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
Outcome based Curriculum for
Graduate Degree Courses in BSc -Biology

VISION:

The Department of Biological Sciences will be a leader in acquiring fundamental knowledge of the living world that will advance the health of the planet, including humans. We will fully integrate instruction and research so that all students not only learn but also, through their learning, actively contribute to our understanding of life.

MISSION:

1. Advance our research efforts in emerging fields of the biological sciences and develop nationally recognized learning centers for undergraduate and graduate curricula

2. Increase the recruitment of and support for innovative and outstanding faculty who through research and teaching will develop the scientists, health professionals, government professionals, and mentors of the future

3. Foster an exciting environment where teaching, research, and service will stimulate our students to serve as leaders of the people of this state, the nation, and the world

4. Enrich our regional environment with the development of scientific programs to include opportunities for participation of our local communities

Graduate Attributes in Biology:

As mentioned earlier B.Sc. degree in Biology is the first college/university level degree in the country as in several parts of the world. The students graduating in this degree must have through understanding of basic knowledge or understanding of the fundamentals of Zoology as applicable to wide ranging contexts.

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
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Program Specific Outcomes (PSO): Botany

PO1. Knowledge and understanding: 1. Diversity of plants in terms of structure, function, reproduction and ecological roles. 2. The evaluation and assessment of plant diversity. 3. Plant systematics and classification including flora of India and major biomes of the world. 4. The role of plants in the functioning of the global ecosystem. 5. Application of Statistics in biological data. 6. Application of computer and bioinformatics- utilization of biological data in silico.

PO2. Intellectual skills – able to: 1. Logical interpretation of ideas and concepts into a organcised form. 2. Accumulate and organise knowledge and ideas through reading and searching in internet. 3.Transformation of knowledge based concepts from one area to another within the subject. 4. Plan hypothesis and test. 5. Propose and carry out independent servey or research in various areas of the subject.

PO3. Practical skills: Giving opportunities to students to conduct experiments practically both in field and laboratory. Hands on practical helps the students to gain proficiency and skills in different topics of modules offered to them.

Course Outcomes (CO) of B.Sc. - Botany

CO1. Critically evaluation of ideas and arguments by collection relevant information about the plants,so as recognize the position of plant in the broad classification and phylogenetic level.

CO2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.

CO3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.

CO4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses

CO5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.

CO6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.

Program Specific Outcomes (PSO): Zoology

PSO1. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology

PSO2. Analyse the relationships among animals, plants and microbes

PSO3. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology,Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology

PSO4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

5. PSO5. Gains knowledge about research methodologies, effective communication and skills of problem solving methods

6. PSO6. Contributes the knowledge for Nation building.

Course Outcomes:

CO1: Describe general taxonomic rules on animal classification

CO2: Distribution of fauna in different realms interaction

CO3: Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment

CO4: Classify phylum Protochordates to Mammalia

CO5: Structural and functional aspects of basic unit of life i.e. cell concepts

CO6: Mendelian and non mendielian inheritance

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CO7: Seeks to understand the mechanisms that work to keep the human body alive and functioning

CO8: Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles

CO9: Students gain fundamental knowledge of animal physiology

CO10: Students learn the concepts of endocrine systems and homeostasis a brief account of genetics and organic evolution.

CO11: Understands concepts of fisheries, fishing tools and site selection

CO12: Imparts knowledge of beneficial and non-beneficial insects

CO13: Gives knowledge of silk worm rearing

CO14: Understanding of types of immunity

Program Specific Outcomes (PSO): Chemistry

PSO-1: Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.

PSO-2: Solve the problem and also think methodically, independently and draw a logical conclusion.

PSO-3: Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.

PSO-4: Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.

PSO-5: Find out the green route for chemical reaction for sustainable development.

PSO-6: To inculcate the scientific temperament in the students and outside the scientific community.

PSO-7: Use modern techniques, decent equipments and Chemistry software"

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Graduate Degree Courses in BSc -Biology

Course Outcomes:

CO-1. Write an expression for rate constant K for third order reaction

CO-2. Solve the numerical problems based on Rate constant

CO-3.Understand the term specific volume, molar volume and molar refraction

CO-4. Know the meaning of various terms involved in co-ordination chemistry

CO-5. To understand Werner"s formulation of complexes and identify the types of valences

CO-6. Know the limitations of VBT

CO-7. Define organic acids and bases.

CO-8. Distinguish between geometrical and optical isomerism.

CO-9. Discuss kinetics, mechanism and stereochemistry of SN1 and SN2 reactions.

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

S. N o	Progra m	Courses Category	PO1 Problem Analysi s	PO2 Desig n/Dev elopm ent of Soluti on	PO3 Invest igatio n	PO4 Moder n Tool Usage	PO5 Envi ron ment and Sust aina bilit y	PO6 Ethi cs	PO7 Indivi dual and Team Work	PO8 Project Manag ement	PO9 Life- Long Learni ng	PSO 1	PSO 2
1	BSc BIO	Humanities and Social Sciences including Management courses	*			*		*			*	*	
2		Basic Science courses	*	*	*	*	*						*
3		Engineering Science courses including											

#		Course type											
		workshop, drawing, basics of electrical/me chanical/co mputer etc.											
4		Professional core courses	*	*	*							*	
5.		Professional Elective courses relevant to chosen specializatio n/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) Year wise PO's and PSO's Mapping

YEAR	Name of the Courses/POs /Basic, Core, Electives, Projects, Internships etc.)	PO1 Problem Analysis	PO2 Design/Development of Solution	PO3 Investigation	PO4 Modern Tool Usage	PO5 Environment and Sustainability	PO6 Ethics	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2
YEAR-I	Diversity of Lower plants	*	*	*	*			*	*	*	*	
	Diversity of higher plants	*	*	*						*		
	Zoology-1	*	*	*	*		*			*		*
	Zoology-II	*	*	*	*						*	
	Inorgaic Chemistry											
	Physical Chemistry											
	Organic Chemistry											
YEAR-II	Diversity of Lower plants	*	*	*						*		*
	Diversity of higher plants	*	*	*								
	Zoology-1										*	
	Zoology-II	*	*	*								
	Inorgaic Chemistry											
	Physical Chemistry											
	Organic Chemistry											
YEAR III	Diversity of Lower plants	*	*	*								
	Diversity of higher plants	*	*								*	
	Zoology-I	*	*									
	Zoology-II	*	*									

Inorgaic Chemistry					*		*				*	
Physical Chemistry	*										*	
Organic Chemistry	*	*										*

(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 Hrs.*= 160 Hrs.

Structure of MSc program:

S. No.	Course Category	Hours of the MSc ZOO Curriculum
1.	Diversity of Lower plants	11
2.	Diversity of higher plants	12
3.	Zoology-I	19
4.	Zoology-II	20
5.	Inorganic chemistry	18
6.	Physical Chemistry	18
7.	Organic Chemistry	18
8.	Moral value and language	18
9.	Entrepreneurship of Development	20
	TOTAL	Non-credit

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.

