

# **POs & COs**

**B.Sc. (MSCs)**

**B.Sc. (MECs)**

**B.Sc. (MSDs)**



S. P. Sampathy's Siva Sivani Educational Society (2906/97)  
**SIVA SIVANI DEGREE COLLEGE**  
(Affiliated to Osmania University)

**CRITERION – 2**

*2.6.1 PROGRAMME OUTCOMES (POS) AND COURSE OUTCOMES (COS) FOR ALL PROGRAMMES OFFERED BY THE INSTITUTION ARE STATED AND DISPLAYED ON WEBSITE AND ATTAINMENT OF POS AND COS ARE EVALUATED*

**B.Sc (MECS)**

# SEMESTER 1

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S. P. Sampathy's Siva Sivani Educational Society (2906/97)  
**SIVA SIVANI DEGREE COLLEGE**

(Affiliated to Osmania University)

**B.Sc (MECS)**

**SEMESTER: ONE**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. To bring out vibrancies, color and show imagery in Indian poet's work
2. To show towering personalities and display their success stories.
3. To teach empathy towards the unfortunate in society.
4. To learn right pronunciation and grammar.

Unit	Unit Objective	Program Outcomes
1	<p>In the bazaars of Hyderabad ( Sarojini Naidu)</p> <p>Lesson outcome: In the bazaars of Hyderabad, was a part of the Swadesi Movement, an Indian freedom Movement. The poet wanted to deliver the message that the traditional Indian Products made of Pure materials were of very high quality.</p> <p>The Eyes are not here: (Prose)</p> <p>The story is very interesting to read. Ruskin shows important message for all human being. We should always be alert and not to hide our weakness</p>	<p>The poem is all about the diversity and self-sufficiency of an Indian Market in British India.</p> <p>We also learn how others should not treat a handicapped person as a liability but encourage him and bring out the best in him.</p>
2	<p>"IF" (Poem) by Rudyard Kipling</p> <p>The poem teaches us to overcome obstacles in life. We are all equal and no one is above</p>	<p>Programme outcome of the poem "IF" : Always do what is right ,follow your dreams, Be realistic, set goals.</p>

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	<p>anyone else. Use your every minute of your time wisely.</p> <p>On Saying Please” (Prose) by A. G. Gardiner</p> <p>This prose deals with socially issues that we across in social life. It explains to us that bad behavior though not punishable is not acceptable.</p>	<p>The essay shows how using polite words and phrases like ‘please’ and ‘thank you’ can change the course of our day. Bad behavior cannot be aggressive or violent, good behavior can be welcomed</p>
3	<p>Ulysses (Poem)</p> <p>Ulysses: Tennyson states the need of going forward and braving the struggle of life.</p> <p>Seeing People off (Prose):</p> <p>The story tells us about how people behave at railway stations and bus stops.</p>	<p>Programme Outcome:</p> <p>Ulysses declares that it is disgraceful to “store and hoard” himself, sitting safely in one place just to extend his life “[f]or some three suns.”</p> <p>The story also tells us how strangers are taken care off at the station by those who register with the agency in seeing them off at the station</p>
4	<p>On his having arrived at the age of 23 (Poem) by John Milton.</p> <p>Milton dissatisfaction of his young age wasted .</p> <p>Shyness ,My shield (Prose)</p> <p>Gandhiji s habit of not speaking turned out to be a blessing.His inability to speak turned out into a blessing.</p>	<p>Milton accomplishment in the literary field of his literary master piece ‘Paradise Lost’.</p> <p>Shyness, My shield : Programme Outcome</p> <p>Gandhi could not ever speak at meetings. But this inability become a spiritual asset.</p>

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### COURSE OUTCOME:

Upon Successful completion of course, a student will be able to

1. The students sensitivity to others problems is heightened.
2. Students learn values.
3. Students enrich vocabulary.
4. Students enjoy reading memorable stories.

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: ONE

SUBJECT: SECOND LANGUAGE (SANSKRIT)

COURSE OBJECTIVE:		
1.To teach Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah 2. To impart about Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi 3.To make them learn Esha dhramaha sanathanaha and Ajantha shabdhaha 4.To Create awareness on Sandhis and samskutha Sambhashana Abhaysaha		
Unit	Unit Objective	Program Outcomes
1	Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah	Enable the students to know about Ramayana and Character of Sri Rama and scriptures of Great poet maha kavi Kalidhasas.
2	Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi	Understand about the greatness of Roughtionous and how to help others in society
3	Esha dhramaha sanathanaha and Ajantha shabdhaha	Know how to use Sanskrit literature Neethi shlokasas and grammar
4	Sandhis and samskutha Sambhashana Abhaysaha	Students able to use Grammar and sentence formation of Sanskrit language.
COURSE OUTCOMES:		
Upon Successful completion of course, a student will be able to 1. Facilitate in learning about the Ramayana, the attributes of Sri Rama, and the writings of the renowned poet Mahakavi Kalidhasas. 2. Recognize the virtues of Roughtionous and learn how to be a good neighbor. 3. Understand and use Sanskrit literature Grammar and Neethi shlokasas. 4. competent to create sentences in Sanskrit and apply grammar.		

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**SEMESTER: ONE**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
1. To understand basic life lessons, knowledge of grammar and Hindi in literature it can help to students to build the skills of creativity and intellectual ideas and makes them to enrich their career.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn what are the qualities required for human being,	Students can understand how to be in society as a good person.
2	To understand how to control human at the time of purchasing.	Students can understand proper utilization of money.
3	To know about historical widow system	What are the problems faced by widows in social and cultural challenges.
4	To learn the concepts of Indian culture	To be aware of civilized communication, beliefs, values, etiquette, and rituals.
5	Learn Indian structure	To acknowledge Indian architectures, is rooted in the history, culture, climatic conditions and religion of India.
6	To understand caste system in Indian in olden days	To learn how low cast people will be treated in olden days and Indian culture.
7	To learn concept of understand humanity nature and helping to their parents.	To understand how to live in society and how to maintain good relationship with their parents.
8	To learn story about elder aunt (thai)	To learn about how to accept people.
9	To learn a story about realization towards parents	To acknowledge towards their parents.
10	To learn story about Obedience towards peoples	To learn Obedience to their friend when problem arises how to be in society



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11	Understanding about grammer.	To learn grammer part like Singler, plural, vibhakti
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## COURSE OUTCOMES:

Upon Successful completion of course, a student will be able to

1. To learn moral of life stories.
2. How-to live-in society as a peron.
3. To lean how to overcome situation when problem arises.

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**SEMESTER: ONE**

**SUBJECT: ENVIRONMENTAL STUDIES**

<b>COURSE OBJECTIVE:</b>		
1. To create awareness about environmental problems among people.		
2. To develop attitude of concern for the environment in the students.		
3. To help students to explore possible solutions of environmental problems.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To create awareness about environment and ecosystem	Able to know the importance of Ecosystem, Bio Diversity and Natural Resources
2	To develop the concern about pollution and global issues.	Can analyse the impacts of environment pollution and Global issues
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Understand the transactional character of the environmental problems and ways of addressing them, including the interaction across local and global scales.		
2. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.		
3. Understand the importance of sustainable development and modern approaches that enable humans to protect the environment		

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: ONE

SUBJECT: DIFFERENTIAL AND INTEGRAL CALCULUS

## COURSE OBJECTIVE:

1. The course is aimed at exposing the students to some basic notions in differential calculus.
2. Scientific temper will be developed in students.
3. Students possess basic subject knowledge required for higher studies.
4. Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.

Unit	Unit Objective	Program Outcomes
1	To learn about Functions of two variables, Continuity of a Function of two variables, Limit of a Function of two variables, Partial Derivatives Geometrical representation of a Function of two Variables, Homogeneous Functions.	Explore how continuity relates to the limit of a function. Understand the geometric interpretation of partial derivatives and homogenous functions
2	To learn about Differentials, Composite Functions, Implicit Functions, Equality of $f_{xy}(a, b)$ and $f_{yz}(a, b)$ , Taylor's theorem, Maxima and Minima of functions of two variables, Lagrange's Method.	Understand the process of finding partial derivatives of composite functions and the second-order partial derivative test for identifying extrema. Apply Lagrange multipliers to solve optimization problems with constraints.
3	To learn about Radius of Curvature, Length of Arc as a Function Newtonian Method, Centre of Curvature, Chord of Curvature, Evolutes and Involutives, Properties	Learn to compute the derivative of arc length with respect to a parameter. Understand how to find the radius of curvature for a given curve. Understand the

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	of the evolute. Envelopes. One Parameter Family of Curves.	relationship between a curve and its evolute and envelope.
4	To learn about Expression for the lengths of curve , Volumes and Surfaces of Revolution and Pappu's theorem	Derive and understand the formula for calculating the volume and surface area of a solid to different forms. Derive and comprehend the formula for calculating the surface area of a solid obtained by revolving a curve around an axis.
<b>COURSE OUTCOMES:</b> After successful completion of the course, the students will be able to 1. Realize the wide-ranging applications of the subject. 2. Study functions in detail which is a fundamental structure in all sciences and to be able to check continuity of a function.		

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**SEMESTER: ONE**

**SUBJECT: CIRCUIT ANALYSIS**

<b>Course Objective:</b> To familiarize the basic laws, theorems and the methods of analysing electrical circuits. To explain the use of network theorems and the concept of resonance. To explain the importance of initial conditions, their evaluation and transient analysis of R-L and R-C circuits.		
Unit	Unit - Objective	Learning Outcomes
1	To learn about AC fundamentals & KVL, KCL	Understand the concept of generation of sine wave and RMS value. Understand j operator, rectangular forms of complex numbers. Obtain KVL and KCL (AC, DC) by using basic sources and resistors.
2	To learn about network theorems	Learn To simplify the large electrical networks by using theorems (superposition, thevenin's, norton's, max power, reciprocity). And performed multiple problems to simplify the large electrical circuits.
3	To learn about RL circuits, RC circuits.	Understand about the transient response of RC and RL networks. And obtained frequency response of RC and RL circuits by using multiple filters (low pass, band pass, high pass)
4	To learn about resonance & cathode ray oscilloscope.	Understand about series and parallel LCR circuits to obtain Q-factor, bandwidth and resonant frequency. Learn about CRO consists of cathode ray tube, electron gun, deflection and fluorescent screen which is going to use to measure amplitude, frequency time period of output wave forms

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## COURSE OUTCOMES:

- (1) Gain comprehensive knowledge about KVL, KCL on AC, DC power supplies.
- (2) Apply network theorems for the analysis of electrical circuits.
- (3) Obtain the transient and steady-state response of electrical circuits
- (4) The shape of voltage and current waveform can be observed by CRO

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**B.Sc (MECS)**

**SEMESTER: ONE**

**SUBJECT: PROGRAMMING IN C**

**COURSE OBJECTIVE:**

1. Learn fundamental concepts of computer system.
2. Learn basic concept of programming languages (data types, constants, variables, operators, control constructs).
3. Learn Array functions, structures, unions and file handling concepts by practically implementing them.

