SRI SATYA SAI UNIVERSITY
OF TECHNOLOGY AND MEDICAL SCIENCES

Where talent meets opportunity

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

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Department of Computer Application – PGDCA

Outcome Based Curriculum

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

Vision: - A leading IT institute providing world class and research-based computer education & training; and producing technically competent and ethically sound versatile professionals; thereby contributing towards building a strong, developed nation"

Mission:

To serve the Vibrant India of the 21st Century; by imparting computer education and generating innovative knowledge for global competence and excellence in quality."

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

PEO 1: Graduates will ascertain themselves as successful professionals by solving real problems by using Computational techniques

PEO 2 Graduates can have fundamental principles and methods of Computer Application and Software for developing complex application

PEO 3 Graduates will reveal their ability to adopt to a rapidly changing environment by learn new innovation technologies

(4) Programme Outcomes (PO's) :

After PGDCA, students will be able to:

PO-01 Exhibit understanding of broad business concepts and principles.

PO-02 To identify and define problems and opportunities.

PO-03 Demonstrate the ability to identify a business problem, isolate its key components, analyze and assess the salient issues, set appropriate criteria for decision making, and draw appropriate conclusions and implications for proposed solutions.

PO-04 Demonstrate the capabilities required to apply cross-functional business knowledge and technologies in solving real-world business problems.

PO-05 Demonstrate use of appropriate techniques to effectively manage business challenges.

PO-06 Capable of recognizing and resolving ethical issues.

PO-07 Effectively communicate busineness issues, management concepts, plans and decisions both in oral and written form using appropriate supportive technologies.

PO-08 Develop various real time applications using latest technologies and programming languages.

PO-09 Possess strong foundation for their higher studies.

PO-10 Blend analytical, logical and managerial skills with the technical aspects to resolve real world issues.

PO-11 Become employable in various IT companies and government jobs.

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(5) P r o g r	am Specific Outcomes (PSOs)
	PSO-1 Ability to analyze a Software problem by using Software Engineering technique and Design, formulate and obtaining solution to the problem
	PSO-2 Ability to adopt modern IT environment and learn current development technology in the career to become an IT engineers or pursue their higher studies **PSO-3** An understanding of Computational professionalism by means of legal, ethical and social responsibilities.

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06) Semester wise PO's and SPO's Mapping

Semester	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
I SEMESTER	FUNDAMENTALS OF COMPUTERS & INFORMATION TECHNOLOGY	*	*	*	*								*		
	INTROUDCTION TO OPERATING SYSTEM (DOS, WINDOWS, LINUX)	*	*		*								*		
	PC PAKAGE	*	*	*	*	*			*		*		*		
	A – FOXPRO	*	*	*	*	*									
	B – MS ACCESS	*	*	*				*						*	
	PRACTICAL (OPERATING SYSTEM + PC PACKAGES)					*			*		**		*		

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II SEMESTER	Subject																
	SYSTEM ANALYSIS & DESIGN	•	•	•	•	•											
	PROGRAMMING WITH VISUAL BASIC .NET	•	•	•	•									•			
	INTERNET & E- COMMERCE	•	•	•	•												
	OPPS & PROGRAMMING WITH C++	•	•	•	•												•
	FINANCIAL ACCOUNTING WITH TALLY	•	•		•											•	
	PROJECT						•		•	•	•	•	•				

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FACULTY OF EDUCATION
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Undergraduate Degree Courses in Bachelor of Science
Department of Computer Science

Vision of the Departments:

To establish a center of excellence in **Bachelor of Science (Computer Science)** such as Mathematics, Physics and Computer Science that provide foundation for also in communication skills that helps students to express themselves effectively who can be globally challenged in engineering fundamentals – experimental, analytical, computational and designing abilities.

Mission of the Departments:

To create, share, and apply knowledge in Computer Science, including in interdisciplinary areas that extend the scope of Computer Science and benefit humanity; to educate students to be successful, ethical, and effective problem-solvers and life-long learners who will contribute positively to the economic well-being of our region and nation and who are prepared to tackle complex 21st Century challenges facing the world.