FACULTY OF EDUCATION
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Department of Computer Science

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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Outcome based Curriculum for
Undergraduate Degree Courses in Bachelor of Science
Department of Computer Science

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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Outcome based Curriculum for
Undergraduate Degree Courses in Bachelor of Science
Department of Computer Science

Program PO's and PSO's Mapping:

S. N o	Progra m	Courses Category	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
1	B.Sc (Comp uter Science)	COMPUTER SCIENCE	*		*	*	*	*	*			*	*
2		PHYSICS				*	*					*	
3		MATHEMATICS	*			*			*				*
4		FOUNDATION COURSE								*			*

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Department of Computer Science

YEARLY wise PO's and SPO's Mapping:

Year	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1 Discipl inary knowle dge	PO2 Commu nication s skills	PO3 Scientific reasoning	PO4 Probl em solvin g	PO5 Researc h-related skills	PO6 Inform ation/ digital literac y	PO7 Self-directed learning	PO8 Moral and ethical awarenes s/reasoni ng	PO9 Lifelon g learnin g	PSO 1	PSO 2
I YEAR	Fundamental of computer and PC software	*	*	*	*		*					
	Desktop Publishing and Multimedia	*	*	*	*		*					
	Mathematical Physics, Mechanics and Properties of Matter	*	*	*	*						*	
	Thermodynamics and Statistical Physics	*	*	*	*						*	
	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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Undergraduate Degree Courses in Bachelor of Science
Department of Computer Science

	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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Department of Computer Science

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	

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

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 Mathematics

Vision of the Departments:

To establish a center of excellence in **Bachelor of Science (Mathematics)** such as Mathematics, Physics and Chemistry 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:

Keeping the core objectives to create academic excellence in fundamental sciences, the Department of in **Bachelor of Science (Mathematics)** aims to encourage advanced teaching learning process and quality research at individual, department and institutional level. It also endeavours to build quality based knowledge.

Department of Mathematics focuses on the following:
- To provide necessary background
- For producing a meaningful career in Mathematics 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 (Mathematics)

PEO1. To teach Physics, Chemistry and Mathematics for U.G. and P.G. programmes

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.

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.

FACULTY OF EDUCATION
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Department of Mathematics

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 Programme (PO's) :

PO-01: Disciplinary knowledge: Capability of demonstrating comprehensive knowledge of basic concepts and ideas in mathematics and its subfields, and its applications to other disciplines.

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: Critical thinking and analytical reasoning: Ability to apply critical thinking in understanding the concepts in mathematics and allied areas; identify relevant assumptions, hypothesis, implications or conclusions; formulate mathematically correct arguments; ability to analyse and generalise specific arguments or empirical data to get broader concepts.

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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Department of Mathematics

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.

PSO2. The students gain knowledge in Modern Algebra, Calculus, Complex analysis, Discrete Mathematics and many more.. They are equipped with moral ethics, have knowledge of Hindi and English Language, aware of Entrepreneurship techniques, environmentally conscious and skilled in computer applications.

PSO3. On the basis of theoretical knowledge of Chemistry and their critical thinking, they analyse the results of Chemical experiments and became aware of the impact of chemistry on environment and society. They became able to explain the structure, reactivity and chemical composition of the materials. There is great scope of such students in Industries. They can also join any service sector (Public or private) and deliver very efficiently. They can also join govt. jobs.

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

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

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 Mathematics

Programme PO's and PSO's Mapping:

S. N o	Progra m	Courses Category	PO 1 Discipli nary knowle dge	PO2 Co mm unic atio ns skill s	PO3 Critic al thinki ng and analyt ical reason ing	PO4 Prob lem solvi ng	PO5 Resear ch- related skills	PO6 Info rma tion /digi tal liter acy	PO7 Self- directed learning	PO8 Moral and ethical aware ness/re asonin g	PO9 Lifelon g learnin g	PSO 1	PSO 2
1		Chemistry	*		*	*							
2	B.Sc (Mathem atics)	Physics	*		*	*						*	
3		Mathematic s	*	*	*	*		*	*				*
4		Foundation course	*		*					*			*

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
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Department of Mathematics

YEARLY wise PO's and SPO's Mapping:

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO1 Disciplinary knowledge	PO2 Communications skills	PO3 Critical thinking and analytical 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
I YEAR	Inorganic chemistry	*	*	*	*							
	Physical chemistry	*	*	*	*							
	Organic chemistry	*	*	*	*							
	Mathematical Physics, Mechanics and Properties of Matter	*	*	*	*						*	
	Thermodynamics and Statistical Physics	*	*	*	*						*	
	Algebra and Trigonometry	*	*	*	*		*	*				*
	Calculus and differential equations	*	*	*	*			*				*
	Vector Analysis and Geometry	*	*	*				*				
	Moral value and language	*	*	*					*			*
	Devlepoment of Entrepreneurship	*	*	*								*
	Chemistry: practical											
	Physics :practical										*	
II YEAR	Physical chemistry	*	*	*	*							
	Inorganic chemistry	*	*	*	*							
	Organic chemistry	*	*	*	*							
	Optics	*	*	*	*							

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Electro-statics, magneto statics and electrodynamics	*		*	*		*							*
Abstract algebra	*		*	*		*					*		*
Advanced calculus	*		*	*							*		*
Differential equation	*		*	*		*					*		
Moral value and LANGUAGE-II	*		*	*								*	*
Environmental studies	*		*	*									*
Chemistry: practical			*	*									*
Physics :practical			*	*									*
Chemistry paper-i(physical chemistry)	*		*	*		*							
Chemistry paper-ii(inorganic chemistry)	*		*	*		*							
Chemistry paper-iii(organic chemistry)	*		*	*		*							
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 methods)	*		*	*							*		
Foundation Course Paper-I(Moral Value and Language-III)	*		*	*									*

III YEAR

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 Mathematics

Foundation Course Paper-II(Basics of Computer App.Information Technology)	*	*	*		*								*
Chemistry: practical													
Physics :practical												*	
Project/internship											*		

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Department of Bachelor of Computer Application (BCA)

Outcome Based Curriculum
2019-2020

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) :

Upon graduation, 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,

(5) Program 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.

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

S. N o	Pro gra m	Courses Category	PO 1 Engi neeri ng Kno wled ge	PO 2 Pro ble m An alys is	PO3 Design/D evelopme nt of Solution	PO4 Inves tigati on	PO 5 Mo der n To ol Us age	PO 6 The Eng inee r and Soc iety	PO7 Envir onme nt and Sustai nabili y	P O 8 Et hi cs	PO9 Indi vidu al and Tea m Wor k	PO10 Comm unicati on	PO11 Proje ct Mana geme nt	PO 12 Life - Lon g Lea rnin g	P S O 1	P S O 2
1		Humanities and Social Sciences including Management courses	*	*			*	*		*		*		*		
2		Basic Science courses	*	*	*	*	*		*							
3		Engineering Science courses including workshop, drawing, basics of electrical/mec hanical/comp uter etc.	*	*	*		*							*		
4	BE/ EE)	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		*	*	*		*	*	*	*	*	*	*		

#		Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		industry or elsewhere														
8		Specific core subject	*	*	*											
9		Mandatory Course (Non credit)					*	*	*	*		*			*	

07) 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 YEAR	Fundamentals of Computers	*	*	*	*								*		
	English Communication Management	*	*		*								*		
	Office Automation Packages and tools	*	*	*	*	*			*		*		*		
	Problem solving & Programming through C	*	*	*	*	*									
	Business Mathematics	*	*	*				*						*	
	Digital Computer Organization					*			*	*	*		*		
	Accounting & Financial Management	*	*	*	*	*			*	*		*	*		
II year	Lab I	*	*	*	*								*		
	Lab II	*	*	*	*										
	Moral Value & Languages	*									*			*	

Year	Subject															
	Development of Entrepreneurship	•	•	•	•											
	Programming with C++ and Data Structures	•	•	•	•											•
	Computer based Numerical and Statistical Techniques					•				•	•	•	•	•		
	Operating System			•	•		•	•	•	•			•	•	•	
III YEAR	Web technology and Application Development using .Net & C#	•	•	•	•											
	RDBMS Concepts & Oracle		•	•												
	Software Engg.	•	•	•												
	Organisational Behaviour	•	•	•												
	Lab-I	•	•	•	•									•		
	Lab-II	•	•	•	•	•										
	Computer Networks, Internet Tech. & Security	•	•	•	•									•		
	Core Java	•	•	•	•											
	Management information system	•	•	•	•											•
	Python Programming	•	•		•										•	
	E-Governance					•		•	•	•	•	•				
	Principles and practices of management		•	•	•	•	•	•	•	•			•	•		
	Project: Application development using PHP/JSP & MySQL															
	LAB 1 – Java Programming															
	LAB 2 – Python Programming															

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Graduate Degree Courses in BSc -Micrbiology

VISION:

The Department of Microbiology will be a leader in acquiring fundamental knowledge of the living world that will advance the health of the planet, including humans. We will fully integrate instruction and research so that all students not only learn but also, through their learning, actively contribute to our understanding of life.