Unit	Unit Objective	Program Outcomes
1	Learn fundamental concepts of computer system, functions, types, generations of computers. I/O Devices, memory and its types. Basics of programming.	Understand clearly basic components of computers and also basic concepts of programming like tokens identifiers data types.
2.	Learn I/O, control statements, Arrays and strings.	To be able to format outputs and to write simple programs using control statements and Arrays.
3.	Learn about working with functions and pointers	Understand modularization of coding by using functions and to work with pointers.
4.	Learn user defined data types structures and unions, working with files.	To be able to create user defined data types and handle large volume of data stored in files.

**COURSE OUTCOMES:**

1. Appreciate and understand the working of a digital computer.
2. Analyse the given problem and develop an algorithm to solve the problem.
3. To use C language constructs in the right way.
4. Design, develop and write programs using C.



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# SEMESTER II

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**B.Sc (MECS)**

**SEMESTER: TWO**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. To teach students the basics of grammar and teach them how one can write paragraph without making mistakes.
2. To teach students good literary work so that they can learn good moral things from that.
3. To learn different types of verbs and frequently used figures of speech.

Unit	Unit Objective	Program Outcomes
1	To expose students to good literary work. To teach them the basics of grammar and help them to write paragraph correctly	Students learnt good literary work and learnt to use words, sentences and paragraphs correctly using the right tenses. They understood the important factors for writing paragraphs and can write paragraphs.
2	To introduce different writers and their writings to students. To teach loan words and auxiliary verbs.	Students are inspired to write something on the current issues easily. Students know what loan words are and how it is used. They wisely use the essential to write a paragraph correctly.
3	Students are exposed to history and speeches given by famous people. To learn nonfinite verbs and descriptive writing.	Inspired to deliver speeches in public places and win awards in future. Know to write portmanteau words and can write descriptive writing in an amazing manner.
4	To introduce the works of famous writer Shakespeare. To teach them how one can	Students learnt famous works of Shakespeare and can excel in Public

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	excel in public speaking and argumentative writing. To learn few important frequently used simile and metaphors	speaking and use figures of speech correctly. They can write argumentative writing easily also.
<b>COURSE OUTCOME:</b> Upon Successful completion of course, a student will be able to 1. Students get an overall idea of grammar. 2. Students can deliver public speeches and use English appropriately.		

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**B.Sc (MECS)**

**SEMESTER: TWO**

**SUBJECT: SECOND LANGUAGE**

**COURSE OBJECTIVE:**

1. To develop attitude of Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha.
2. To be aware of Vignanika samhitha and nagangadathaha punarethi kupam.
3. To know the qualities of daivasurasampadvibhagayogaha.
4. To teach the Samasaha and Samskrutha Sambhashana Abhyasaha.

Unit	Unit Objective	Program Outcomes
1	Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha	Understand the importance of Charity sacrifice and detachment to the world pleasures.
2	Vignanika samhitha and nagangadathaha punarethi kupam.	Know about Astrology, Astronomy and Regarding values of Friendship and Gratitude.
3	daivasurasampadvibhagayogaha	Enable the students about Goddess qualities and Demons qualities in human being.
4	Samasaha and Samskrutha Sambhashana Abhyasaha	Know about Sanskrit grammar and sentence formation of Sanskrit language.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

1. Recognize the value of charity, selflessness, and disengagement from worldly pleasures.
2. Learn about astrology, astronomy, and the importance of gratitude and friendship.
3. Know about the characteristics of both goddesses and demons in humans.
4. Understand the syntax and sentence structure of the Sanskrit language.



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B.Sc (MECS)

SEMESTER: TWO

SUBJECT: HINDI

COURSE OBJECTIVE:		
1. Students can learn about life lessons. 2. They can understand about political and environmental conditions. 3. To understand about grammer.		
Unit	Unit Objective	Program Outcomes
1	To learn about kashmir	To learn history of Kashmir, climatical and weather, people living conditions and boundaries of kashmir.
2	To learn story about thai.	To learn how to accept people.
3	To lean about about politicians	To understand about politicians and how they are distributing their positions and powers.
4	To learn about Vivekananda life story.	To lean about great leader and his compassion and faith optimism and mindfulness.
5	To understand about Environmental	To understanding importance of environment.
6	To lean about dare ness of a women	To understand how women can survive their life's in critical conditions.
7	To learn about how people can convert situations in matters of money	To understand about people surrounded by us ,how they are converting situations in matters of money.

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8	Story about a person who can dedicate his entire life towards their family	To learn how parent are sacrifice their life towards their children's.
9	To lean story of parents	To understand moral of how parents dedicating their life to their children ,but when it turn to children why they are not dedicating their time to their parents.
10	To learn story about seliva.	To understand about how to get abstracles.
11	To lean grammer	To lean grammer part like opposite word,sandulu samasalu.

### COURSE OUTCOME:

Upon successful completion of the course, a student will be able to understand,

1. To learn moral of life stories.
2. To learn how to overcome situation when problem arises.
3. To improve the awareness of students about different Socio – Academic & Political problems.

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**B.Sc (MECS)**

**SEMESTER: TWO**

**SUBJECT: FUNDAMENTALS OF COMPUTERS**

**COURSE OBJECTIVE:**

1. Learn fundamental concepts of computer system.
2. To understand the basic uses and applications of computer.
3. To know different types of memory and various input and output devices.
4. To get familiar with various computer codes.

Unit	Unit Objective	Program Outcomes
1	To Learn concepts of computers, and its application. Types of memories.	To understand concepts of I/O devices and classifications of computers and understanding of computer system.
2	To enrich concepts of number system and computer codes, software system and its applications	To understand the concepts of Boolean algebra ,logic gates-maps with examples and different types of software system and its applications.

**COURSE OUTCOMES:**

Upon successful completion of the course, a student will be able to understand,

1. Understanding the concept of input and output devices of Computers
2. Learn the functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices.
3. Understand an operating system and its working, and solve common problems related to operating systems

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B.Sc (MECS)

SEMESTER: TWO

SUBJECT: DIFFERENTIAL EQUATIONS

<b>COURSE OBJECTIVE:</b>		
1. The main aim of this course is to introduce the students to the techniques of solving differential equations		
2. Train students to apply their skills in solving some of the problems of engineering and science.		
Unit	Unit Objective	Program Outcomes
1	To learn about Equations in which Variables are Separable, Homogeneous Differential Equations - Differential Equations Reducible to Homogeneous Form, Linear Differential Equations, Differential Equations Reducible to Linear Form, Exact differential equations	Learn how to identify homogeneous differential equations. techniques to transform non-homogeneous differential equations into homogeneous form. Explore the linearity property and how it applies to both the dependent variable and its derivatives.
2.	To learn about Equations Solvable for $p$ - Equations Solvable for $y$ - Equations Solvable for $x$ - Equations that do not contain $x$ (or $y$ )- Equations Homogeneous in $x$ and $y$ - Equations of the First Degree in $x$ and $y$ - Clairaut's equation.	Learn methods for solving equations where the dependent variable, explore techniques for solving equations in which the dependent variable can be expressed explicitly in terms of the independent variable(s).
3.	To learn about homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations. Method of undetermined coefficients	Identify and work with equations where the coefficients are constants. Learn the concept of a particular solution representing the non-homogeneous part of the equation. Understand the

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		motivation behind the method of undetermined coefficients
4.	To learn about Method of variation of parameters - Linear differential equations with non-constant coefficients - The Cauchy - Euler Equation - Legendre's Linear Equations - Miscellaneous Differential Equations. Partial Differential Equations:	Understand the motivation behind and the principles of the method of variation of parameters. Understand the characteristics of linear differential equations with coefficients that are functions of the independent variable. Understand Legendre's linear equations and their significance. Study a variety of differential equations with distinct characteristics.
<b>COURSE OUTCOMES:</b> 1. After learning the course the students will be equipped with the various tools to solve few types differential equations that arise in several branches of science.		

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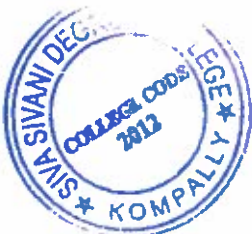
**B.Sc (MECS)**

**SEMESTER: TWO**

**SUBJECT: ELECTRONICS DEVICES**

<b>COURSE OBJECTIVE:</b>		
To introduce basic semiconductor devices, their characteristics and application. To understand analysis and design of simple diode. To learn to analyze the PN junction behavior at the circuit level and its role in the operation of diodes and active device.		
<b>Unit</b>	<b>Unit - Objective</b>	<b>Learning Outcomes</b>
1	To learn about V-I characteristics P-N junction , Zener, tunnel, varactor diodes	Understand V-I characteristics of P-N junction diode by using forward, reverse bias conditions , same V-I characteristics applied to rest of the diodes i.e Zener, tunnel, varactor diodes.
2	To learn about Bipolar Junction transistors (NPN,PNP)	Learn about BJT's (PNP,NPN) and CB,CC,CE configuration of transistors by using biasing conditions (active, cutoff, saturation ) regions. Understand two port networks by using H-parameters.
3	To learn about FET, MOSFET,UJT.	Learn construction and working of FET, MOSFET, UJT's. and the characteristics of FET,MOSFET,UJT's. observed the applications like voltage variable resistor for FET,switch for MOSFET, relaxation oscillator for UJT.
4	To learn about silicon controlled rectifier and photo electronic devices.	Learn construction working, characteristics of SCR, light dependent resistor(LDR). Obtained application power control on SCR. And observed difference between photo diode and light emitting diode(LED).
<b>Course Outcomes :</b>		
(1) Ability to analyze PN junctions in semiconductor devices under various conditions.		
(2) Ability to design and analyze simple rectifiers and voltage regulators using diodes.		