Department of Computer Science focuses on the following:
- To provide necessary background
- For producing a meaningful career in Computer Science and related fields
- For acquiring, Mathematical skills and employability skills.
- Nurture and train students to develop skills, analysis, logical reasoning and problem solving.

- Create an ambience to inculcate the traits of professional competencies, such as accountability, ethics, common skills and lifelong learning.

Programme Educational Objectives: Bachelor of Science (Computer Science)

PEO1. To teach Physics, Computer Science and Mathematics for U.G. and P.G. programs.

PEO2. To inform and motivate students to study the fundamental aspects of science and its applications.

PEO3. Graduates will develop the skill to write entrance exam conducted by IIT's/Universities to pursue PG and Integrated Ph.D and will shine as great Mathematicians.

PEO4. Graduates to develop confidence to appear for SSC (CGL), IBPS, RRB and Civil services exam and will occupy higher posts in administrative level.

PEO5. Graduates will prepare in advance to appear for TRB after completing B.Ed and become a dedicated faculty.

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PEO6. Graduates develop teaching skills, Subject knowledge in the course of their study which will help them to shine in various fields including Education, IT, etc.

PEO7. Graduates will use their course as a training ground to develop their positive attitude, skills which will enable them to become a multi facet personality shining in any chosen field.

POs of the Program's (PO's) :

PO-01: Disciplinary knowledge: Ability to build (either independently or by joining higher academic program) on of the core computer science concepts learnt in the course. Ability to apply the core computer science concepts to solve the problems in the IT industry.

PO-02: Communications skills: Ability to communicate various concepts of mathematics in effective and coherent manner both in writing and orally, ability to present the complex mathematical ideas in clear, precise and confident way, ability to explain the development and importance of mathematics and ability to express thoughts and views in mathematically or logically correct statements.

PO-03: Scientific reasoning :Given a problem, the graduates will be able to analyse it, suggest solutions, and critically evaluate the solutions proposed by others.

PO-04: Problem solving: Capacity to use the gained knowledge to solve different kinds of non-familiar problems and apply the learning to real world situations; Capability to solve problems in computer graphics using concepts of linear algebra; Capability to apply the knowledge gained in differential equations to solve specific problems or models in operations research, physics, chemistry, electronics, medicine, economics, finance etc.

PO-05: Research-related skills: Capability to ask and inquire about relevant/appropriate questions, ability to define problems, formulate hypotheses, test hypotheses, formulate mathematical arguments and proofs, draw conclusions; ability to write clearly the results obtained.

PO-06: Information/digital literacy: Capacity to use ICT tools in solving problems or gaining knowledge; capacity to use appropriate softwares and programming skills to solve problems in mathematics.

PO-07: Self-directed learning: Ability to work independently, ability to search relevant resources and e-content for self-learning and enhancing knowledge in mathematics.

PO-08: Moral and ethical awareness/reasoning: Ability to identify unethical behavior such as fabrication or misrepresentation of data, committing plagiarism, infringement of intellectual property rights.

PO-09: Lifelong learning: Ability to acquire knowledge and skills through self-learning that helps in personal development and skill development suitable for changing demands of workplace.

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PROGRAM SPECIFIC OUTCOMES (PSOs) :

PSO1. Different types of theories are studies in physics and with the help of Mathematics they are verified and proved, experimentally acknowledged. The students became aware about the secrets of nature. Their minds become analytic and problem solving using with computer science.

PSO2. Demonstrate coherent knowledge and understanding of the logical organization of a digital computer, its components and working. Understanding of the time and space complexities of algorithms designed to solve computational problems.

PSO3. Apply knowledge of logical skills to identify and analyze problems and issues, and seek solutions to real-life problems. For example, creating mobile applications, database applications, and educative computer games.

PSO4. Communicate mathematics effectively by written, computational and graphic means.

PSO5. Create mathematical ideas from basic axioms.

PSO6. Gauge the hypothesis, theories, techniques and proofs provisionally.

PSO7. Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis.

