*	

Semester-IVth	Dissertation Part- II			*	*	*		*	*	*	*				*	*
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Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

***Definition of Credit:**

1 Hr. Lecture (L.) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit



Master of Technology (Thermal Engineering)

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Sri Satya Sai University of Technology & Medical Sciences, Sehore
School of Engineering
Outcome based Curriculum for
Post Graduate Degree Courses in Engineering & Technology
Department of Mechanical Engineering
Master of Technology (Industrial Design)

Vision

The Mechanical Engineering Department to be recognized globally for outstanding education and research leading to well qualified mechanical engineers, who are innovative, entrepreneurial and successful in advanced fields of mechanical engineering to provide the ever changing industrial demands and social needs.

Mission

1. To imparting highest quality education to the students to build their capacity and enhancing their skills to make them globally competitive mechanical engineers.
2. To maintaining state of the art research facilities to provide collaborative environment that stimulates faculty, staff and students with opportunities to create, examine, apply and disseminate knowledge.
3. To develop alliances with world class R&D organizations, educational institutions, industry and alumni for excellence in teaching, research and consultancy practices. academic environment of excellence, leadership, ethical guidelines and lifelong learning needed for a long productive career.

Program Educational Preambles (PEO's):

- PEO .1:** To impart concepts of industrial design through the use of analytical techniques, experiments, computer simulation methods, and other modern engineering tools in the analysis and design of variety of mechanical engineering systems and their industrial applications effectively
- PEO .2:** To spread the recent developments in industrial design field through educating the students using new technologies, software's and recent trends in industrial design.
- PEO.3:** To develop habit of individual critical thinking in analyzing a complex problem in the industrial design.

Programme Outcomes (PO's) :

- POs.1. Industrial Design knowledge:** Apply the knowledge of Industrial Design and be able to discriminate, evaluate, analyze and integrate existing and new knowledge
- POs.2. Problem analysis:** Be able to critically analyze and carry out independent research on complex problems of Industrial Design
- POs.3. Design/development of solutions:** Be able to carry out systematic research, design appropriate experiments and tools, and interpret experimental and analytical data for development of technological knowledge in Industrial Design



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Sri Satya Sai University of Technology & Medical Sciences, Shore

School of Engineering

Outcome based Curriculum for

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Department of Mechanical Engineering

Master of Technology (Industrial Design)

POs.4. Conduct investigations of complex problems: User research-based knowledge including design of Demonstrate an ability to design systems, components or process as per needs and interpretation of data by condition monitoring, and synthesis of the information to provide valid conclusions.

POs.5. Modern tool usage: Demonstrate skills to use modern engineering tools Create, software and equipment to analyze select problems, and apply appropriate techniques, resources, and modern engineering including prediction and modeling activities during production with an understanding of the limitations.

POs.6. The engineer and society: Be able to function productively with others as part of collaborative and multidisciplinary team.

POs.7. Environment and sustainability: Possess a sound understanding in the Product and development to solve the issued with respect to Environment and sustainability.

POs.8. Ethics: Demonstrate a sincere attitude towards professional and ethical responsibilities

POs.9. Individual and team work: Able to works as team member and lead in different role in Refrigeration and Air-conditioning industries,

POs.10. Communication: Understand published literature and technically communicate. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

POs.11. Project management and finance: Implement cost effective and improved sustainable solution .

POs.12. Life-long learning: Continue professional development and learning as a life long activity

Program Specific Outcomes (PSOs)

By the completion of Industrial Engineering program the student will have following Program specific outcomes.

1. Students will have a solid formulation in the mathematics of Industrial Engineering and Operations Research models and supporting quantitative methods by having a firm grasp of the mathematical theory necessary to understand and build such models.
2. Formulate and analyze problems in complex manufacturing and service systems by comprehending and applying the basic tools of Industrial Engineering such as modeling and optimization, stochastic, statistics.