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- (3) Ability to describe the behavior of special purpose diodes.
- (4) Ability to design and analyze simple BJT and MOSFET circuits.
- (5) Ability to construct and working of SCR, light dependent resistor(LDR)



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**SEMESTER: TWO**

**SUBJECT: PROGRAMMING IN C++**

<b>COURSE OBJECTIVE:</b> 1. Learn fundamental concepts of Object-Oriented Programming. 2. Aims to implement real world entities like inheritance, data hiding, polymorphism etc in programming. 2. To enable students to learn concepts of programming in detail with hands-on experience in programming.		
Unit	Unit Objective	Program Outcomes
1	Learn basics of programming, control structures, Functions, call by value, call by reference, Overloading, OOPs concepts	Recapitulate programming concepts, ability to modularize code by using functions concept.
2	Understand class structure, constructors, overloading, destructors	Vivid knowledge of OOPs concept class and its implementation in detail.
3	Learn Inheritance, Polymorphism and streams concepts in detail	To understand and implement reusing code by using inheritance and polymorphism.
4	Understand Exception handling, rethrowing templates -both function and class templates	To learn to handle runtime errors using exception handling.
<b>COURSE OUTCOMES:</b> Upon successful completion of the course, a student will be 1. equipped with solid foundation in C++ programming. 2. prepared for software development roles for further studies in related fields.		

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# SIVA SIVANI DEGREE COLLEGE

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# SEMESTER III

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: THREE

SUBJECT: ENGLISH

### COURSE OBJECTIVE:

1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.
2. Ability to be comfortable while speaking or reading English.
3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.
4. Develop wide knowledge in their major and allied subjects necessary to qualify for the degree.

Unit	Unit Objective	Program Outcomes
1	<p>O Captain! My Captain- Wall Whitman(Poem)</p> <p>Mallika Srinivasan (Prose):</p> <p>The poem gives a chance to learn many poetic devices and brings to mind the transience of human life.</p>	<p>To inform the students the life history of Abraham Lincoln; To also teach them extended Metaphor and also the U.S. Civil war morning and rejoicing are a part of life.</p> <p>A part from observing the business Acumen and the business success graph. Make sure that all words are spelled correctly; Try different keywords and learn them all.</p>
2	<p>The Solitary Reaper (Poem):</p> <p>The students' senses are sharpened to observe the beauty of nature, valleys, meadows etc.,</p>	<p>The message of the poem solitary Reaper is that even the lowliest individuals and ordinary situations have a beauty.</p>

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	<p>How to live to be a 200(Prose):</p> <p>This piece of prose explains that everything practiced in moderation is good, extreme is bad.</p>	<p>The individual logic of health doesn't matter. What we think gives health really doesn't give health. Holistic health purpose is better.</p>
3	<p>La Belle Dame Sans Merci (Poem)</p> <p>Students learn that even if the best person leaves you, one has to motivate himself to get back to a normal state.</p> <p>Ilyas(Prose):</p> <p>This lesson redefines the ethics of life.</p>	<p>The poem is about a beautiful lady entering a man's life and casts a temporary spell on him and after words leaves him.</p> <p>This merciless act is records in this poem.</p> <p>A rich man amasses wealth. Then loses it only to find out that wealth is not everything but fostering relationships is important.</p>
<p><b>COURSE OUTCOMES:</b></p> <p>Upon successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. Develop style in speech and writing and manipulate the tools of language for effective communication.</li><li>2. The course should provide exposure to the learners in good pros, texts, poems and expose the learners to value based ideas.</li><li>3. Enhance their language skills especially in the areas of grammar and punctuation.</li><li>4. Acquire a rich asset of value-added courses, soft skills and communication skills, in stilling, self-confidence and moral values.</li></ol>		

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**SEMESTER: THREE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
1.To teach Pravarthatham Prakruthi hithaya Parthivaha and Navarathnani		
2. To equip Shudhraka Vayshampayana yoho Sambhashanam and Ramadhasaha		
3. To impart Shabdhaha(Halantha) and Samskrutha Sambhashana Abhyasaha.		
Unit	Unit Objective	Program Outcomes
1	Pravarthatham Prakruthi hithaya Parthivaha and Navarathnani	Know about the dramas in Sanskrit literature and Greatness of Mahabharata. and to be equipped with the information of King Vikramadithya.
2	Shudhraka Vayshampayana yoho Sambhashanam and Ramadhasaha	Understand the importance of Prose in Sanskrit Literature and Rama dasa the Devote.
3	Shabdhaha(Halantha) and Samskrutha Sambhashana Abhyasaha.	Able to understand Sanskrit Grammar and frame sentences in Sanskrit language.
<b>Course Outcomes:</b>		
Upon Successful completion of course, a student will be able to		
1. Learn about the dramas in Sanskrit literature as well as Mahabharata's magnificence and furnished with King Vikramadithya's knowledge.		
2. Recognize the significance of Rama dasa the Devote and prose in Sanskrit literature.		
3. Able to construct sentences in Sanskrit and comprehend Sanskrit grammar.		



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**SEMESTER: THREE**

**SUBJECT: HINDI**

<b>Course Objective:</b>		
1. To make the student appreciate the importance of translation.		
2. To strengthen Hindi Grammar and improve quality of language by means of Hindi Grammar.		
3. Strengths the quality of Hindi language of students by mean of Grammar.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	History of poet and their poems.	To understand moral values.
2	To lean Hindi literature and history	To make students to understand olden tradition and golden age of hindi literature
3	To improve the letter writing skills of the student.	Students will be able to develop their writing skill in different letters.
<b>COURSE OUTCOME:</b>		
Upon successful completion of the course, a student will be able to understand,		
1. To improve the letter writing skills of the student.		
2. To highlight the salient features of modern Hindi poetry.		
3. To improve the reading and writing skills of the student by different stories		

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**SEMESTER: THREE**

**SUBJECT: COMMUNICATION SKILLS(SEC-1)**

<b>COURSE OBJECTIVE:</b>		
1.To understand the role of communication in teaching learning process and understand how all four skills are important.		
2. To Communicate successfully through nonverbal communication and learn to communicate through the digital media.		
3. Understand the importance of emphatic listening and explore communication beyond language.		
Unit	Unit wise Objective	Program Outcome
1	To teach students the importance of listening in common and business communication. To make them aware of its techniques and its barriers.	Realize the importance of listening They can overcome the barriers with the knowledge they received.
2	To teach students Pronunciation and enunciation and explain them how vocabulary, fluency and common errors play important role in speaking skills.	Students can speak and pronounce correctly and improve their speaking skills.
3	To teach students the importance of reading and how one can interpret the text.	Students read more articles and interpret the text appropriately.
4	To emphasize how one can excel in writing by giving tips and inform them the different modes of writing.	Students can write any articles effectively and learnt different modes of writing which are very important for their career.

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5	To impart the role of Digital Literacy in professional life and MS-Tools and explain its role in today's communication.	Acquire knowledge on Digital technology and would use it for the betterment of their career.
6	To impart social media websites and its advantages, to give tips to use google search better, to use digital marketing effectively.	Can use social media productively, can use google search successfully and use technology constructively to promote digital marketing.
7	To elucidate Nonverbal communication and present do's and don'ts of it.	Students can excel in nonverbal communication which would help them in both personal and professional life.
<b>COURSE OUTCOME:</b> Students have a clear understanding of what good communication skills are and how one can improve their abilities to attain excellency.		

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**B.Sc (MECS)**

**SEMESTER: THIRD**

**SUBJECT: PYTHON-1(SEC-II)**

**COURSE OBJECTIVE:**

1. The program objective is to enable students to learn core concepts in python programming.
2. To learn how to write a program in python using variables, operators, control constructs, functions and exceptions.
3. To do input and output with files in python.

Unit	Unit Objective	Program Outcomes
1	To learn python programming and decision structure and Boolean logics, repetition structures.	To learn how to write a Python program with conditional Statements and Looping Statements.
2	Applicability division of task, and reusable task, repetition tasks. Handling of errors.	Students learn about and Functions and Exceptions handling with Programs.

**COURSE OUTCOME:**

Upon completion of the course, students able to,

1. To learn about Python programming fundamentals
2. Conditional Statements, Looping Statements, Functions and Exceptions.
3. To develop python programs for solving problems.
4. To read and write data from /to files in python programs.

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# SIVA SIVANI DEGREE COLLEGE

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SEMESTER: THIRD

SUBJECT: REAL ANALYSIS

**COURSE OBJECTIVE:**

1. The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena.
2. scientific temper will be developed in students.
3. students will be aware of and able to develop solution-oriented approach towards various social and environmental issues.
4. students possess basic subject knowledge required for higher studies.

Unit	Unit Objective	Program Outcomes
1	To learn the sequences and series of convergent or divergent. Monotone Sequences and Cauchy Sequences -series Subsequence's Alternating Series and Integral Tests	Explore properties and examples of sequences and subsequence's , properties and significance. sequences and series. Understand the concept of alternating series. Apply the Integral Test to determine the convergence of series.
2.	To learn about Continuous Functions, Properties of Continuous Functions ,Uniform Continuity ,Limits of Function	Understand the definition of a continuous function. Understand counter examples that illustrate situations where continuity fails Define uniform continuity.

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3.	To learn about Basic Properties of the Derivative ,The Mean Value Theorem -,L'Hospital Rule , Taylor's Theorem.	Understand the definition of the derivative of a function. Explore cases where a function is differentiable but not continuous, and vice versa. Explore the geometric interpretation of the MVT.
4.	To learn about The Riemann Integral ,Properties of Riemann Integral,Fundamental Theorem of Calculus.	Familiarize with the notation used to represent Riemann sums and integrals. Understand how these sums are used to approximate the integral.
<b>COURSE OUTCOMES:</b> 1. Describe the fundamental properties of the real numbers that underpin the formal development of real analysis. 2. Demonstrate an understanding of the theory of sequences and series, continuity, differentiation and integration. 3. Demonstrate skills in constructing rigorous mathematical arguments; 4. Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.		

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SEMESTER: THREE

SUBJECT: ANALOG CIRCUITS

### COURSE OBJECTIVE:

The goal of this course is to introduce and verify basic principles, operation and applications of the various analog electronic circuits and devices like BJT for various functions. To make students understand and analyze the design and working of amplifiers oscillators and their configurations.