MISSION:

1. Advance our research efforts in emerging fields of the microbiology and develop nationally recognized learning centers for undergraduate and graduate curricula

2. Increase the recruitment of and support for innovative and outstanding faculty who through research and teaching will develop the scientists, health professionals, government professionals, and mentors of the future

3. Foster an exciting environment where teaching, research, and service will stimulate our students to serve as leaders of the people of this state, the nation, and the world

4. Enrich our regional environment with the development of scientific programs to include opportunities for participation of our local communities

Graduate Attributes in Biology:

As mentioned earlier B.Sc. degree in Microbiology is the first college/university level degree in the country as in several parts of the world. The students graduating in this degree must have through understanding of basic knowledge or understanding of the fundamentals of Zoology as applicable to wide ranging contexts.

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Graduate Degree Courses in BSc -Mierbiology

Program Specific Outcomes (PSO): Botany

PO1. Knowledge and understanding: 1. Diversity of plants in terms of structure, function, reproduction and ecological roles. 2. The evaluation and assessment of plant diversity. 3. Plant systematics and classification including flora of India and major biomes of the world. 4. The role of plants in the functioning of the global ecosystem. 5. Application of Statistics in biological data. 6. Application of computer and bioinformatics- utilization of biological data in silico.

PO2. Intellectual skills – able to: 1. Logical interpretation of ideas and concepts into a organcised form. 2. Accumulate and organise knowledge and ideas through reading and searching in internet. 3.Transformation of knowledge based concepts from one area to another within the subject. 4. Plan hypothesis and test. 5. Propose and carry out independent servey or research in various areas of the subject.

PO3. Practical skills: Giving opportunities to students to conduct experiments practically both in field and laboratory. Hands on practical helps the students to gain proficiency and skills in different topics of modules offered to them.

Course Outcomes (CO) of B.Sc. - Botany

CO1. Critically evaluation of ideas and arguments by collection relevant information about the plants,so as recognize the position of plant in the broad classification and phylogenetic level.

CO2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.

CO3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.

CO4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.

CO5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.

CO6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.

Program Specific Outcomes (PSO): Microbiology

A candidate who is conferred an UG (Hons) degree i.e. B.Sc. (Hons) degree in microbiology needs to have acquired/developed following competencies during the programme of the study:

PSO1. Acquired knowledge and understanding of the microbiology concepts as applicable to diverse areas such as medical, industrial, environment, genetics, agriculture, food and others.

PSO2. Demonstrate key practical skills/competencies in working with microbes for study and use in the laboratory as well as outside, including the use of good microbiological practices.

PSO 3. Competent enough to use microbiology knowledge and skills to analyze problems involving microbes, articulate these with peers/ team members/ other stake holders, and undertake remedial measures/ studies etc.

PSO4. Developed a broader perspective of the discipline of Microbiology to enable him to identify challenging societal problems and plan his professional career to develop innovative solutions for such problems.

Course Outcomes:

CO1. Have developed a good knowledge of the development of the discipline of Microbiology and the contributions made by prominent scientists in this field.

CO2. Have developed a very good understanding of the characteristics of different types of microorganisms, methods to organize/classify these into and basic tools to study these in the laboratory.

CO3. Are able to explain the useful and harmful activities of the microorganisms.

CO4. Are able to perform basic experiments to grow and study microorganisms in the Laboratory

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Outcome based Curriculum for
Graduate Degree Courses in BSc -Micrbiology

CO5: Structural and functional aspects of basic unit of life i.e. cell concepts

CO6: Mendelian and non mendielian inheritance

CO7: Seeks to understand the mechanisms that work to keep the human body alive and functioning

CO8: Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles

CO9: Students gain fundamental knowledge of animal physiology

CO10: Students learn the concepts of endocrine systems and homeostasis a brief account of genetics and organic evolution.

CO11: Understands concepts of fisheries, fishing tools and site selection

CO12: Imparts knowledge of beneficial and non-beneficial insects

CO13: Gives knowledge of silk worm rearing

CO14: Understanding of types of immunity

Program Specific Outcomes (PSO): Chemistry

PSO-1: Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.

PSO-2: Solve the problem and also think methodically, independently and draw a logical conclusion.

PSO-3: Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.

PSO-4: Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.

PSO-5: Find out the green route for chemical reaction for sustainable development.

PSO-6: To inculcate the scientific temperament in the students and outside the scientific community.

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Outcome based Curriculum for
Graduate Degree Courses in BSc -Micrbiology

PSO-7: Use modern techniques, decent equipments and Chemistry software"s

Course Outcomes:

CO-1. Write an expression for rate constant K for third order reaction

CO-2. Solve the numerical problems based on Rate constant

CO-3. Understand the term specific volume, molar volume and molar refraction

CO-4. Know the meaning of various terms involved in co-ordination chemistry

CO-5. To understand Werner"s formulation of complexes and identify the types of valences

CO-6. Know the limitations of VBT

CO-7. Define organic acids and bases.

CO-8. Distinguish between geometrical and optical isomerism.

CO-9. Discuss kinetics, mechanism and stereochemistry of SN1 and SN2 reactions.

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

S. N o	Progra m	Courses Category	PO1 Problem Analysi s	PO2 Desig n/Dev elopm ent of Soluti on	PO3 Invest igatio n	PO4 Moder n Tool Usage	PO5 Envi run ment and Sust aina bilit y	PO6 Ethi cs	PO7 Indivi dual and Team Work	PO8 Project Manag ement	PO9 Life-Long Learni ng	PSO 1	PSO 2
1	BSc Micro	Humanities and Social Sciences including Management courses	*			*		*			*	*	
2		Basic Science courses	*	*	*	*	*						

#		Category												
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) Year wise PO's and PSO's Mapping

YEAR	Name of the Courses/POs /Basic, (Core Electives, Projects, Internships etc.)	PO1 Problem Analysis	PO2 Design/Development of Solution	PO3 Investigation	PO4 Modern Tool Usage	PO5 Environment and Sustainability	PO6 Ethics	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2
YEAR-I	Diversity of Lower plants	*	*	*	*			*	*	*	*	
	Diversity of higher plants	*	*	*						*		
	Zoology-I	*	*	*	*		*			*		*
	Zoology-II	*	*	*	*						*	
	Inorgaic Chemistry											
	Physical Chemistry											
	Organic Chemistry											
YEAR-II	Diversity of Lower plants	*	*	*						*		*
	Diversity of higher plants	*	*	*								
	Micro-I										*	
	Micro-II	*	*	*								
	Inorgaic Chemistry											
	Physical Chemistry											
	Organic Chemistry											
YEAR III	Diversity of Lower plants	*	*	*								
	Diversity of	*	*								*	

higher plants											
Micro-I	*	*									
Micro-II	*	*									*
Inorganic Chemistry				*		*				*	
Physical Chemistry	*									*	
Organic Chemistry	*	*									*

(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 Hrs.*= 160 Hrs.