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3. Design and Develop appropriate analytical solution strategies for problems in integrated production and service systems involving human capital, materials, information, equipment and energy

PEO/PO Mapping

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAMME OUTCOMES											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	✓	✓	✓					✓				
II												
III			✓	✓	✓		✓	✓				

Mapping of Course Outcome and Programmer Outcome

S.no	Semester	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
1	Ist	Advance Mathematics	*	*			*							*	
		Product Design and Development	*	*		*	*	*	*	*	*	*		*	*
		Materials and Manufacturing Technology	*	*		*	*	*	*	*	*			*	*
		Computer Aided Geometric Design	*	*	*	*	*	*	*	*	*	*	*	*	*
		Advance Machine Design	*	*	*	*	*				*				*
		Lab Practice-I	*	*									*		
		Lab Practice-II	*	*									*		
2	IInd	Theory Of Vibration	*	*		*		*	*	*				*	
		Product Life Cycle Management	*	*	*	*	*	*	*	*	*	*		*	*
		Computer Applications In Design	*	*	*	*	*							*	*
		Simulation And Modeling Of Manufacturing Systems	*	*	*	*	*	*					*	*	*
		Quality And Reliability Engineering	*			*	*	*	*					*	
		Lab Practice-III	*	*					*		*	*	*		*
		Lab Practice-IV	*	*					*		*	*	*		*
		Elective- I (Mechatronics and Flexible Manufacturing)	*	*	*	*	*	*	*	*	*		*	*	
		Elective- II (Automation In Manufacturing)	*	*	*	*	*	*	*	*	*		*	*	



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3	IIIrd	Elective I (Product Data Management)	*			*	*	*	*	*	*	*	*
		Elective I (Research Methodology)	*			*	*	*	*	*	*	*	*
		Elective II (Industrial Robotics)	*	*		*	*	*	*	*	*	*	*
		Elective II (Product Analysis And Cost Optimization)	*			*	*	*	*	*	*	*	*
		Elective II (Composite Materials)	*	*		*	*	*	*	*	*	*	*
		ElectiveII(Computational Methods)	*			*	*	*	*	*	*	*	*
		Thesis phase-1	*	*		*	*			*			*
		Seminar	*			*			*	*	*		*
4	IVth	Dissertation Part- II	*	*		*	*		*	*		*	

[L= Lecture, T = Tutorials, P = Practical"s & C = Credits]

Total Credits*= 104

*Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit



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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Mining Engineering

(1) **Vision:** To produce quality human resource of high standard in Mining engineering who can contribute favourably to the technological and socio-economic development of the nation.

(2) **Mission:** Accomplish excellence in curricular, co-curricular activities with a committed faculty through teaching and research which creates technically competent and dedicated Mining engineers. We prepare students to understand and safely manage Earth and its resources for the future. To produce solutions for sectorial problems by scientific and industrial project with the cooperation of the mining industries.

(3) **Program Educational Preambles (PEO's):**

PEO 1: Graduates will be successful in mining engineer professions with creative knowledge.

PEO 2: Graduates will evidence a willingness to give professional and public service.

PEO3: Graduates will demonstrate an understanding of the importance of safety and sustainability in all activities, in the workplace. To demonstrate high standard of ethical conduct, positive attitude and social responsibilities.

(4) **Programme Outcomes (PO's) :**

PO-1. Engineering knowledge: Graduates will demonstrate an ability to apply knowledge of mining engineering, mathematics, probability and statistics as it applies to the field of mining engineering.

PO-2. Problem analysis: Graduates will demonstrate in depth knowledge of topics which are critical to surface and underground mining especially mine planning, method of work, drilling systems, blasting, safety, mine environmental engineering and economics. In addition to these, some mine management, mine computing, etc.

PO-3. Design/development of solutions: Graduates will demonstrate the ability to function as a member of engineering and science laboratory teams, as well as on multidisciplinary design teams.

PO-4. Conduct investigations of complex problems: Graduates will demonstrate the ability to learn and work independently to identify and solve mining engineering related problems.

PO-5. Modern tool usage: An ability to Create, select, and apply appropriate techniques, resources, and modern engineering and modeling to complex engineering activities with an understanding of the limitations.

PO-6. The engineer and society: Graduates will have the confidence and potential to apply engineering solutions in global and social contexts. Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal.