PSO8. Identify applications of mathematics in other disciplines and in the real-world, leading to enhancement of career prospects in a plethora of fields and research

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Department of Computer Science

Program PO's and PSO's Mapping:

S.No	Program	Courses Category	PO 1 Disciplinary knowledge	PO2 Communication skills	PO3 Scientific reasoning	PO4 Problem solving	PO5 Research-related skills	PO6 Information/digital literacy	PO7 Self-directed learning	PO8 Moral and ethical awareness/reasoning	PO9 Lifelong learning	PSO 1	PSO 2
1	B.Sc (Computer Science)	COMPUTER SCIENCE	*		*	*	*	*	*			*	*
2		PHYSICS				*	*					*	
3		MATHEMATICS	*			*			*				*
4		FOUNDATION COURSE								*			*

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YEARLY wise PO's and SPO's Mapping:

Year	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1 Disciplinary knowledge	PO2 Communications skills	PO3 Scientific reasoning	PO4 Problem solving	PO5 Research-related skills	PO6 Information/digital literacy	PO7 Self-directed learning	PO8 Moral and ethical awareness/reasoning	PO9 Lifelong learning	PSO 1	PSO 2
	Fundamental of computer and PC software	*	*	*	*		*					
	Desktop Publishing and Multimedia	*	*	*	*		*					
	Mathematical Physics, Mechanics and Properties of Matter	*	*	*	*						*	
	Thermodynamics and Statistical Physics	*	*	*	*						*	
I YEAR	Algebra and Trigonometry	*	*	*	*		*	*				*
	Calculus and differential equations	*	*	*	*			*				*
	Vector Analysis and Geometry	*	*	*				*				
	Moral value and language	*	*	*					*			*
	Development of Entrepreneurship	*	*	*								*
	Computer science: practical											
	Physics :practical										*	
II YEAR	Object oriented programming using c++	*	*	*	*			*				
	Data structure and algorithms	*	*	*	*			*				
	Optics	*	*	*	*						*	
	Electro-statics, magneto statics and	*	*	*	*						*	

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	electrodynamics														
	Abstract algebra	*	*	*	*			*		*					*
	Advanced calculus	*	*	*				*							*
	Differential equation	*	*	*	*			*							
	Moral value and LANGUAGE-II	*	*	*						*				*	
	Environmental studies	*	*	*											*
	Computer science : practical		*	*											
	Physics :practical		*	*										*	
III YEAR	Database management system	*	*	*	*			*							
	Operating system	*	*	*	*			*							
	Physics Paper-I(Quantum Mechanics and Spectroscopy)	*	*	*	*									*	
	Physics Paper-II(Solid State Physics and Devices)	*	*	*	*									*	
	Mathematics paper-i(linear algebra and numerical analysis)	*	*	*	*			*							*
	Mathematics Paper-II(Real and Complex Analysis	*	*	*				*							*
	Mathematics paper-iii(statistical	*	*	*				*							

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methods)														
Foundation Course Paper-I(Moral Value and Language-III)	*	*	*							*				*
Foundation Course Paper-II(Basics of Computer App.Information Technology)	*	*	*		*									*
Computer science : practical			*										*	
Physics :practical			*										*	
Project/internship												*		

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	

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Programme : Master of Computer Application (MCA)

(1) Vision: "To be a globally recognized world class Institute for imparting IT related knowledge, Skill and attitude for entering into world of work and allied areas."

(2) Mission: "To achieve excellence in teaching-learning, Research and development activities by creating technically capable and devoted Software engineers to serve their surroundings with pride".

(3) Program Educational Preambles (PEO's): Master of Computer Application (MCA)

PEO1: To develop computer Programming skills and abilities to face the changing trends and career opportunities in computer application for contribute in nation growth.

PEO2: To apply advanced tools and technologies of computer application for pursue higher education for Research development to solving industry oriented problems.

(4) Programme Outcomes (PO's) : Master of Computer Application (MCA)

PO-01: Computational Knowledge: Apply knowledge of computer fundamental, computer Programming, Computer application and domain knowledge appropriate for software development life cycle from defined problems and requirements.