Structure of MSc program:

S. No.	Course Category	Hours of the MSc ZOO Curriculum
1.	Diversity of Lower plants	11
2.	Diversity of higher plants	12
3.	Micro-I	19
4.	Micro-II	20
5.	Inorganic chemistry	18
6.	Physical Chemistry	18
7.	Organic Chemistry	18
8.	Moral value and language	18
9.	Entrepreneurship of Development	20
	TOTAL	Non-credit

Sri Satya Sai University of Technology and Medical Sciences, Sehore

Outcome Based Curriculum

Programme : Master of science (MICROBIOLOGY)

Vision of the Departments :

As part of an internationally acclaimed University, the Department of Microbiology strives to be in the vanguard of the field of Microbiology, aiming to be recognized as among the best for Microbiology education and scientific research.

Mission of the Departments:

Providing quality education and training to our students, and bringing out the very best in them through the stimulus of scholarly progression and intellectual development. Equipping students with excellence in education and skills to enable them pursue a career of their choice. Cultivating talents and promoting all round personality development through multi-dimensional education to foster a spirit of self-confidence and self-reliance in our students. To prepare them to become responsible contributing citizens of society, who can take up leadership positions around the globe.

Programme Educational Objectives:

At the time of completion of the programme the student will have developed extensive knowledge in various areas of Microbiology. Through the stimulus of scholarly progression and intellectual development the programme aims to equip students with excellence in education and skills, thus enabling the student to pursue a career of his/her choice. By cultivating talents and promoting all round personality development through multi-dimensional education a spirit of self-confidence and self-reliance will be infused in the student. The student will be instilled with values of professional ethics and be made ready to contribute to society as responsible individuals.

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -Microbiology

About the Programme

The M.Sc. Microbiology programme offered by Delhi University is of two years' duration and is divided into four semesters. The various courses of the programme are designed to include classroom teaching and lectures, laboratory work, project work, viva, seminars, assignments and field trips. Three categories of courses are being offered in this programme: Core Courses (fourteen mandatory courses offered by the Department), Elective Courses (student must opt for two out of four Elective Courses offered by the Department), and Open Elective (student may opt for any one Open Elective offered by either the Microbiology Department or any other Department of the Faculty of Interdisciplinary and Applied Sciences). The Core Courses are of four/eight credits and include classroom as well as laboratory courses. A separate research-based course that leads to a dissertation and is worth twenty-four credits is also one of the Core Courses. The Elective Courses are four credit courses and the Open Elective is also a four credit course. The student is required to accumulate twenty-four credits each semester, a total of ninety-six credits, to fulfill the requirements for a Master of Science degree in Microbiology. Thirty percent of the total marks for each course will be awarded through Internal Assessment. Final examinations for four credit courses will be of three hours duration while examinations for each laboratory-based course will be held over two days of eight hours each or four hours each for eight credit or four credit courses respectively.

PROGRAM SPECIFIC OUTCOMES (PSOs) OF THE PROGRAMME

At the end of the two year programme the student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Environmental Microbiology, Industrial Microbiology, Food Microbiology, and Microbial Pathogenicity. He/she will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.

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Outcome based Curriculum for
Postgraduate Degree Courses in MSc -Microbiology

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

S. No	Progra m	Courses Category	PO1 Problem Analysis	PO2 Design/Dev elopment of Solution	PO3 Investigatio n	PO4 Moder n Tool Usage	PO5 Environment and Sustainability	PO6 Ethics	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2
1		Humanities and Social Sciences including Management courses	*			*		*			*	*	
2		Basic Science courses	*	*	*	*	*						*
3	MSc Microb iology	Engineering Science courses including workshop, drawing, basics of electrical/me chanical/co mputer etc.											
4		Professional core courses	*	*	*							*	
5		Professional Elective courses relevant to chosen specializatio n/branch	*	*	*	*			*	*			*
6		Open subjects	*	*	*	*					*	*	*

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		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

		Name of the Courses/POs /Basic,	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO 1	PSO 2
	Sem	Core Electives, Projects, Internships etc.)	Proble m Analys is	Desig n/Dev elopm ent of Soluti on	Inves tigati on	Mode rn Tool Usage	Envi ron ment and Sust aina bility	Ethic s	Indivi dual and Team Work	Project Manag ement	Life-Long Learn ing		
Sem I		Bacteriology	*	*	*	*			*	*	*	*	
		Virology	*	*	*						*		
		Mycology	*	*	*	*		*			*		*

Food Microbiology	*												*		
Virology and Mycology	*	*												*	
Microbial Immunology	*	*	*										*		

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

<u>[L= Lecture, T = Tutorials, P = Practical's & C = Credits]</u>

Total Hrs.*= 160 Hrs.

Structure of MSc program:

S. No.	Course Category	Hours of the MSc ZOO Curriculum
1.	Bacteriology	11
2.	Virology	24
3.	Mycology	19
4.	Microbial Biochemistry	20
5.	Molecular Biology and Recombinant DNA Technology	18
6.	Biostatistics and ComputerApplication	18
7.	Microbial Genetics	18

Outcome Based Curriculum

Programme : Master of Science (ZOOLOGY)

Vision of the Zoology Department:

Our vision is to conduct innovative research, teaching and outreach on the patterns and processes of life with a focus on animals and their environments.

Mission of the Department:

Mission is to foster an environment of excellence by attracting and upporting the outstanding students, faculty and staff needed to sustain our vision.

We focus on the patterns and processes that enable predictive understanding of animals and their environments at local, regional, and global scales, leading to strengths in the areas of ecology, evolution, and systematics.

These topics are investigated using such tools as spatial data analysis, remote sensing, genomics, computational science, stable isotopes, microscopy, biogeochemical and physiological approaches and field and laboratory experiments.

Programme Educational Objectives:

PEO1: To motivate the student in self-employment through bio-fertilizer preparation.

PEO 2: 'Earn while learn' can be done with the acquirement of basic knowledge in growing medicinal animals.

PEO 3: To motivate and promote knowledge in nutritive value of food to maintain 'Health Care Problems'.

PEO 4: To expose the recent trends in Zoology, participating in Seminars, Conferences, and guest lectures and field visits.

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PSO3. Perform procedures as per laboratory standards in the areas of Biochemistry, Bioinformatics, Taxonomy, Economic Zoology and Ecology

Course Outcomes (CO):

ZOO101: The structure in relation to function of cells the fundamental unit of life, are concerned in this course along with molecular present in cells and the flow they make the basic framework of cells and their continuity.

ZOO102: Pertains to heredity and variation at molecular and cellular levels.

ZOO103: Deals with regulation of growth and development of plant as affected by various growth regulations, thus cross talk and extrinsic biotic and abiotic factors.

ZOO104: Provides a detailed view of the visualizing concepts and technique for genetic engineering and biotechnology.

ZOO302: Highlights structural and functional aspects of the development of animals from zygotsto the nature stage.

ZOO202: Deals with naming and classification of animals their interrelationships and evolution.

ZOO402: Apprises students of conventional and non-conventional plant resources being used by human, their effective and sustainable utilization and improvement by biotechnological tools.

ZOO 203: Makes students aware of the posts and pathogens adversely affecting the yield of important crop animals, their control underlying mechanisms of employed by animals for their defense and the approaches to strengthen their irsplenta to have resistant crops.