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SCHOOL OF ENGINEERING
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Undergraduate Degree Courses in Engineering & Technology
Department of Mining Engineering

PO-7. Environment and sustainability: Graduates will be truly educated and will have a point of view regarding global scenario of the impact of mining technology on society and especially on environment will demonstrate awareness of contemporary issues at large.

PO-8. Ethics: Graduates will demonstrate an understanding of professional and ethical responsibilities.

PO-9. Individual and team work: An ability to work effectively, as an individual and as a member or leader in teams, and in multidisciplinary settings.

PO-10. Communication: Graduates will possess effective communication skills both orally and in writing. Make effective presentations, and give and receive clear instructions.

PO-11. Project management and finance: Ability to demonstrate management skills and apply engineering principles to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO-12. Life-long learning: An ability to recognize the need for, and pursue life-long learning in the broadest context of technological change.

(5) Program Specific Outcomes (PSOs)

PSO1: Analyze, design, operate, maintenance and evaluate various components, methods and system using state-of-art technology in Mineral extraction and process up.

PSO2: Effectively practice as professional engineers, managers, and leaders in the mining Industries and/or a wide variety of other fields as engineers.




Sri Satya Sai University of Techno
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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
 Outcome based Curriculum for
 Undergraduate Degree Courses in Engineering & Technology
 Department of Mining Engineering

(06) Programme PO's and PSO's Mapping:

S. No	Program	Courses Category	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
1	BE(MINING)	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	*	*	*		*							*		
4		Professional core courses	*	*	*	*										
5		Professional Elective courses relevant to chosen specialization/branch	*	*	*	*	*	*	*	*	*	*				




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6	Open subjects – Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7	Project work, seminar and internship in industry or elsewhere		*	*	*		*	*	*	*	*	*	*		*
8	Specific core subject		*	*	*										
9	Mandatory Course (Non credit)						*	*	*	*	*		*		




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(07) Semester wise PO's and PSO's Mapping

Semester	Name of the Courses/POs(Basic, Core, Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12	PS O.1	PS O.2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lif e-Long Learning		
Semester-Ist	Mathematics-I	*	*	*	*								*		
	Engineering Physics	*	*		*								*		
	Basic Computer Engineering	*	*	*	*	*			*		*		*		
	Basic Mechanical Engineering	*	*	*	*	*									
	Basic Civil Engineering & Mechanics	*	*	*					*					*	
	Language Lab					*			*	*	*		*		
	Self Study / GD Seminar	*	*	*	*	*			*	*		*	*		
Semester-II nd	Mathematics-II	*	*	*	*								*		
	Engineering Chemistry	*	*	*	*								*		
	English for Communication	*										*		*	
	Basic Electrical & Electronics Engineering	*	*	*	*										
	Engineering Graphics	*	*	*	*										*
	Manufacturing Practices					*			*	*	*	*	*	*	*
	Industrial Training			*	*		*	*	*	*	*	*	*	*	*
Semester-III rd	Mathematics -III	*	*	*	*								*		
	Mining Environment-I		*	*		*	*	*						*	
	Mining Surveying-I	*	*	*	*	*								*	
	Rock Mechanics		*	*	*	*								*	
	Geology-I		*	*	*								*		
	Computer Programming	*	*	*	*	*							*		
	Self study /GD Seminar		*	*		*	*	*	*	*	*	*	*	*	
Semester-IV th	Energy, Ecology, Environment & Society						*	*		*				*	
	Drilling and Blasting		*			*	*							*	
	Underground Coal Mining		*			*		*						*	
	Mining Machinery-I		*			*								*	
	Geology-II		*	*	*	*							*		
	Computer Programming	*	*	*	*	*							*		