Unit	Unit - Objective	Learning Outcomes
1	To learn about Rectifiers and Filters.	Learn about all rectifiers(Half,Full,Bridge) ripple factor,Efficiency, with and without filters to obtain regulated DC output voltage. How all the filters(inductor,capacitor L-section & PI section) are make their functionality.
2	To learn about Regulated Power Supplys	Understand about RPS,UPS(power backups), SMPS in a CPU to obtain high frequency DC output , learned about output voltage regulators 78XX,79XX
3	To Learn about Transistor Amplifiers, Feed Back Amplifiers	Learn about RC coupled amplifier and H-parameters, understand about positive and negative feedback amplifiers(gain,input and ouput impedance) and Darlington pair of transistors
4	To Learn about Oscillators and multi-vibrators	Constructing oscillators by using feedback amplifiers that must follow Barkhausen criterion. And construction of multi-vibrators by using oscillators.

### COURSE OUTCOME:

- (1) Understand different type rectifiers along with their filters
- (2) Gain a solid understanding of RPS , UPS, AND SMPS
- (3) Able to Understand about three terminal IC'S (78XX,79XX)



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- (4) Students will be able to understand Op Amp fundamentals and differential amplifier configuration
- (5) Apply the h-parameter model to power amplifiers circuit design
- (6) Describe and compare the Bi-stable, Mono-stable and Astable circuits and its application
- (7) Design various multivibrators from the given constraints

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER – THREE SUBJECT: DATA STRUCTURES USING C++

COURSE OBJECTIVE:		
<ol style="list-style-type: none"><li>1. The program objective is to enable students to learn different types of Data Structures Using C++ Programming Language.</li><li>2. To understand importance of data structures in context of writing efficient programs.</li><li>3. To develop skills to apply appropriate data structures in problem solving.</li></ol>		
Unit	Unit Objective	Program Outcomes
1	To learn about Algorithm, Pseudocode different types of Data Structures ,	Students understand how to write algorithm, pseudocode and program for Stack Data Structure and Expression Evaluation and Conversion.
2	Students able to learn about Recursion, Queue, Linked List data structures and its implementation.	Enable Students to understand Recursion and its types, Queue and its variants, Linked List ADT and its implementation, Linked List variants and applications.
3	Students able to learn Tree ADT operations and its types along with various Searching and Sorting Algorithms.	Students Understand the concepts of Tree Data Structure and its implementation using C++ and able to write searching and sorting algorithms using C++
4	Students able to learn how to implement Graph, Hashing and Heap Data Structures.	Understanding Graph ADT operations and its implementation, Graph traversal techniques, Constructing Minimum Spanning Tree, Hash and Heap Data Structure and its implementation and applications

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## COURSE OUTCOMES:

Upon successful completion of course, a student will be able to

1. Understand basic data structures such as arrays, stacks, queues, Linked List, Trees, Graphs Hash and Heap Data Structure and its implementation and applications
2. Understand the various searching and sorting algorithms to implement using C++ Programming Language.
3. Understand different types of operations such as insert, delete, searching, sorting and traversing operations for different data structure using C++.

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# SEMESTER IV

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**B.Sc (MECS)**

**SEMESTER: FOUR**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.
2. Ability to be comfortable while speaking or reading English.
3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.

Unit	Unit Objective	Program Outcomes
1	<p><b>Ozymandias(Poem):</b></p> <p>One of the key lessons of Ozymandias is the importance of strong foundation. The “two vast and trunkless legs of stone” that stand in the desert represent the foundation upon which Ozymandias built his empire.</p> <p><b>The Lottery Ticket(Prose):</b></p> <p>The lesson’s theme is that one should not blindly follow traditions simply because they are traditional.</p>	<p>To analyse the theme of power in Ozymandias. To understand the age, Kingship .</p> <p>The message of the poem could be considered to be a remainder that power will not last forever.</p> <p>The theme of the lesson is, it is best for people to be content with what they have and not to start dreaming of things that will be much better than what they have.</p>
2	<p><b>My Last Duchess(Poem):</b></p> <p>The predominant theme of My Last Duchess” is the speaker’s obsession with control. The Duke exhibits an arrogance routed in an audacious sense of male superiority. He is</p>	<p>In “My Last DuChess” is the Duke of Ferrara uses his power to control his subjects, and kills his wife because of the way she acts around other men. From</p>

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	<p>Stuck on himself – full of narcissism and misogyny.</p> <p>The Doll's House(Prose)</p> <p>Understand the influence of Ibsen's work , the themes of family, society and morality in the 19th century, Norway.</p>	<p>beginning to end displays the corrupt power of the domestic tyrant , his arrogance, jealousy and the ruthlessness.</p> <p>A Doll's House explores the ways that societal expectations restrict individuals, especially woman.</p>
3	<p>Hope is the thing with feathers(Poetry):</p> <p>"Hope" has been helpful in times of difficulty and never ask anything in return.</p> <p>Packing(Prose):</p> <p>Packing teaches Students how packing can indeed be a tiring task if not done properly.</p>	<p>Emily Dickinson has successfully rendered an abstract subject ie.,he has personified Hope.</p> <p>Packing when done with friends can become a little messy and time consuming, it has a own charm and fun.</p>
<p><b>COURSE OUTCOMES:</b></p> <p>Upon successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. To promote career dexterity in the students.</li><li>2. To provide Students a platform to understand interrelatedness between life and literature.</li><li>3. To help Students in the development of critical and analytical thinking through literacy.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: FOUR

SUBJECT: SECOND LANGUAGE (SANSKRIT)

## COURSE OBJECTIVE:

1. To teach Chitrapata dharshanam and Vivekandhavijayam.
2. To Equip Vishruthacharitham and Dhrvopakyanam
3. To Impart Krudhantha rupani and Samskrutha sambhashana Abhyasam

Unit	Unit Objective	Program Outcomes
1	Chitrapata dharshanam and Vivekandhavijayam.	Enable to understand the greatness of Swami Vivekananda and Sanskrit Drama
2	Vishruthacharitham and Dhrvopakyanam	Know about Age is not barrier to achieve aim-importance of commitment. Greatness of Prose in Sanskrit.
3	Krudhantha rupani and Samskrutha sambhashana Abhyasam	Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.

## COURSE OUTCOMES:

Upon Successful completion of course, a student will be able to

1. Facilitate comprehension of the magnificence of Swami Vivekananda and Sanskrit drama
2. Realizing that age is not a barrier to achieving goals- commitment is essential.
3. Use Prose in Sanskrit Language.
4. Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.



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**B.Sc (MECS)**

**SEMESTER: FOUR**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
1.	To make the student appreciate the importance of translation.	
2.	To strengthen Hindi Grammar and improve quality of language by means of Hindi Grammar.	
3.	Strengths the quality of Hindi language of students by mean of Grammar	
Unit	Unit Objective	Program Outcomes
1	History of poet and their poems.	To understand moral values.
2	To lean Hindi literature and history	To make the student understand the History of Hindi literature.
3	To improve the letter writing skills of the student.	Students will be able to develop their writing skill in different letters.
<b>COURSE OUTCOME:</b>		
Upon successful completion of the course, a student will be able to understand,		
4.	To improve the letter writing skills of the student.	
5.	To highlight the salient features of modern Hindi poetry.	
6.	To improve the reading and writing skills of the student by different stories.	



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**B.Sc (MECS)**

**SEMESTER: FOUR SUBJECT: LEADERSHIP & MANAGEMENT SKILLS(SEC-III)**

<b>COURSE OBJECTIVE:</b>		
1. To develop critical thinking, managerial abilities and organisation skills in students		
2. To equip the students to take effective decisions by coordinating the teams		
3. To enhance the capabilities of being team members and manage networks		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To develop essential skills to influence and motivate others	Inculcate emotional and social intelligence and integrative thinking for effective leadership
2	To create and maintain an effective and motivated team to work for the society	Demonstrate a set of practical skills such as time management, self-management, handling conflicts, team leadership, etc.
3	To Nurture a creative and entrepreneurial mind-set	Understand the basics of entrepreneurship and develop business plans
4	To describe emotional intelligence, social intelligence and integrative thinking for effective leadership	Apply the design thinking approach for leadership
5	To Inculcate ethics and moral values for developing a balanced personality	Appreciate the importance of ethical principles in professional and social contexts
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Student will understand and use the process of effective decision making		
2. Develop self-awareness and self-management skills		
3. Demonstrate effective interpersonal competence		

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**SEMESTER: FOUR**

**SUBJECT: PYTHON II(SEC-IV)**

<b>COURSE OBJECTIVE:</b> 1. The program objective is to enable students to learn advanced concepts in python programming. 2. To learn how to write a program in python using OOP. 3. To build GUI applications		
Unit	Unit Objective	Program Outcomes
1	To learn python programming concepts like lists, tuples and working with strings.	To learn to write Python programs using advanced concepts.
2	To learn OOP concepts and GUI concepts in detail.	To be able to write programs using OOPS and understand GUI concepts.
<b>COURSE OUTCOME:</b> Upon completion of the course, students able to, 1. To apply advanced concepts in Python programming. 2. tackle programming challenges and contribute to variety of application domains.		

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SEMESTER: FOUR

SUBJECT: ALGEBRA

COURSE OBJECTIVE:		
1. The course is aimed at exposing the students to learn some basic algebraic structures like groups, rings etc		
2. Scientific temper will be developed in students.		
3. Students possess basic subject knowledge required for higher studies.		
Unit	Unit Objective	Program Outcomes
1	To learn about Groups, Subgroups, Cyclic Groups, Properties of Cyclic Groups, Classification of Subgroups Cyclic Groups.	Understand the definition of a group in the context of abstract algebra. Learn and apply basic properties of groups. Learn the terminology used in group theory.
2.	To learn about Cycle Notation, Permutations, A Check Digit Scheme Based on D5. Isomorphisms, Cayley's Theorem, Cosets and Lagrange's Theorem Properties	Understand the definition of cycle notation in the context of permutations. understand the concept of permutation groups, the concept of a check digit scheme in the context of D5 and isomorphisms in comparing group structures.
3.	To learn about Normal Subgroups- Factor Groups, Group Homomorphisms , Rings , Subrings. Integral Domains: Fields , Characteristics of a Ring .	Explore the properties of normal subgroups. Understand and apply factor groups in various mathematical and real-world scenarios. Explore properties of group homomorphisms. Understand properties of subrings and their relationship to the parent

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4.	To learn about Ideals ,Factor Rings - Prime Ideals and Maximal Ideals. Ring Homomorphisms:	Understand the definition of ideals in the context of ring theory. Understand the definition of prime ideals as special types of ideals. Explore properties of ring homomorphisms
<b>COURSE OUTCOMES:</b> <ol style="list-style-type: none"><li>1. On successful completion of the course students will be able to recognize algebraic structures that arise in matrix algebra, linear algebra.</li><li>2. Students will be able to apply the skills learnt in understanding various such subjects.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