ZOO301: Algae on paper deals the diversity and the important roles. Algae, a letergenious group of prokaryotes protons and animals role in environment and human welfare. ZOO 302: Deals with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns.

ZOO303: Highlights advances made in diversity analysis, developmental biology, reproductive biology and phylogenetics of the lower animals with female organ being archegoniuous presentin bryophytes, pteridophytes and some most gymnosperms.

ZOO304: Understanding the population structure of the organisms, organization into communities and their functional relationships with their environment.

ZOO 305: Strategies adopted by the organisms under clanging environment in relation to their biogeographic distribution.

ZOO306: Deals with fundamentals of bioinformatics tools, computational biology and statistical methods utmost necessary for contemporary research.

ZOO307: Genetic modulation of Protien. ZOO 308: Deals with the fundamental of organisms capability to resist anslength by foreign organisms and molecules with adverse effects

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -ZOOLOGY

Programme PO's and PSO's Mapping

S.No	Program	Courses Category	PO1 Engineering Knowledge	PO2 Problem Analysis	PO3 Design/Development of Solution	PO4 Investigation	PO5 Modern Tool Usage		PO6 The Engineer and Society	PO7 Environment and Sustainability	PO8 Ethics	PO9 Individual and Team Work	PO10 Communication	PO11 Project Management	PO12 Life-Long Learning	PSO1	PSO2
1		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	M.S C	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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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -ZOOLOGY

Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO1	PO2 Problem Analysis	PO3 Design/ Development of Solution	PO4 Investigation	PO5 Modern Tool Usage	PO6 The Engineering and Society	PO7 Environment and Sustainability	PO8 Ethics	PO9 Individual and Team Work	PO10 Communication	PO11 Project Management	PO12 Life-Long Learning	PSO1	PSO2
Semester-Ist	ZOO 101 Biosystematics, Taxonomy, Evolution		*	*	*								*		
	Zoo102 Structure & Function of Invertebrates		*		*								*		
	Zoo 103 Qunatitative Biology, Biodiversity and wildlife		*	*	*	*			*		*		*		
	Zoo104 Biomolecules & Sturctural Biolgoy		*		*	*		*	*				*		
						*			*	*	*		*		
			*	*	*	*			*	*			*		
									*	*		*	*		
	Zoo 201 General and Comparative Animal Physiology and Endocrinology		*	*	*								*		

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Se me ste r- IIn d	Z00202 Population Ecology and Environmental physiology	•	•	•											
	Zoo203 Tools and techniques in Biology									•			•		
	ZOO 204 Molecular Cell Biology and Genetics	•	•	•											
		•	•	•											•
					•		•	•	•		•	•			
			•	•		•	•	•			•	•	•		
Se me ste r- III rd	Zoo301 Comparative Anatomy of Vertebrates	•	•	•											
	Zoo 302 Development al Biology	•	•												
	Zoo 303 ECO-TOXICOLOGY	•	•												
	Zoo 304 ENDOCRINOL OGY	•	•												

	Zoo 401								*		*							
	Cell and Molecular Biology		*														*	
Se me ste r- IV th	Zoo402 Insect Anatomy and Physiology		*	*															
	Zoo 403 Aquatic Biology and Aquaculture		*	*	*														
	Zoo404 Reproductive Endocrinology	*	*	*															

Outcome Based Curriculum

Programme : Master of Science (BOTANY)

Vision of the Botany Department :

Our vision is to conduct innovative research, teaching and outreach on the patterns and processes of life with a focus on plants and their environments.

Mission of the Department:

Mission is to foster an environment of excellence by attracting and upporting the outstanding students, faculty and staff needed to sustain our vision.

We focus on the patterns and processes that enable predictive understanding of plants and their environments at local, regional, and global scales, leading to strengths in the areas of ecology, evolution, and systematics.

These topics are investigated using such tools as spatial data analysis, remote sensing, genomics, computational science, stable isotopes, microscopy, biogeochemical and physiological approaches and field and laboratory experiments.

Programme Educational Objectives:

PEO1: To motivate the student in self-employment through bio-fertilizer preparation.
PEO 2: 'Earn while learn' can be done with the acquirement of basic knowledge in growing medicinal plants.
PEO 3: To motivate and promote knowledge in nutritive value of food to maintain 'Health Care Problems'.
PEO 4: To expose the recent trends in Botany, participating in Seminars, Conferences, and guest lectures and field visits.

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Programme Objectives (POs)

- The M.Sc. - Botany programme is designed to equip students with essential knowledge and technical skills to study plants in a holistic manner.
- Students would be trained in all areas of plant biology using a unique combination of core and elective papers with significant interdisciplinary components.
- Students would be exposed to cutting-edge technologies that are currently used in the study of plant life forms, their evolution and interactions with other organisms and with the ecosystem. Students would also become aware about the social and environmental significance of plants and their relevance to the national
- To develop an aptitude towards science and nature.
- To equip the students with the basic skills in identifying and labeling different plants.
- To impart quality education in the field of Botany enabling our students to confidently face the job market.
- To sensitize the students towards the need for keeping the environment clean and conserve our natural resources.

- ## Program Outcomes(PO)

  PO1. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

  PO2.Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

  PO3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.

  PO4. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

  PO5. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

  PO6. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio- technological changes

Program Specific Outcomes:

(PSO) **PSO1**. Understand the nature and basic concepts of cell biology, Biochemistry, Taxonomy and ecology.

PSO2. Analyse the relationships among animals, plants and microbes

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PSO3. Perform procedures as per laboratory standards in the areas of Biochemistry, Bioinformatics, Taxonomy, Economic Botany and Ecology

Course Outcomes (CO):

BOT101: The structure in relation to function of cells the fundamental unit of life, are concerned in this course along with molecular present in cells and the flow they make the basic framework of cells and their continuity.

BOT102: Pertains to heredity and variation at molecular and cellular levels.

BOT103: Deals with regulation of growth and development of plant as affected by various growth regulations, thus cross talk and extrinsic biotic and abiotic factors.

BOT104: Provides a detailed view of the visualizing concepts and technique for genetic engineering and biotechnology.

BOT302: Highlights structural and functional aspects of the development of plants from zygots to the nature stage.

BOT202: Deals with naming and classification of plants their interrelationships and evolution.

BOT402: Apprises students of conventional and non-conventional plant resources being used by human, their effective and sustainable utilization and improvement by biotechnological tools.

BOT 203: Makes students aware of the posts and pathogens adversely affecting the yield of important crop plants, their control underlying mechanisms of employed by plants for their defense and the approaches to strengthen their irsplenta to have resistant crops.

BOT301: Algae on paper deals the diversity and the important roles. Algae, a letergenious group of prokaryotes protons and plants role in environment and human welfare. BOT 302: Deals with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns.

BOT303: Highlights advances made in diversity analysis, developmental biology, reproductive biology and phylogenetics of the lower plants with female organ being archegoniuous present in bryophytes, pteridophytes and some most gymnosperms.

BOT304: Understanding the population structure of the organisms, organization into communities and their functional relationships with their environment.

BOT 305: Strategies adopted by the organisms under clanging environment in relation to their biogeographic distribution.

BOT306: Deals with fundamentals of bioinformatics tools, computational biology and statistical methods utmost necessary for contemporary research.

BOT307: Genetic modulation of Protien. BOT 308: Deals with the fundamental of organisms capability to resist anslength by foreign organisms and molecules with adverse effects

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Programme Specific Outcomes (PSOs):

PSO1.