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	Industrial Training-I		*	*		*	*	*	*	*		*	*	
Seme ster- Vth	Mining Surveying-II	*	*	*	*	*								*
	Mineral Processing			*	*	*								
	Mining Machinery-II		*		*	*								
	Pollution Control Eng.				*	*	*							
	Computer Application in Mining	*	*	*	*	*								*
	Mine Legislation						*	*						
	Mine Management							*	*	*	*	*	*	
	Industrial Training-I		*	*	*	*	*	*	*	*		*	*	
Seme ster VIth	Mine Environment-II		*	*	*	*	*	*						*
	Underground Mend Mining		*	*	*	*	*	*					*	*
	Surface Mining		*	*	*	*	*	*					*	*
	Mine Ventilation and Climate eng.		*	*	*	*	*	*						*
	Ground Control	*	*	*	*	*	*	*	*					
	Mine Safety Eng.	*	*	*	*	*	*	*	*					
	Mine Development	*	*	*	*	*	*	*	*				*	*
	Mine Reclamation		*	*	*	*	*	*	*					*
Seme ster VIIth	Minor Project		*	*	*	*	*	*	*	*		*	*	
	Mine Machinery-III	*	*		*	*	*	*						*
	Strata Control			*	*	*	*	*						*
	Operation Research in Mining		*	*	*	*	*	*						*
	Mine Disasters		*	*	*	*	*	*						*
	Mine Induced Subsidence Eng.		*	*	*	*	*	*				*	*	
	Mine Economics							*	*			*	*	
	Mine Hazards and Rescue		*	*	*	*	*	*					*	*
Seme ster VIII h	Project Stage-I		*	*	*	*	*	*	*	*	*	*	*	*
	Self study/GD/Seminar		*	*	*	*	*	*	*	*	*	*	*	*
	Mining Surveying-III	*	*	*	*	*	*	*					*	*
	Mining Environment-III		*	*	*	*	*	*					*	*
	Rock Slope Engineering		*	*	*	*	*	*					*	*
	Mine Planning		*	*	*	*	*	*					*	*
	Rock Excavation eng.		*	*	*	*	*	*					*	*
VIII V (prefe red Seme ster)	Project Stage-II		*	*	*	*	*	*	*	*	*	*	*	*
	Mandatory Course							*	*	*	*	*	*	*



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[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 160

Structure of Undergraduate Engineering program:

S.No.	Course Category	Credits of the MINING Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
	Total	160

*Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit




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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Information Technology

(1) Vision:

To contribute effectively to the important national endeavor to produce quality human resource in the Information Technology and related areas for sustainable development of the country's IT industry needs.

(2) Mission:

- To accomplish state-of-the-art programs in computer science & engineering.
- To provide one of the best working environments to motivate faculty and students to work towards vision of the department and to attract best faculty and students.
- To develop linkages with industry, other universities/institutes/research laboratories and work in collaboration with them.
- To use our expertise in Information Technology discipline for helping society in solving problems.

(3) Program Educational Preambles (PEO's):

PEO1: To produce engineering graduates who shall excel in a career utilizing their education in Information Technology

PEO2: Pursue higher education for professional development

PEO3: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

(4) Programme Outcomes (PO's) :

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and engg. specialization to the solution of *complex engineering problems*.
2. **Problem analysis:** Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **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.
6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Information Technology

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

10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

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

12. 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.

(5) Program Specific Outcomes (PSOs)

PSO-1 Analyze and recommend the appropriate IT infrastructure required for the implementation of a project

PSO-2 Design, develop and test software systems for world-wide network of computers to provide solutions to real world problems. (06) Programme PO's and PSO's Mapping

(06) Programme PO's and PSO's Mapping

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8	PO9	PO10	PO11	PO1 2	P S O 1	P S O 2	
			Engin ering Knowl edge	Prob lem Anal ysis	Design/Dev elopment of Solution	Investi gation	Mo dem Too l Usage	The Engi neer and Soci ety	Enviro nment and Sustain ability	Eth ics	Indiv idual and Team Work	Commu nication	Project Manag ement	Life-Lon g Lear ning			
1	MULTI	Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*			
2		Basic Science courses	*	*	*	*	*		*								
3		Engineering Science courses including workshop, drawing, basics of electrical/mechan ical/computer etc.	*	*	*		*								*		
4		Professional core courses	*	*	*	*											
5		Professional Elective courses relevant to	*	*	*	*	*	*			*	*					

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& Medical Sciences, Seclore (M.P.)



SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Information Technology

	chosen specialization/branch																		
6	Open subjects – Electives from other technical and /or emerging *subjects	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7	Project work, seminar and internship in industry or elsewhere		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	Specific core subject		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9	Mandatory Course (Non credit)						*	*	*	*	*	*	*	*	*	*	*	*	*

(07) Semester wise PO's and SPO's Mapping

S.No.	Course Code	Name of the Courses	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 1	PO 2	
			Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning			
1	BEESC-101	Mathematics-I	*	*	*	*											
2	BEESC-202	Engineering Physics	*	*		*	*							*			*
3	BEESC-203	Basic Computer Engineering	*	*	*	*	*					*	*	*			*
4	BEESC-204	Basic Mechanical Engineering						*		*	*						*
5	BEESC-205	Basic Civil Engineering & Mechanics	*	*	*	*	*	*	*		*	*					*
6	BEHSMC-206	Language Lab		*	*	*	*	*	*		*	*	*	*	*	*	*
7	BELC-107	Self-Study / GD Seminar	*	*	*	*	*	*	*		*	*	*	*	*	*	*
8	BEESC-201	Mathematics-II	*	*	*	*	*										*
9	BEESC-102	Engineering Chemistry	*	*	*	*	*	*	*		*	*	*	*	*	*	*
10	BEHSMC-103	English for Communication	*	*	*	*	*	*	*		*	*	*	*	*	*	*
11	BEESC-104	Basic Electrical & Electronics Engineering	*	*	*	*	*	*	*		*	*	*	*	*	*	*
12	BEESC-105	Engineering Graphics	*	*	*	*	*	*	*		*	*	*	*	*	*	*


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
 Outcome based Curriculum for
 Undergraduate Degree Courses in Engineering & Technology
 Department of Information Technology

41	ITA-604(A)	Data Mining and Data Warehousing	*	*	*	*										*			*	*	*	
42	ITA-604(B)	Soft Computing	*	*	*	*														*	*	*
43	ITA-605(A)	PHP Technology	*		*		*													*	*	*
44	ITA-605(B)	Cyber Law & Ethics	*	*		*																
45	ITA-606	Minor Project		*	*						*								*		*	*
46	ITA-701	Ad-hoc and Sensor Network	*	*	*	*									*				*	*	*	*
47	ITA-702	Cloud Computing	*	*		*														*		*
48	ITA-703(A)	Object Oriented Analysis and Design	*																	*	*	*
49	ITA-703(B)	Neural Networks	*	*		*														*	*	*
50	ITA-704(A)	Information and Storage Management	*		*															*	*	*
51	ITA-704(B)	Optimization Techniques	*		*		*													*	*	*
52	ITA-705	Project Stage-I	*		*									*	*			*	*	*	*	*
53	ITA-706	Self-Study/GD/Seminar	*		*								*	*			*	*	*	*	*	*
54	ITA-801	Web Technology	*	*	*	*																
55	ITA-802 (A)	Artificial Intelligence	*	*		*														*	*	*
56	ITA-802(B)	Network Management	*		*		*													*	*	*
57	ITA-803(A)	Internet of Things	*	*	*															*	*	*
58	ITA-803(B)	Mobile computing	*	*	*	*	*	*	*								*	*	*	*	*	*
59	ITA-804	Project Stage-II	*	*	*	*	*	*	*		*	*				*	*	*	*	*	*	*

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Engineering & Technology
Department of Information Technology

(08) Structure of Programme: To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programme structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits*= 160

Structure of Undergraduate Engineering program:

S. No.	Course Category	Credits of the CSE Curriculum
1.	Humanities and Social Sciences including Management	08
2.	Basic Sciences	17
3.	Engineering Sciences including workshop, drawing, basics of electrical/mechanical/computer etc.	19
4.	Professional Core Subjects	65
5.	Professional Subjects: Subjects relevant to chosen specialization/branch	17
6.	Open Subjects: Electives from other technical and/or emerging subjects	13
7.	Project work, seminar and internship in industry or elsewhere	21
8.	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	Non-credit
Total		160

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (Lab)/week	1 Credit

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Sri Satya Sai University of Technology
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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Information & Technology

(1) Vision: Creating knowledge of fundamental principles and innovative technologies through research within the core areas of computer science and also in inter-disciplinary topics. Serving the communities to which we belong at local and national levels, combined with a deep awareness of our ethical responsibilities to our profession and to society.