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# SEMESTER V

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc (MECS)**

**SEMESTER: FIVE**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To help students Learn the importance of English in today's world</li><li>2. Students can learn and use English correctly.</li><li>3. Students can write reviews and technical reports which are important in business communication.</li><li>4. To make students aware of the current issues happening around them.</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	To Learn the importance of English ,learn Indianism and to learn framing questions.	Students can speak correct English and they can frame questions and question tags on there own.
2	To make students aware of gender sensitization, to learn word analogy and learn grammar.	Students are aware of gender roles and can do word analogy easily and write without making grammatical mistakes .
3	To teach students how they can write book and film review, to teach technical vocabularies and use conditionals effectively	Students can write film and book review, use technical vocabulary and conditionals effectively.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. students become aware of gender sensitization, they can write reviews and can write technical reports and frame questions.</li></ol>		

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B.Sc (MECS)

SEMESTER: FIVE

SUBJECT: SANSKRIT

<b>COURSE OBJECTIVE:</b>		
To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students		
Unit	Unit-Objective	Program Outcome
1	Learn about Madhuropadeshaha & alankaras	Understand moral values(change from negative attitude to positive attitude) Knowing about Sanskrit alankaras.
2	Learn about Shishyanushasanam & Bhramashakthihi gariyasi	Understand how to live in society with human values. Knowing about power of God
3	Learn about Sanskrittha sambhashanam & mahakavi shastrakara vibhagaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist's .
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Know the culture of India</li><li>2. Know the great ness of Sanskrit language</li><li>3. Know about the importance of ancient scientist's</li></ol>		

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**B.Sc (MECS)**

**SEMESTER: FIVE**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To know about Rajya Basha ,Rasra Basha difference and Basha Ka Mahatavu.</li><li>2. To know about different types of Literature.</li><li>3. To know about how to communicate with people.</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Learn about different types of Basha.	Understand different types of Basha like Rajya Basha, Rastra Basha, Prayojanmulak Hindi.
2	Learn about Hindi Literature and different types of literature.	Understand about Natak,Kavitha,Kahani.
3	Learn about Sanskrita sambhashanam & mahakavi shastrakara vibhagaha	Students Understand about Jansanchka Madhyam
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Know about Rajya Basha, Rastra Basha differences and Basha Mahathav</li><li>2. Know the different types of literature.</li><li>3. Know about how to communicate with people</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc (MECS)**

**SEMESTER: FIVE**

**SUBJECT: INFORMATION TECHNOLOGIES**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To deal with basic concepts of Computer Networks and Internet</li><li>2. To understand the concepts of Emerging Computer Technologies</li><li>3. To understand the concepts of Email and different types of Security technologies.</li></ol>		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn about Computer Networks and The Internet.	Students understand the concepts of Computer Networks such as Connection Media, Transmission Mode, Multiplexing, Switching, Topologies, Devices, OSI Model. and the concepts of Internet
2	To learn about Emerging Computer Technologies:	Students enable to understand the concepts of Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence
3	To learn about Email, Web Browser and its Information Security.	Students Understand the concepts of Email, Web Browser, Internet Service Providers. Information Security, Threats to Information Systems, Information Assurance and Cyber Security.
4	To learn about Application Security , Security Technologies, E-Cash and Electronic Payment System.	Understand the concepts of Application Security and Counter Measures, Data Security Considerations, Security Technologies, Security Threats, Security Threats to

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		ECommerce, E-Cash and Electronic Payment System.
<b>COURSE OUTCOMES:</b> Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Understand different concepts of Computer Networks .</li><li>2. Develop an understanding of professional, ethical, legal, security, and social issues and responsibilities.</li><li>3. Understand ethical and legal issues impacting information technology.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc (MECS)

SEMESTER: FIVE

SUBJECT: LINEAR ALGEBRA

**COURSE OBJECTIVE:**

- 1) Scientific temper will be developed in students.
- 2) Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.
- 3) Students will become employable; they will be eligible for career opportunities in industry or will be able to opt for entrepreneurship.
- 4) Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Unit	Unit Objective	Program Outcomes
1	To learn about Vector Spaces, Linear Transformations, Linearly Independent Sets; Bases, - Coordinate Systems, The Dimension of a Vector Space	Understand the definition of a vector space, calculate null spaces and recognize their significance. Understand the concept of column spaces of a matrix, linearly independent, basis and dimension of a vector space.
2.	To learn about Rank-Change of Basis, Eigenvalues and Eigenvectors, The Characteristic Equation	Understand the definition of the rank of a matrix. Learn techniques to calculate the rank of a matrix. Understand the significance of eigen values and eigen vectors in linear algebra, relationship between the characteristic equation and eigen values.
3.	To learn about Diagonalization - Eigen vectors and Linear Transformations, Complex Eigen	Recognize the importance of diagonal matrices in certain applications, when diagonalization is not possible and the

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	values ,Applications to Differential Equations	importance of the complex eigen values. Understand how eigen values and eigen vectors are used in solving linear systems of differential equations.
4.	To learn about Inner Product, Length, and Orthogonality, Orthogonal Sets, Orthogonal Projections ,The Gram-Schmidt Process.	Understand the definition of an inner product on a vector space. Explore how orthogonality simplifies computations and analyses. Apply the Gram-Schmidt process to transform a set of linearly independent vectors into an orthogonal set.
<b>COURSE OUTCOMES:</b> 1. After completion of the course students appreciate its interdisciplinary nature. 2. To learn, to find Eigen values, Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry. 3. To learn inner product spaces and Gram-Schmidt process of orthogonalization. 4. To get well equipped with mathematical modelling abilities.		

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: FIVE

SUBJECT: DIGITAL ELECTRONICS

<b>COURSE OBJECTIVE:</b>		
The main aim of this course is to acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. To prepare students to perform the analysis and design of various digital electronic circuits.		
Unit	Unit - Objective	Learning Outcomes
1	To learn about Number system conversion, 1's and 2's compliment subtraction, basic logic gates, universal gates , special gates & construction of basic gates by using universal gates, different adders, TTL CMOS LOGIC	Learn how the number system conversions done. How 1's and 2's compliment subtraction taken place. How to construct logic gates. Understand different logic families (TTL, CMOS)
2	To learn about boolean algebra and combinational logic circuits	Understand simplification of functions by using boolean laws & k-maps, understand data transfer methods multiplexer and de- multiplexer, able to understand encoder and decoder( data secure transferred from source to destination)
3	To Learn about sequential logic circuits	Learn about flipflops(one bit storage devices) , implimented shift registers and counters by using flipflops.
4	To learn about Learn 8085 microprocessor and it's architecture	Learn 8085 architecture and pin diagram, able to write programs by using instruction set(arithmetic, . Understand

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		addressing modes and interrupts. Understand about stack and subroutines.
<b>COURSE OUTCOMES:</b>		
<p>(1) Understand different type of digital codes and number systems</p> <p>(2) Gain a solid understanding of foundational digital concepts including binary arithmetic, logic gates</p> <p>(3) Understand different logic families (TTL, CMOS, etc.) and their characteristics</p> <p>(4) understanding of foundational digital concepts including Boolean algebra, Karnaugh maps, and minimization techniques</p> <p>(5) Learn to design, analyze, and implement combinational circuits (adders, multiplexers, etc.)</p> <p>(6) Learn to design, analyze, and implement sequential circuits (flip-flops, registers, counters, etc.)</p> <p>(7) Gain insights into microprocessor architecture, programming .</p>		

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**B.Sc (MECS)**

**SEMESTER: FIVE**

**SUBJECT: PROGRAMMING IN JAVA**

<b>COURSE OBJECTIVE:</b> 1. The objective is to enable students to learn core concepts of Java programming in detail with hands-on experience in programming. 2. Concepts like abstraction, encapsulation, inheritance, polymorphism, multithreading and exception handling will be discussed in detail 3. Concepts like AWT and Swings to create GUI application		
Unit	Unit Objective	Program Outcomes
1	To recapitulate basic programming concepts and OOPs concepts and learn the structure of java program.	Recap of basic programming concepts like datatypes, variables and control statements.
2.	Learn OOPS concepts like class inheritance and packages.	Understand the importance of reusability of code by inheritance and packages.
3.	To learn the exception handling so as to be able to handle exceptions, improve the CPU performance by multithreading and file handling by I/O streams.	Understand the way to handle exceptions and the ability to implement high performance through multithreading, handle large volumes of data stored in files.
4.	Learn Applet programming, GUI based applications using AWT and Swing, also to handle events.	To create applet applications, GUI using AWT and Swing.
<b>COURSE OUTCOMES:</b> Upon successful completion of course, a student will be able to 1. Recapitulate basic programming concepts 2. Use various OOPs concepts to solve a problem 3. Appreciate and understand the working of multithreading and exception handling features. 4. Develop GUI applications by using swings concept		

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# SEMESTER VI



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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc (MECS)**

**SEMESTER: SIX**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To teach students to use English in right full manner.</li><li>2. To teach vocabulary and different types of sentences.</li><li>3. To teach how one could write CV correctly and use English with out any mistakes .</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Prose is given to teach them the impacts of television and teach them how one can handle failures and imaginations. To teach them one word substitute and relative clauses also.	Student can use television and handle failure and imagination in right manner.
2	To teach student how important suggestions are. To teach them formal and informal vocabulary and learn different types of sentences.	Students understood the importance of suggestions and can use suggestions wisely.
3	To teach how to write CV and learn common errors they commit while writing.	To write CV perfectly and to listen, speak, read and write English properly.
<b>COURSE OUTCOMES:</b>		
<ol style="list-style-type: none"><li>1. Students can listen, speak, read and write English properly with out committing any mistakes.</li><li>2. Students can write CV properly and be aware of few important things in life.</li></ol>		

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**SIVA SIVANI DEGREE COLLEGE**

(Affiliated to Osmania University)

**B.Sc (MECS)**

**SEMESTER: SIX**

**SUBJECT: SANSKRIT**

**COURSE OBJECTIVE:**

1. To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students.
2. understand patriotism and how to protect the country individually.

Unit	Unit-Objective	Program Outcome
1	Avanthu Bharatha prjaha swathanthra Bharatha prabham & alarankas .	Students understand patriotism and how to protect the country individually.
2	Dhakara katha & nachikethopakhyanam	Students understand Vedic literature.
3	Mahakavishastrakara vibhagaha & sanskritaha sambhashana abhayasaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist 's.