A student completing the course is able to understand different specializations of Botany such as systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms.

PSO2.

The student completing the course is trained in various analytical techniques of plant biology, use of plants as industrial resources or as human livelihood support system and is well versed with the use of transgenic technologies for basic and applied research in plants. PSO3. The student completing the course is able to identify various life forms of plant

PSO3.

The student completing the course is able to identify various life forms of plants, design and execute experiments related to basic studies on evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, proteomics and transgenic technology. Students are also familiarized with the use of bioinformatics tools and databases and in the application of statistics to biological data.

PSO4.. The student completing the course is capable of executing short research projects incorporating various tools and techniques in any of the basic specializations of Plant Sciences under supervise

SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -BOTANY

Semester wise PO's and SPO's Mapping

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO1	PO2 Problem Analysis	PO3 Design/ Development of Solution	PO4 Investigation	PO5 Modern Tool Usage	PO6 The Engineer and Society	PO7 Environment and Sustainability	PO8 Ethics	PO9 Individual and Team Work	PO10 Communication	PO11 Project Management	PO12 Life-Long Learning	PSO1	PSO2
Semester-Ist	BOT 101 Biology & diversity of viruses, bacteria and fungi		*	*	*								*		
	Bot 102 biology & diversity of algae, bryophytes and pteriodophyta		*		*								*		
	Bot 103 biology & diversity of gymnosperms		*	*	*	*				*		*	*		
	Bot 104 Plant Ecology		*		*	*		*		*			*		
						*			*	*	*		*		
			*	*	*	*			*	*		*	*		
Semester-IInd	Bot 201 Taxonomy of Angiosperms		*	*	*								*		
	Bot 202 Plant Physiology		*	*	*										
	BOT 203 PLANT PATHOLOGY										*			*	
	BOT 204 Plant cell and molecular biology		*	*	*										
			*	*	*										*
						*			*	*	*	*	*		
				*	*			*	*	*		*	*	*	
Semester-IIIrd	Bot 301 Evolutionary and economic botany		*	*	*										
	Bot 302 Plant Reproduction		*	*											
	Bot 303 Ethnobotany		*	*											
	Bot 304 Biodiversity and conservation		*	*											

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -BOTANY

									*		*								
Se me ste r- IV th	Bot 401																		
	Cytology &Genetics	*																*	
	Bot 402 Plant Biotechnology	*	*																
	Bot 403Pollution&Biodiversity conservation	*	*	*															
	Bot 404Plant Disease Management	*	*	*															

08) <u>**Structure of Programme**</u>: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 Post Graduate M.SC BOTANY:

S.No.	Course Category	Credits of the EE Curriculum
1.		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

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Outcome Based Curriculum

Programme : Master of Science (PHYSICS)

1. Mission:

- To apply conventional and non-conventional tools to conceive physical phenomenon.
- To apply tools and techniques in the development of materials and products.
- To analyse the plant characteristics and develop new/hybrid plant.
- To conduct research based activities in Physics with special focus on bio-physics, applied physics, optics.
- To establish collaboration with eminent institutes and industries for enhanced learning experiences and teaching-learning process.

2. Vision:

The department envisions establishing the Centre for research and development in research with special application to health science, defense and industry. The mission and vision of the organization help in preparation of strategic plan.

3. Title of the Program (s): a. Master of Science (Physics)

4. Program Educational Objectives:

The program educational objectives (PEO) are the statement that describes the career and professional achievement after the program of studies (graduation/ postgraduation). The PEO s are driven form question no. (ii) of the Mission statement (What is the purpose of organization). The PEOs can be minimum three and maximum five.

PEO1: To have advance knowledge and apply theories and principles of physics/appliedphysics in the domain of industry, research and development.

PEO2: To provide the professional services to industry, research organization, institutes.

PEO3: To provide the professional consultancy and research support for the relevant organization in the domain of super specialization.

PEO4: To opt for higher education, disciplinary & multi-disciplinary research and to be a life-long learner.

PEO5: To provide, value based and ethical leadership in the professional and social life.

5. Program Outcomes:

The program outcomes (PO) are the statement of competencies/ abilities. POs are the statement that describes the knowledge and the abilities the graduate/ post-graduate will have by the end of program studies.

Programme Specific Outcomes:

PSO1: Domain knowledge: Apply the knowledge of mathematics and physics fundamental, Quantum physics, electronics, spectroscopy for the solution of complex problems.

PSO2: Problem Analysis: Identify physics/optics/nuclear physics/ microprocessor/ sensor/ radiation related problems at varied complexity and analyze the same to formulate/ develop substantiated conclusion using first principles.

PSO3: Design Development of solutions : Design / develop solutions for problems at varied complexity in the area Sensor Technology, industrial electronics, Materials, nano-materials, radiation technology Industrial Communication to address changing challenges put forward by market demand/ stakeholder

PSO4: Conduct Investigation of complex problems: Use research-based knowledge and methods to design of experiments, analyze resulting data and interpret the same to provide valid conclusions.

PSO5: Modern tools: Create, select, and apply appropriate techniques, resources, and microprocessor and relevant IT tools including prediction and modeling to complex scientific solutions related activities with clear understanding of the limitations

PSO6: The citizenship and society: Apply broad understanding of ethical and professional skill in scientific applications in the context of global, economic, environmental and societal realities while encompassing relevant contemporary issues.

PSO7: Environment and sustainability: Apply broad understanding of impact of electronics technology in a global, economic, environmental and societal context and demonstrate the knowledge of, and need for sustainable development.

PSO8: Ethics: Apply ability to develop sustainable practical solutions for electronics technology related problems within positive professional and ethical boundaries.

PSO9: Project management and finance: Demonstrate knowledge and understanding of the first principles of Nano-technology, sensor technology, nuclear physics, radiation, and spectroscopy and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PSO10: Life-long learning: Recognize the need for lifelong learning and have the ability to engage in independent and life-long learning in the broadest context of technological change.

6. Course- Program outcome Matrix:

The Program Outcomes are developed through the curriculum (curricular/co-curricularextra-curricular activities). The program outcomes are attained through the course implementation. As an educator, one must know, "to which POs his/her course in contributing?". So that one can

design the learning experiences, select teaching method and design the tool for assessment. Hence, establishing the Corse-PO matrix is essential step in the OBE. The course-program outcomes matrix indicates the co-relation between the courses and program outcomes. The CO-PO matrix is the map of list of courses contributing to the development of respective POs.

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Outcome based Curriculum for
Postgraduate Degree Courses in MSc -Physics

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

S. No	Program	Courses Category	PO1 Problem Analysis	PO2 Design/Development of Solution	PO3 Investigation	PO4 Modern Tool Usage	PO5 Environment and Sustainability	PO6 Ethics	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2
1	MSc Physics	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)					*	*	*			*	

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

Sem	Name of the Courses/POs /Basic,	PO1 Problem Analysis	PO2 Design/Development of Solution	PO3 Investigation	PO4 Modern Tool Usage	PO5 Environment and Sustainability	PO6 Ethics *	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2
	Core Electives, Projects, Internships etc.)											
Sem 1	MATHEMATICAL PHYSICS	*	*	*	*			*	*	*	*	
	CLASSICAL MECHANICS	*	*	*						*		

Sem	Subject													
	QUANTUM MECHANICS	*	*	*	*			*				*		*
	ELECTRONIC DEVICE	*	*	*	*								*	
Sem II	QUANTUM MECHANICS II	*	*	*								*		*
	STATISTICAL MECHANICS	*	*	*										
	ELETRO DYNAMICS AND PLASMA PHY.												*	
	ATOMIC AND MOLECULAR PHYSICS	*	*	*										
Sem III	Condensed Matter	*	*	*										
	Nuclear and Particle	*	*										*	
	Digital Electronics	*	*											
	Atomic and Molecular	*	*											*
Sem IV	Condensed Matter Physics II						*		*				*	
	LASER PHYSICS	*											*	

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COMPUTER PROGRAMMING AND INFORMATICS	*	*										*	
DIGITAL ELECTRONICS	*	*	*								*		

(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 Hrs.*= 160 Hrs.