PO-02: Problem Analysis: Identify, formulate, research literature, and solve complex applications and system programs reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PO-03: Design /Development of Solutions: Design application program and evaluate solutions for complex applications and system problems, and design and evaluate systems for computer application, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO-04: Conduct investigations of complex Computing problems: Use Computer Language based knowledge and programming concept including design of program, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-05: Modern Tool Usage: Apply advanced programming techniques, database resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO-06: Professional Ethics: Understand and commit to professional ethics and cyber regulations, Notations/symbol of programming, Programming Concept, responsibilities, and norms of professional computing practices.

PO-07: Life-long Learning: Identify the need, and have the ability, to involve in independent learning for continual software development as a computing professional.

PO-08: Project management and finance: Demonstrate knowledge and understanding of the computing project 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-09: Communication Efficacy: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

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PO-10: Societal and Environmental Concern: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.

PO-11: Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO-12: Innovation and Entrepreneurship: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

(5) Program Specific Outcomes (PSOs)

PSO-01: Understand, analyse and develop computer programs in the areas related to algorithms, Process and solutions for specific application development using appropriate data modelling concepts.

PSO-02: Apply standard Software Engineering practices and strategies in software project development using open-source programming environment

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

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

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

SEM	Name of the Courses/POs	PO1 Comp. Knowledge	PO 2 Prob. Analysis	PO3 Design Sol	PO4 Invest. Probl	PO5 Tools	PO6 Ethics	PO7 Learn	PO8 Proj. Mgt	PO9 Comm n	PO10 Soc, Enviro	PO11 Team Work	PO12 Entrepreneurship	PSO1	PSO2
I	Computer Fundamental & Programming in c	*	*	*		*		*	*			*		*	
	Computer Organization & Architecture	*	*	*		*		*							
	Software Engineering	*	*	*	*	*		*							*
	Discrete Mathematical Structure	*						*		*			*		
	Business English & Communication	*						*		*			*		
	Prog. Lab in c	*	*	*		*		*	*			*		*	
	Communication Lab	*		*		*		*				*			
II	Data Communication	*	*	*		*	*	*							
	Database Management System	*	*	*		*		*							
	E-Commerce & Governance	*		*		*		*							
	Data Structure	*	*	*		*		*							*
	Operating System	*	*	*		*		*							
	DBMS/ORACLE Lab	*	*	*		*		*	*					*	
	Based on MCA-204&205 i.e. DS & OS	*	*	*		*		*	*			*		*	
III	Computer Oriented Optimization Models	*						*		*			*		
	Internet Technology & Network Management	*	*	*		*		*							
	Programming in C++	*	*	*		*		*	*			*		*	
	Theory of Computation	*	*	*		*		*							
	Computer Networks	*	*	*		*		*							
	Programming Lab (Any Two Tools from VB &	*	*	*		*		*	*			*		*	

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Outcome based Curriculum for
Programme : Master of Computer Application (MCA)

	VC++)														
	Programming Lab in C++	*	*	*		*		*	*			*		*	
IV	Artificial Intelligence	*	*	*		*		*							*
	Analysis Design & Algorithm	*	*	*		*		*							*
	Computer Graphics & Multimedia	*	*	*		*		*							
	Web Technology	*	*	*		*		*	*			*		*	
	A) Java Technology	*	*	*		*		*	*			*		*	
	Advance Data Base Management System	*	*	*		*		*							
	Minor Project(HTML Based Web Development)	*	*	*		*		*	*			*		*	
	Programming Lab (Computer Graphics &	*	*	*		*		*							
V	Cloud Computing	*	*	*		*		*							
	Data Warehousing & Mining	*	*	*		*		*							*
	Network Security	*	*	*		*		*							
	Compiler Design	*	*	*		*		*							*
	Dot Net Technology	*	*	*		*		*	*			*		*	
	Distributed System	*	*	*		*		*							
	Information Storage & Management	*	*	*		*		*							
	Minor Project- II	*	*	*		*		*	*			*		*	
	Programming Lab in Cloud Computing	*	*	*		*		*	*			*		*	
VI	Major Project	*	*	*		*		*	*			*		*	

(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*= 158

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Programme : Master of Computer Application (MCA)

Structure of MCA:

S. No.	Course Category	Credits of the MCA Curriculum
1.	Foundation Courses	16
2.	Professional Core	126
3.	Professional Electives	12
4.	Employability Enhancement Courses	4
	Total	158

*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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