**COURSE OUTCOMES:**

4. knowing about the Four vadas.
5. Able to form the sentence in Sanskrit.
6. Improve patriotism in the students.

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc (MECS)

SEMESTER: SIX

SUBJECT: HINDI

<b>COURSE OBJECTIVE:</b>		
To know how to translate the language		
Know about history, importance, nature of news papers.		
To know about Rastrya ,dalith ,Adivasi sahithy .		
Unit	Unit-Objective	Program Outcome
1	Learn about Anuvadh.	Understand different types of Anuvad and what are the uses of Anuvad..
2	Learn about Samachar pathru.	Understand about history and types of Samachar pathru..
3	Learn about Srijanjathi ka Sahithy	Students Understand about Nari jagaran.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
1. Know about Anuvadh different types of Anuvdh.		
2. Know the Samachar pathru.		
3. Know about hiindi sahithy ka vibin ayam.		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc (MECS)

SEMESTER: SIX

SUBJECT: ANALYTICAL SOLID GEOMETRY

### COURSE OBJECTIVE:

1. Student will acquire basic practical skills and technical knowledge along with domain knowledge of different objects in the science stream.
2. Scientific temper will be developed in students.

Student will be is equipped with mathematical modeling ability, problem solving skills ,creative talent and power of communication necessary for various kinds of employment.

Unit	Unit - Objective	Learning Outcomes
1	To learn about Sphere, Equations of a Circle, Intersection of a Sphere and a Line-Equation of a Tangent Plane-Angle of Intersection of Two Spheres-Radical Plane	Understand how to find the equation of a sphere that passes through four given points in three-dimensional space. Understand the geometric interpretation of the intersection points in three-dimensional space, the angle of intersection between two spheres. Recognize the geometric significance of the radical plane in relation to the spheres.
2	To learn about a Cone-Cone and a Plane through its Vertex - Intersection of a Line with a Cone.	Learn how to determine the curves formed by the intersection of two cones. Understand the geometric properties of the resulting curve and its significance. Understand how to find the points of intersection between a line and a cone. Learn how to express the conditions for intersection mathematically.
3	To learn about The Right Circular Cone-The Cylinder- The Right Circular Cylinder.	Derive and apply the formula for the surface area of a right circular cone. Identify and interpret the parameters that describe a cylinder. Understand the geometric

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		significance of each term in the formula. Understand how changing parameters affects the shape and properties of both solids. Explore practical applications of cones and cylinders in various fields.
4	To learn about The General Equation of the Second Degree- Intersection of Line with a Conicoid Plane of contact- Enveloping Cone and Cylinder.	Recognize and interpret the terms in the general equation, identify and analyze the various forms of conic sections based on the coefficients in the general equation. Understand the conditions for various types of intersections based on the discriminant. Explore the conditions for a cone or cylinder to be an enveloping surface for a given conicoid.
<b>COURSE OUTCOMES:</b> <ol style="list-style-type: none"><li>1. Students understand the beautiful interplay between algebra and geometry.</li><li>2. Students learn to describe some of the surfaces by using analytical geometry</li><li>3. Problem solving skills of students are enhanced</li><li>4. To learn to apply the various techniques for solving real life problems.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc (MECS)

SEMESTER: SIX SUBJECT: MICROCONTROLLER & IT'S APPLICATIONS

<b>COURSE OBJECTIVE:</b> To introduce the students to the architectural features of microcontrollers, capabilities of microcontroller and their utilization.		
Unit	Unit - Objective	Learning Outcomes
1	To learn about 8051 microcontroller	Learn overview of 8051 microcontroller & architecture of 8051 along with PIN diagram. Learn about interrupts, I/O ports, brain of 8051 ie(timers/counters).
2	To learn about Instruction set of 8051 Microcontroller.	Learn classification of instruction set (data transfer, arithmetic ,logical, jump, call) and it's uses. Understand about various addressing modes.
3	To learn about programming examples of microcontroller 8051.	Generated basic programs on microcontroller addition, subtraction, division, largest and smallest numbers in given set of numbers by using instruction set. Written programming on timers and counters.
4	To learn about serial communication & Applications of Microcontroller	Understand about serial communications and their programs (SBUF, SCON). Learn about RS-232 standards. Learn about Applications (interfacing) of 8051 ie LCD, keyboard,,seven segment, ADC and DAC.
<b>COURSE OUTCOMES:</b>		
<ul style="list-style-type: none"><li>(1) Gain comprehensive knowledge about architecture and addressing modes of 8051</li><li>(2) Implement the middle level programming and interfacing concepts in 8051</li><li>(3) Use external interfaces in various embedded system projects</li><li>(4) Create the memory interfacing techniques with 8051</li></ul>		

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- (5) Create the IO interfacing techniques with 8051
- (6) knowledge of different types of external interfaces including LEDS, LCD, Keypad Matrix, Switches & Seven segment display

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**B.Sc (MECS)**

**SEMESTER: SIX**

**SUBJECT: WEB TECHNOLOGIES**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To become skillful in using web technologies to create web pages</li><li>2. To Acquire knowledge of events, event handlers, and Java Script items.</li><li>3. To comprehend the basics of the internet and web technologies.</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Learn about Introduction and basic concepts to create static and Dynamic Web Pages, adding styles to web pages.	Students understand about HTML and different tags in HTML and effects to the webpages by using CSS.
2	Learn to make web pages interactive and decision making.	Students understand about java scripts with control structures, functions, scope and Recursion.
3	Students Learn Events, Event Handlers and Java Script Objects	Students understand how to registering event and use java script objects in web pages.
4	Students Learn how to transfer data and make user friendly web pages.	Students understand the concepts like XML, Ajax and toolkits.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Learn the introduction and fundamental ideas behind creating both static and dynamic websites, as well as how to style them.</li><li>2. create user-friendly web pages and convey data.</li><li>3. Learn how to add decision-making and interactivity to websites.</li><li>4. Build and interact web applications using AJAX.</li></ol>		

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## CRITERION – 2

*2.6.1 PROGRAMME OUTCOMES (POS) AND COURSE OUTCOMES (COS) FOR ALL PROGRAMMES OFFERED BY THE INSTITUTION ARE STATED AND DISPLAYED ON WEBSITE AND ATTAINMENT OF POS AND COS ARE EVALUATED*

**B.Sc (MSCS)**

# SEMESTER 1

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**B.SC (MSCS)**

**SEMESTER: ONE**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To bring out vibrancies, color and show imagery in Indian poet's work</li><li>2. To show towering personalities and display their success stories.</li><li>3. To teach empathy towards the unfortunate in society.</li><li>4. To learn right pronunciation and grammar.</li></ol>		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	In the bazaars of Hyderabad (Sarojini Naidu) Lesson outcome: In the bazaars of Hyderabad, was a part of the Swadeshi Movement, an Indian freedom Movement. The poet wanted to deliver the message that the traditional Indian Products made of Pure materials were of very high quality	The poem is all about the diversity and self-sufficiency of an Indian Market in British India.
	The Eyes are not here: (Prose) The story is very interesting to read. Ruskin shows important message for all human being. We should always be alert and not to hide our weakness	We also learn how others should not treat a handicapped person as a liability but encourage him and bring out the best in him.
2	"IF" (Poem) by Rudyard Kipling The poem teaches us to overcome obstacles in life. We are all equal and no one is above anyone else. Use your every minute of your time wisely.	Programme outcome of the poem "IF": Always do what is right, follow your dreams, be realistic, set goals.
	"On Saying Please" (Prose) by A. G. Gardiner	The essay shows how using polite words and phrases like 'please' and

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	This prose deals with socially issues that we across in social life. It explains to us that bad behavior though not punishable is not acceptable.	'thank you' can change the course of our day. Bad behavior cannot be aggressive or violent, good behavior can be welcomed
3	Ulysses (Poem) Ulysses: Tennyson states the need of going forward and braving the struggle of life.	Programme Outcome: Ulysses declares that it is disgraceful to "store and hoard" himself, sitting safely in one place just to extend his life "[f]or some three suns."
	Seeing People off (Prose); The story tells us about how people behave at railway stations and bus stops.	The story also tells us how strangers are taken care off at the station by those who register with the agency in seeing them off at the station
	Shyness, My shield (Poem) Gandhiji s habit of not speaking turned out to be a blessing. His inability to speak turned out into a blessing.	Shyness, My shield: Programme Outcome Gandhi could not ever speak at meetings. But this inability become a spiritual asset.
<b>COURSE OUTCOME:</b> Upon Successful completion of course, a student will be able to 1. The student's sensitivity to others problems is heightened. 2. Students learn values. 3. Students enrich vocabulary. 4. Students enjoy reading memorable stories.		

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**SIVA SIVANI DEGREE COLLEGE**

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**B.Sc (MSCS)**

**SEMESTER: ONE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
1.To teach Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah		
2. To impart about Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi		
3.To make them learn Esha dhramaha sanathanaha and Ajantha shabdhaha		
4.To Create awareness on Sandhis and samskutha Sambhashana Abhaysaha		
Unit	Unit Objective	Program Outcomes
1	Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah	Enable the students to know about Ramayana and Character of Sri Rama and scriptures of Great poet maha kavi Kalidhasas.
2	Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi	Understand about the greatness of Roughtionous and how to help others in society
3	Esha dhramaha sanathanaha and Ajantha shabdhaha	Know how to use Sanskrit literature Neethi shlokasas and grammar
4	Sandhis and samskutha Sambhashana Abhaysaha	Students able to use Grammar and sentence formation of Sanskrit language.
<b>Course Outcomes:</b>		
Upon Successful completion of course, a student will be able to		
1. Facilitate in learning about the Ramayana, the attributes of Sri Rama, and the writings of the renowned poet Mahakavi Kalidhasas.		
2. Recognize the virtues of Roughtionous and learn how to be a good neighbor.		
3. Understand and use Sanskrit literature Grammar and Neethi shlokasas.		
4. competent to create sentences in Sanskrit and apply grammar.		

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B.Sc (MSCS)

SEMESTER: FIRST

SUBJECT: HINDI

**COURSE OBJECTIVE:**

1. To understand basic life lessons, knowledge of grammar and Hindi in literature it can help to students to build the skills of creativity and intellectual ideas and makes them to enrich their career.