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

Vision of the Departments :

To become a Center of Excellence in the computer sciences and information technology discipline with a strong research and teaching environment that adapts swiftly to the challenges of the 21st century.

Mission of the Departments:

> To encourage students to conduct student projects to develop their analytical and logical thinking.
> To conduct faculty training programs through invited talks or workshops.
> leading to careers as Computer and IT professionals in the widely diversified domains of industry, government and academia.
> To conduct outreach programs for the socially marginalized students.

Programme Educational Objectives (PEO's):

PEO1. To equip students with knowledge, abilities and insight in Computer and IT and related fields.

PEO2. Graduates will be able to outperform in technical/managerial roles ranging from problem analyzing, solving, designing, development to
production support in software industries as well as in R&D sectors.

PEO3. Graduates will be able to successfully pursue higher education/research in reputed institutions within country or abroad.

PEO4. Graduates will have the ability to adapt, contribute and innovate advance technologies and systems in the key domains of Computer Science & Engineering.

PEO5. Graduates will be ethically and socially responsible solution providers/entrepreneurs in Computer Science disciplines.

POs of the Programme :

The M.Sc. Computer Science program's main objectives are

PO1 Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex problems.

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

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

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Post graduate Degree Courses in Master of Science
Department of Computer Science

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

PO5 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.

PO6 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.

PROGRAM SPECIFIC OUTCOMES (PSOs) OF THE PROGRAMME:

On successful completion of the M.Sc. Computer Science program a student will

PSO1: Apply the knowledge of computer system and design principles in building the software and hardware components.

PSO2: Apply knowledge of layered network models, protocols, technologies and topologies as well as incorporating security policies for building network and internet based applications.

PSO3: Apply the theoretical foundations of computer science in modelling and developing solutions to the complex and real world problems as well as designing and developing the application software systems along with the database design and management.

PSO4: Have sound knowledge of mathematical modeling, programming and computational techniques as required for employment in industry.

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Outcome based Curriculum for
Post graduate Degree Courses in Master of Science
Department of Computer Science

Programme PO's and PSO's Mapping:

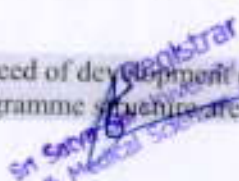| S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO5	PO6	PSO 1	PSO 2
1	MSC (Computer Science)	Discrete mathematics structures	*		*	*	*		*	*
2		Programing in "c"	*		*	*	*		*	*
3		Computer organization & architecture			*	*	*			
4		Windows & pc soft	*		*	*	*		*	*
5		Data structure and algorithms	*	*	*	*	*		*	
6		Operating system	*		*	*	*			
7		Computer networks	*		*	*	*			
8		Java & html	*		*	*	*			
9		RDBMS Concepts & Oracle	*		*	*	*			
10		Multimedia Tools & Applications	*		*	*	*			
11		Software Engineering	*		*	*	*			
13		Unix Internals ,Shell Programming & Linux	*		*	*	*		*	*
14		Compiler design	*	*	*	*	*		*	
15		ASP.NET and C#	*		*	*	*		*	*
16		Artificially Intelligence	*	*	*	*	*		*	

Semester wise PO's and SPO's Mapping:

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SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Post graduate Degree Courses in Master of Science
Department of Computer Science

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO5	PO6	PSO 1	PSO 2
Semester - I	Discrete mathematics structures	*		*	*	*		*	*
	Programing in "c"	*		*	*	*		*	*
	Computer organization & architecture	*		*	*	*			
	Windows & pc soft	*		*	*	*		*	*
Semester- - II	Data structure and algorithms	*		*	*	*		*	
	Operating system	*		*	*	*			
	Computer networks	*		*	*	*			
	Java & html	*		*	*	*		*	*
Semester- III	RDBMS Concepts & Oracle	*		*	*	*			
	Multimedia Tools & Applications	*		*	*	*			
	Software Engineering	*		*	*	*			
	Advanced Java Programming	*		*	*	*			
	INTERNSHIP	*		*	*	*			
Semster- IV	Unix Internals ,Shell Programming & Linux	*		*	*	*			
	Compiler design	*		*	*	*			
	ASP.NET and C#	*		*	*	*			
	Artificially Intelligence	*		*	*	*			

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.

FACULTY OF EDUCATION
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
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PEO5. Graduates will be ethically and socially responsible solution providers/entrepreneurs in Computer Science disciplines.
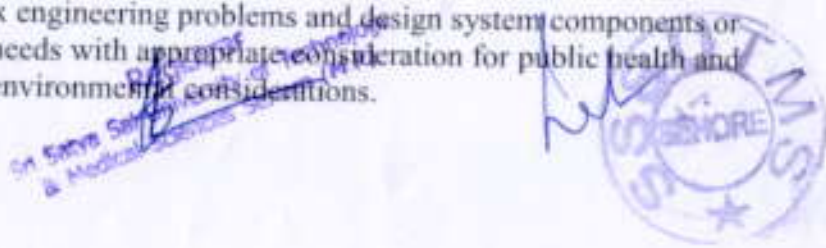
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PO3 Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

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Outcome based Curriculum for
Post graduate Degree Courses in Master of Science
Department of Computer Science

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

PO5 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.

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PSO3 : Apply the theoretical foundations of computer science in modelling and developing solutions to the complex and real world problems as well as designing and developing the application software systems along with the database design and management.

PSO4: Have sound knowledge of mathematical modeling, programming and computational techniques as required for employment in industry.

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

Programme PO's and PSO's Mapping:

S. No	Program	Courses Category	PO 1	PO2	PO3	PO4	PO5	PO6	PSO 1	PSO 2
1	MSC (Computer Science)	Discrete mathematics structures	*		*	*	*		*	*
2		Programing in "c"	*		*	*	*		*	*
3		Computer organization & architecture			*	*	*			
4		Windows & pc soft	*		*	*	*		*	*
5		Data structure and algorithms	*	*	*	*	*		*	
6		Operating system	*		*	*	*			
7		Computer networks	*		*	*	*			
8		Java & html	*		*	*	*			
9		RDBMS Concepts & Oracle	*		*	*	*			
10		Multimedia Tools & Applications	*		*	*	*			
11		Software Engineering	*		*	*	*			
13		Unix Internals ,Shell Programming & Linux	*		*	*	*		*	*
14		Compiler design	*	*	*	*	*		*	
15		ASP.NET and C#	*		*	*	*		*	*
16		Artificially Intelligence	*	*	*	*	*		*	

Semester wise PO's and SPO's Mapping:

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Post graduate Degree Courses in Master of Science
Department of Computer Science

Semester	Name of the Courses/POs(Basic, Core Electives, Projects, Internships etc.)	PO 1	PO2	PO3	PO4	PO5	PO6	PSO 1	PSO 2
Semester - I	Discrete mathematics structures	*		*	*	*		*	*
	Programing in "c"	*		*	*	*		*	*
	Computer organization & architecture	*		*	*	*			
	Windows & pc soft	*		*	*	*		*	*
Semester- - II	Data structure and algorithms	*		*	*	*		*	
	Operating system	*		*	*	*			
	Computer networks	*		*	*	*			
	Java & html	*		*	*	*		*	*
Semester- III	RDBMS Concepts & Oracle	*		*	*	*			
	Multimedia Tools & Applications	*		*	*	*			
	Software Engineering	*		*	*	*			
	Advanced Java Programming	*		*	*	*			
	INTERNSHIP	*		*	*	*			
Semster- IV	Unix Internals ,Shell Programming & Linux	*		*	*	*			
	Compiler design	*		*	*	*			
	ASP.NET and C#	*		*	*	*			
	Artificially Intelligence	*		*	*	*			

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.