(2) Mission:

- To provide quality education to meet the need of profession and society.
- Provide a learning ambience to enhance innovations, problem solving skills, leadership qualities, team-spirit and ethical responsibilities.
- Establish Industry Institute Interaction program to enhance the entrepreneurship skills
- Provide exposure of latest tools and technologies in the area of engineering and technology.
- Promote research based projects/activities in the emerging areas of technology convergence.

(3) Program Educational Preambles (PEO's):

PEO1: To produce engineering graduates who shall excel in a career utilizing their education in computer engineering.

PEO2: Pursue higher education for professional development.

PEO3: Exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.

(4) Programme Outcomes (PO's) :

PO01. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and engg. Specialization to the solution of complex engineering problems.

PO02. Problem analysis: Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.

PO03. Design/development of solutions: Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO04. Conduct investigations of complex problems: User research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO05. 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.

PO06. 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.

PO07. 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.

PO08. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Information & Technology

PO09. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

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

(5) Program Specific Outcomes (PSOs)

PSO-1 Apply standard Software Engineering practices and strategies in real-time software project development using open-source programming environment or commercial environment to deliver quality product for the organization success.

PSO- 2 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.

(06) Programme PO's and PSO's Mapping

Program	Courses Category	PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		Comp. Knowledge	Prob. Analysis	Design Sol	Invest. Probl	Tools/Ethics	Learn	Proj. Mgt	Commn	Soc. EnviroWork	Team	Entrepreneurship			
MTECH (IT)	Foundation Courses	*						*		*			*		
	Professional Core	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Professional Electives	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Employability Enhancement Courses	*					*	*		*		*	*		


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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES

Outcome based Curriculum for
 Postgraduate Degree Courses in Engineering & Technology
 Department of Information & Technology

(07) Semester wise PO's and SPO's Mapping

Semester	Name of the	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O 1	PS O 2
		Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning		
Semester-Ist	Advanced Mathematics	*	*	*	*							*			
	Advanced Data Structures and Algorithm	*	*	*	*	*				*		*	*		*
	Advanced Computer Architecture	*	*	*			*			*		*	*		
	Object Oriented Technology & UML	*	*	*	*	*				*		*	*		
	Advanced Computer Networking	*	*	*	*	*	*	*		*		*	*	*	
Semester-II nd	Information Security, Coding & Cryptography	*	*	*	*	*			*	*			*		
	Advance Distributed System	*	*	*	*	*		*		*		*	*		
	Computer Graphics & Multimedia	*	*	*	*	*				*	*	*	*	*	
	Artificial Intelligence	*	*	*	*	*	*			*		*	*		
	Cellular Mobile Systems	*	*	*	*	*	*			*		*	*	*	*
Semester-III rd	Ad-hoc Networks	*	*	*	*	*	*			*		*	*		
	Parallel Computation and Applications	*	*	*	*	*	*			*		*	*		*
	Web Engineering	*	*	*	*	*	*			*		*	*		
	Software testing and quality assurance	*	*	*	*	*	*	*		*		*	*		
	Data Mining and Warehousing	*	*	*	*	*	*	*	*	*		*	*		
	High Performance Computing	*	*	*		*				*		*	*		
	Dissertation Part- I	*	*	*	*	*						*	*		
Semester-IV	Dissertation Part- II	*	*	*	*	*						*	*		

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SCHOOL OF ENGINEERING
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in Engineering & Technology
Department of Information & Technology

(08) **Structure of Programme:** To fulfill the need of development of all the POs/ GAs, as per above mapping, the following semester wise programmed structure are as under.

[L= Lecture, T = Tutorials, P = Practical's & C = Credits]

Total Credits* = 104

Structure of Post Graduate Engineering program:

S. No.	Course Category	Credits of the Curriculum
1.	Foundation Courses	8
2.	Professional Core	20
3.	Professional Electives	16
4.	Employability Enhancement Courses	60
	Total	104

***Definition of Credit:**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	1 Credit

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