Unit	Unit Objective	Program Outcomes
1	To learn what are the qualities required for human being,	Students can understand how to be in society as a good person.
2	To understand how to control human at the time of purchasing.	Students can understand proper utilization of money.
3	To know about historical widow system	What are the problems faced by widows in social and cultural challenges.
4	To learn the concepts of Indian culture	To be aware of civilized communication, beliefs, values, etiquette, and rituals.
5	Learn Indian structure	To acknowledge Indian architectures, is rooted in the history, culture, climatical conditions and religion of India.
6	To understand caste system in Indian in olden days	To learn how low cast people will be treated in olden days and Indian culture .
7	To learn concept of understand humanity nature and helping to their parents.	To understand to how-to live-in society and how to maintain good relationship with their parents.
8	To learn story about elder aunt(thai)	To learn about how to accept people.
9	To learn a story about realization towards parents	To acknowledge towards their parents.
10	To learn story about Obedience towards peoples	To learn Obedience to their friend when problem arises how to be in society

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11	Understanding about grammer.	To learn grammer part like Singler, plural, vibhakti
<b>Course Outcomes:</b> Upon Successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. To learn moral of life stories.</li><li>2. How-to live-in society as a peron.</li><li>3. To learn how to overcome situation when problem arises.</li></ol>		

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**SIVA SIVANI DEGREE COLLEGE**

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**B.Sc (MSCS)**

**SEMESTER: ONE**

**SUBJECT: ENVIRONMENTAL STUDIES**

**Course Objective:**

1. To create awareness about environmental problems among people.
2. To develop attitude of concern for the environment in the students.
3. To help students to explore possible solutions of environmental problems.

Unit	Unit Objective	Program Outcomes
1	To create awareness about environment and ecosystem	Able to know the importance of Ecosystem, Bio Diversity and Natural Resources
2	To develop the concern about pollution and global issues.	Can analyse the impacts of environment pollution and Global issues

**Course Outcomes:**

Upon Successful completion of course, a student will be able to

1. Understand the transactional character of the environmental problems and ways of addressing them, including the interaction across local and global scales.
2. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
3. Understand the importance of sustainable development and modern approaches that enable humans to protect the environment

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**SEMESTER: ONE      SUBJECT: DIFFERENTIAL AND INTEGRAL CALCULUS**

**COURSE OBJECTIVE:**

1. The course is aimed at exposing the students to some basic notions in differential calculus.
2. Scientific temper will be developed in students.
3. Students possess basic subject knowledge required for higher studies.
4. Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.

Unit	Unit Objective	Program Outcomes
1	To learn about Functions of two variables, Continuity of a Function of two variables, Limit of a Function of two variables, Partial Derivatives Geometrical representation of a Function of two Variables, Homogeneous Functions.	Explore how continuity relates to the limit of a function. Understand the geometric interpretation of partial derivatives and homogenous functions
2	To learn about Differentials, Composite Functions, Implicit Functions, Equality of $f_{xy}(a, b)$ and $f_{yz}(a, b)$ , Taylor's theorem, Maxima and Minima of functions of two variables, Lagrange's Method.	Understand the process of finding partial derivatives of composite functions and the second-order partial derivative test for identifying extrema. Apply Lagrange multipliers to solve optimization problems with constraints.
3	To learn about Radius of Curvature, Length of Arc as a Function Newtonian Method, Centre of Curvature, Chord of Curvature, Evolutes and Involutives, Properties of	Learn to compute the derivative of arc length with respect to a parameter. Understand how to find the radius of curvature for a given curve. Understand the relationship between a curve and its evolute and envelope.

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	the evolute. Envelopes. One Parameter Family of Curves.	
4	To learn about Expression for the lengths of curve ,Volumes and Surfaces of Revolution and Pappu's theorem	Derive and understand the formula for calculating the volume and surface area of a solid to different forms. Derive and comprehend the formula for calculating the surface area of a solid obtained by revolving a curve around an axis.
<b>COURSE OUTCOMES:</b> After successful completion of the course, the students will be able to 1. Realize the wide ranging applications of the subject. 2. Study functions in detail which is a fundamental structure in all sciences and to be able to check continuity of a function.		

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**B.Sc (MSCS)**

**SEMESTER: ONE SUBJECT: DESCRIPTIVE STATISTICS AND PROBABILITY**

<b>COURSE OBJECTIVE:</b>		
1.The primary objectives of this course are to learn different measures of central tendency and to understand mathematical and statistical concepts, different applied theories.		
2.Basic concepts of probability and proves of Bayes, Booles theorems with some real life examples.		
Unit	Unit Objective	Program Outcomes
1	To understand primary and secondary data, classifications of data and measures of central tendency concepts of dispersion skewness and moments.	Students will be able to recognise statistical averages and student should collect primary and secondary data &also analyse the data.
2.	To understand basic concepts of probability, mathematical, statistical, axiomatic definitions with real life examples.	To apply in real life what are changes in getting an event.
3.	Randon variables, types of random variables, distribution functions and its properties, bi variate distributions and also properties.	After learning the course students will identify discrete and continuous variables.
4.	Mathematical expectations of a random variable`s definition s of MGF, CF, PGF and CGF, Chebyshev`s and Cauchy-Schwartz`s in equalities and applications	students should expect the variable values by using some mathematical formulae's
<b>COURSE OUTCOMES:</b>		
After successful completion of this course, students can learn to		
1.Calculate the expectation and moments of random variables.		
2.Identify the applications of various moment inequalities.		

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3. Find the expressions for the characteristic function of a random variable and verify its properties.
4. Apply the various laws of large numbers to sequences of random variable

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**B.Sc (MSCS)**

**SEMESTER: ONE**

**SUBJECT: PROGRAMMING IN C**

<b>COURSE OBJECTIVE:</b>		
1. Learn fundamental concepts of computer system.		
2. Learn basic concept of programming languages (data types, constants, variables, operators, control constructs).		
3. Learn Array functions, structures, unions and file handling concepts by practically implementing them.		
Unit	Unit Objective	Program Outcomes
1	Learn fundamental concepts of computer system, functions, types, generations of computers. I/O Devices, memory and its types. Basics of programming.	Understand clearly basic components of computers and also basic concepts of programming like tokens identifiers data types.
2.	Learn I/O, control statements, Arrays and strings.	To be able to format outputs and to write simple programs using control statements and Arrays.
3.	Learn about working with functions and pointers	Understand modularization of coding by using functions and to work with pointers.
4.	Learn user defined data types structures and unions, working with files.	To be able to create user defined data types and handle large volume of data stored in files.
<b>COURSE OUTCOMES:</b>		
1. Appreciate and understand the working of a digital computer.		
2. Analyse the given problem and develop an algorithm to solve the problem.		
3. To use C language constructs in the right way.		
4. Design, develop and write programs using C.		

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# SEMESTER II

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**B.Sc (MSCS)**

**SEMESTER: TWO**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE: -**

1. To teach students the basics of grammar and teach them how one can write paragraph without making mistakes.
2. To teach students good literary work so that they can learn good moral things from that.
3. To learn different types of verb and frequently used figures of speech.

Unit	Unit Objective	Program Outcomes
1	To expose students to good literary work. To teach them the basics of grammar and help them to write paragraph correctly	Students learnt good literary work and learnt to use words, sentences and paragraphs correctly using the right tenses. They understood the important factors for writing paragraphs and can write paragraphs.
2	To introduce different writers and their writings to students. To teach loan words and auxiliary verbs.	Students are inspired to write something on the current issues easily. Students know what loan words are and how it is used. They wisely use the essential to write a paragraph correctly.
3	Students are exposed to history and speeches given by famous people. To learn nonfinite verbs and descriptive writing.	Inspired to deliver speeches in public places and win awards in future. Know to write portmanteau words and can write descriptive writing in an amazing manner.

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4	To introduce the works of famous writer Shakespeare. To teach them how one can excel in public speaking and argumentative writing. To learn few important frequently used simile and metaphors	Students learnt famous works of Shakespeare and can excel in Public speaking and use figures of speech correctly. They can write argumentative writing easily also.
1	To expose students to good literary work. To teach them the basics of grammar and help them to write paragraph correctly	Students learnt good literary work and learnt to use words, sentences and paragraphs correctly using the right tenses. They understood the important factors for writing paragraphs and can write paragraphs.
2	To introduce different writers and their writings to students. To teach loan words and auxiliary verbs.	Students are inspired to write something on the current issues easily. Students know what loan words are and how it is used. They wisely use the essential to write a paragraph correctly.
<b>COURSE OUTCOME:</b> Upon Successful completion of course, a student will be able to 1. Students get an overall idea of grammar. 2. Students can deliver public speeches and use English appropriately.		

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SEMESTER: TWO

SUBJECT: SECOND LANGUAGE (SANSKRIT)

**COURSE OBJECTIVE:**

1. To develop attitude of Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha.
2. To be aware of Vignanika samhitha and nagangadathaha punarethi kupam.
3. To know the qualities of daivasurasampadvibhagayogaha.
4. To teach the Samasaha and Samskrutha Sambhashana Abhyasaha.

Unit	Unit Objective	Program Outcomes
1	Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha	Understand the importance of Charity sacrifice and detachment to the world pleasures.
2	Vignanika samhitha and nagangadathaha punarethi kupam.	Know about Astrology, Astronomy and Regarding values of Friendship and Gratitude.
3	daivasurasampadvibhagayogaha	Enable the students about Goddess qualities and Demons qualities in human being.
4	Samasaha and Samskrutha Sambhashana Abhyasaha	Know about Sanskrit grammar and sentence formation of Sanskrit language.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

1. Recognize the value of charity, selflessness, and disengagement from worldly pleasures.
2. Learn about astrology, astronomy, and the importance of gratitude and friendship.
3. Know about the characteristics of both goddesses and demons in humans.
4. Understand the syntax and sentence structure of the Sanskrit language.