Outcome Based Curriculum

Programme : Master of Science (CHEMISTRY)

Vision of the Departments :

A respectable teaching – learning and research organization nationally and internationally in the area of chemical sciences. By providing competitive trained chemists which will assist the chemical world, industries and stake holders The mission and vision of the organization help in preparation of strategic plan.

Mission of the Departments:

To develop the researcher and scientist in chemical science through post-graduate education and research programme.

To develop the competent manpower with technology based experimentation

methodologies and value based practices for business and industries.

To undertake projects to solve field base problems.

To provide student centric learning facilities for the development of overall personality of learner.

Programme Educational Objectives:

The program educational objectives (PEO) are the statement that describes the career and professional achievement after the program of studies (graduation/ post-graduation). The PEO s are driven form question no. (ii) of the Mission statement (What is the purpose of organization). The PEOs can be minimum three and maximum five.

PEO1: To have advance knowledge of chemistry domain.
PEO2: To provide the professional services to industry, Research organization, institutes.
PEO3: To provide the professional consultancy and research support for the relevant organization in the domain of super specialization.

PEO4: To opt for higher education, disciplinary & multi-disciplinary research and to be a life-long learner.

PEO5: To provide, value based and ethical leadership in the professional and social life.

Program Outcomes:

The program outcomes (PO) are the statement of competencies/ abilities. POs are the statement that describes the knowledge and the abilities the post-graduate will have by the end of program studies.

PO1: In-depth and detailed functional knowledge of the fundamental theoretical concepts and experimental methods of chemistry.

PO2: Apply/implement interface between on the one hand, the history of chemistry and natural science and, on the other hand, issues pertaining to the areas of modern technology, health, and environment.

PO3: Skills in planning and conducting advanced chemical experiments and applying structural-chemical characterization techniques.

PO4: Skill in examining specific phenomena theoretically and/or experimentally.

PO5: Generation of new scientific insights or to the innovation of new applications of chemical research.

Course- Program outcome Matrix:

The Program Outcomes are developed through the curriculum (curricular/co-curricular extra-curricular activities). The program outcomes are attained through the course implementation. As an educator, one must know, "to which POs his/her course in contributing?". So that one can design the learning experiences, select teaching method and design the tool for assessment. Hence, establishing the Corse-PO matrix is essential step in the OBE. The course-program outcomes matrix indicates the co-relation between the courses and program outcomes. The CO-PO matrix is the map of list of courses contributing to the development of respective POs

PROGRAM SPECIFIC OUTCOMES (PSOs) OF THE PROGRAMME

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

S. No	Progra m	Courses Category	PO1 Problem Analysi s	PO2 Desig n/Dev elopm ent of Soluti on	PO3 Invest igatio n	PO4 Moder n Tool Usage	PO5 Envi ron ment and Sust aina bilit y	PO6 Ethi cs	PO7 Indivi dual and Team Work	PO8 Project Manag ement	PO9 Life-Long Learni ng	PSO 1	PSO 2
1		Humanities and Social Sciences including Management courses	*			*		*			*	*	
2		Basic Science courses	*	*	*	*	*						*
3	MSc Chemis try	Engineering Science courses including workshop, drawing, basics of electrical/me chanical/co mputer etc.											
4		Professional core courses	*	*	*							*	
5		Professional Elective courses relevant to chosen specializatio n/branch	*	*	*	*		*	*				*

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Outcome based Curriculum for
Postgraduate Degree Courses in MSc -Chemistry

#		Description												
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

Sem	Name of the Courses/POs (Basic, Core Electives, Projects, Internships etc.)	PO1 Problem Analysis	PO2 Design/Dev elopment of Solution	PO3 Investigation	PO4 Modern Tool Usage	PO5 Environment and Sustainability	PO6 Ethics	PO7 Individual and Team Work	PO8 Project Management	PO9 Life-Long Learning	PSO 1	PSO 2	
Sem I	INORGANIC CHEMISTRY - I	*	*	*	*			*	*	*	*		
	ORGANIC CHEMISTRY - II	*	*	*						*			

Sem	Course														
	PHYSICAL CHEMISTRY - I	*	*	*	*		*					*		*	
	GROUP THEORY & SPECTROSCOPY - I	*	*	*	*								*		
Sem II	INORGANIC CHEMISTRY II	*	*	*							*			*	
	ORGANIC CHEMISTRY II	*	*	*											
	PHYSICAL CHEMISTRY II												*		
	SPECTROSCOPY II & DIFFRATION METHODS	*	*	*											
Sem III	APPLICATION OF SPECTROSOPY - I	*	*	*											
	PHOTOCHEMISTRY	*	*										*		
	ENVIRONMENTAL	*	*												
	Polymers	*	*												*

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	APPLIC ATION OF SPECTR OSCOPY -II (COMP ULSORY)					*		*						*	
Sem IV	SOLID STATE CHEMIS TRY (COMP ULSOR Y)	*											*		
	BIOCHE MISTRY (COMP ULSOR Y)		*	*											*
		*	*	*									*		

(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 Hrs.*= 160 Hrs.

UTD
SRI SATYA SAI UNIVERSITY OF TECHNOLOGY AND MEDICAL SCIENCES
Outcome based Curriculum for
Postgraduate Degree Courses in MSc -Chemistry

Structure of MSc program:

S. No.	Course Category	Hours of the MSc Chemistry Curriculum
1.	INORGANIC CHEMISTRY - I	11
2.	ORGANIC CHEMISTRY - II	24
3.	PHYSICAL CHEMISTRY - I	19
4.	GROUP THEORY & SPECTROSCOPY - I	20
5.	INORGANIC CHEMISTRY II	18
6.	ORGANIC CHEMISTRY II	18
7.	PHYSICAL CHEMISTRY II	18
8.	SPECTROSCOPY II & DIFFRATION METHODS	24
9.	COMPUTERS FOR CHEMISTS	19
10.	APPLICATION OF SPECTROSOPY - I	18
11.	PHOTOCHEMISTRY	18
12.	ENVIRONMENTAL	18
13.	Polymers	18
14.	Industrial Chemistry-(Heavy Chemicals & Petroleum)	24
15.	APPLICATION OF SPECTROSCOPY-II (COMPULSORY)	19
16.	SOLID STATE CHEMISTRY (COMPULSORY)	
17.	BIOCHEMISTRY (COMPULSORY)	
18.	INDUSTRIAL CHEMISTRY - PESTICIDES & GLASS INDUSTRIES	
19.	CHEMISTRY OF NATURAL PRODUCTS	
	Total	

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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

Programme Structure: The M.Sc. Microbiology programme is a two-year course divided into four-semesters. A student is required to complete ninety-six credits for the completion of course and the award of degree. A student has to accumulate twenty-four credits in each of the four semesters.

Part – I	First Year	Semester I	Semester II
Part -II	Second Year	Semester III	Semester IV