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**SEMESTER: TWO**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
1. Students can learn about life lessons.		
2. They can understand about political and environmental conditions.		
3. To understand about grammar.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn about beauty Kashmir city.	To learn history of Kashmir, climatical and weather, people living conditions and boundaries of kasmir.
2	To learn story about thai.	To learn how to accept people.
3	To lean about about politicians	To understand about politicians and how they are distributing their positions and powers.
4	To learn about Vivekananda life story.	To lean about great leader and his compassion and faith optimism and mindfulness.
5	To understand about Environmental	To understanding importance of environment.
6	To lean about dare ness of a women	To understand how women can survive their lives in critical conditions.
7	To learn about how people can convert situations in matters of money	To understand about people surrounded by us, how they are converting situations in matters of money.
8	Story about a person who can dedicate his entire life towards their family	To learn how parent are sacrifice their life towards their children's.
9	To lean story of parents	To understand moral of how parents dedicating their life to their children

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		,but when it turn to children why they are not dedicating their time to their parents.
10	To leann story about seliva.	To understand about how to get abstracles.
11	To lean grammer	To lean grammer part like opposite word,sandulu samasalu.
<b>COURSE OUTCOME:</b> Upon successful completion of the course, a student will be able to understand, <ol style="list-style-type: none"><li>1. To learn moral of life stories.</li><li>2. To learn how to overcome situation when problem arises.</li><li>3. To improve the awareness of students about different Socio – Academic &amp; Political problems.</li></ol>		

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**SEMESTER: TWO**

**SUBJECT: FUNDAMENTALS OF COMPUTERS**

**COURSE OBJECTIVE:**

1. Learn fundamental concepts of computer system.
2. To understand the basic uses and applications of computer.
3. To know different types of memory and various input and output devices.
4. To get familiar with various computer codes.

Unit	Unit Objective	Program Outcomes
1	To Learn concepts of computers, and its application. Types of memories.	To understand concepts of I/O devices and classifications of computers and understanding of computer system.
2	To enrich concepts of number system and computer codes, software system and its applications	To understand the concepts of Boolean algebra, logic gates-maps with examples and different types of software system and its applications.

**COURSE OUTCOMES:**

Upon successful completion of the course, a student will be able to understand,

1. Understanding the concept of input and output devices of Computers
2. Learn the functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices.
3. Understand an operating system and its working, and solve common problems related to operating systems

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**SEMESTER: TWO**

**SUBJECT: DIFFERENTIAL EQUATIONS**

**COURSE OBJECTIVE:**

1. The main aim of this course is to introduce the students to the techniques of solving differential equations
2. Train students to apply their skills in solving some of the problems of engineering and science.

Unit	Unit Objective	Program Outcomes
1	To learn about Equations in which Variables are Separable, Homogeneous Differential Equations - Differential Equations Reducible to Homogeneous Form, Linear Differential Equations, Differential Equations Reducible to Linear Form, Exact differential equations	Learn how to identify homogeneous differential equations. techniques to transform non-homogeneous differential equations into homogeneous form. Explore the linearity property and how it applies to both the dependent variable and its derivatives.
2.	To learn about Equations Solvable for p - Equations Solvable for y - Equations Solvable for x - Equations that do not contain x (or y)- Equations Homogeneous in x and y - Equations of the First Degree in x and y - Clairaut's equation.	Learn methods for solving equations where the dependent variable, explore techniques for solving equations in which the dependent variable can be expressed explicitly in terms of the independent variable(s).
3.	To learn about homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations. Method of undetermined coefficients	Identify and work with equations where the coefficients are constants. Learn the concept of a particular solution representing the non-homogeneous part of the equation. Understand the

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		motivation behind the method of undetermined coefficients
4.	To learn about Method of variation of parameters - Linear differential equations with non-constant coefficients - The Cauchy - Euler Equation - Legendre's Linear Equations - Miscellaneous Differential Equations. Partial Differential Equations:	Understand the motivation behind and the principles of the method of variation of parameters. Understand the characteristics of linear differential equations with coefficients that are functions of the independent variable. Understand Legendre's linear equations and their significance. Study a variety of differential equations with distinct characteristics.
<b>COURSE OUTCOMES:</b>		
1. After learning the course the students will be equipped with the various tools to solve few types differential equations that arise in several branches of science.		

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**SEMESTER: TWO SUBJECT: PROBABILITY AND DISTRIBUTIONS**

<b>COURSE OBJECTIVE:</b>		
1.The main objective of this course is to understand discrete type of distributions and continuous distributions and to understand mean mode median and generating functions.		
2.To calculate all generating functions of discrete and continuous distributions with real life examples.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To understand definitions, mean, variance, MGF, CGF, Gmelina mode of binomial, poission, Bernoulli's distribution.	After learning the course students will be identified expected frequencies through some observed values by using different distributions of discrete like binomial, poisson etc &also calculate their properties.
2.	To understand definitions, mean, variance, MGF, CGF, PGF, median mode of geometric, hyper geometric distribution, NBD distribution.	On successful completion this concept students will identify the concept in geometric and NBD distribution.
3.	To understand definitions, mean, variance, MGF, CGF, PGF, median mode of normal, exponential distributions.	On successful completion of the course students will identify expected frequencies through some observed values by using different continuous distributions.
4.	To understand definitions, mean, variance, MGF,CGF,PGF, median mode of rectangle,Gamma,Beta distributions.	By using these concept students can identified expected frequencies by using density functions.

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**COURSE OUTCOMES:**

After successful completion of this course students will learn to,

1. Understand various specifications such as probability density functions and cumulative distribution functions etc, of the probability distribution of a random variables.
2. Derive various generating functions of random variables such as probability generating function, moment generating functions, characteristic functions, etc.
3. Find out characteristics of random variables like moments from either probability density (mass) functions or the generating functions.
4. Understand the probability distribution of bivariate random variables and the terms marginal distributions, conditional distributions, marginal, joint and conditional moments.

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**SEMESTER: TWO**

**SUBJECT: PROGRAMMING IN C++**

<b>COURSE OBJECTIVE:</b>		
1. Learn fundamental concepts of Object-Oriented Programming.		
2. Aims to implement real world entities like inheritance, data hiding, polymorphism etc in programming.		
2. To enable students to learn concepts of programming in detail with hands-on experience in programming.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	Learn basics of programming, control structures, Functions, call by value, call by reference, Overloading, OOPs concepts	Recapitulate programming concepts, ability to modularize code by using functions concept.
2	Understand class structure, constructors, overloading, destructors	Vivid knowledge of OOPs concept class and its implementation in detail.
3	Learn Inheritance, Polymorphism and streams concepts in detail	To understand and implement reusing code by using inheritance and polymorphism.
4	Understand Exception handling, rethrowing templates -both function and class templates	To learn to handle runtime errors using exception handling.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of the course, a student will be		
1. equipped with solid foundation in C++ programming.		
2. prepared for software development roles for further studies in related fields.		

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# SEMESTER III

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SEMESTER:THREE

SUBJECT: ENGLISH

COURSE OBJECTIVE:		
<ol style="list-style-type: none"><li>1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.</li><li>2. Ability to be comfortable while speaking or reading English.</li><li>3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.</li><li>4. Develop wide knowledge in their major and allied subjects necessary to qualify for the degree.</li></ol>		
Unit	Unit Objective	Program Outcomes
1	<p>O Captain! My Captain- Wall Whitman(Poem)</p> <p>Mallika Srinivasan(Prose):</p> <p>The poem gives a chance to learn many poetic devices and brings to mind the transience of human life.</p>	<p>To inform the Students the life history of Abraham Lincoln; To also teach them extended Metaphor and also the U.S. Civil was morning and rejoicing are a part of life.</p> <p>A part from observing the business Acumen and the business success graph. Make sure that all words are spelled correctly; Try different keywords and learn them all.</p>
2	<p>The Solitary Reaper(Poem):</p> <p>The Students senses are sharpened to observe the beauty of nature, valleys, meadows etc.,</p> <p>How to live to be a 200(Prose):</p>	<p>The message of the poem solitary Reaper is that even the lowliest individuals and ordinary situations have a beauty.</p>

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	<p>This piece of prose explains that everything practiced in moderation is good, extreme is bad.</p>	<p>The individual logic of health doesn't matter. What we think gives health really doesn't give health. Holistic health purpose is better.</p>
3	<p>La Belle Dame Sans Merci (Poem)</p> <p>Students learn that even if the best person leaves you, one has to motivate himself to get back to a normal state.</p> <p>Ilyas(Prose):</p> <p>This lesson redefines the ethics of life.</p>	<p>The poem is about a beautiful lady entering a man's life and casts a temporary spell on him and after words leaves him.</p> <p>This merciless act is records in this poem.</p> <p>A rich man amasses wealth. Then looses it only to find out that wealth is not everything but fostering relationships is important.</p>

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Develop style in speech and writing and manipulate the tools of language for effective communication.
2. The course should provide exposure to the learners in good pros, texts, poems and expose the learners to value based ideas.
3. Enhance their language skills especially in the areas of grammar and punctuation.
4. Acquire a rich asset of value-added courses, soft skills and communication skills, in stilling, self-confidence and moral values.

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**SEMESTER: THREE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

**COURSE OBJECTIVE:**

1. To develop attitude of Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha.
2. To be aware of Vignanika samhitha and nagangadathaha punarethi kupam.
3. To know the qualities of daivasurasampadvibhagayogaha.
4. To teach the Samasaha and Samskrutha Sambhashana Abhyasaha.

Unit	Unit Objective	Program Outcomes
1	Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha	Understand the importance of Charity sacrifice and detachment to the world pleasures.
2	Vignanika samhitha and nagangadathaha punarethi kupam.	Know about Astrology, Astronomy and Regarding values of Friendship and Gratitude.
3	daivasurasampadvibhagayogaha	Enable the students about Goddess qualities and Demons qualities in human being.
4	Samasaha and Samskrutha Sambhashana Abhyasaha	Know about Sanskrit grammar and sentence formation of Sanskrit language.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

1. Recognize the value of charity, selflessness, and disengagement from worldly pleasures.
2. Learn about astrology, astronomy, and the importance of gratitude and friendship.
3. Know about the characteristics of both goddesses and demons in humans.
4. Understand the syntax and sentence structure of the Sanskrit language.

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**SEMESTER: THREE**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
1. Students can learn about life lessons. 2. They can understand about political and environmental conditions. 3. To understand about grammer.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn about kashmir	To learn history of Kashmir, climatical and weather, people living conditions and boundaries of kashmir.
2	To learn story about thai.	To learn how to accept people.
3	To lean about about politicians	To understand about politicians and how they are distributing their positions and powers.
4	To learn about Vivekananda life story.	To lean about great leader and his compassion and faith optimism and mindfulness.
5	To understand about Environmental	To understanding importance of environment.
6	To lean about dare ness of a women	To understand how women can survive their life's in critical conditions.

7	To learn about how people can convert situations in matters of money	To understand about people surrounded by us ,how they are converting situations in matters of money.
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8	Story about a person who can dedicate his entire life towards their family	To learn how parent are sacrifice their life towards their children's.
9	To lean story of parents	To understand moral of how parents dedicating their life to their children ,but when it turn to children why they are not dedicating their time to their parents.
10	To leann story about seliva.	To understand about how to get abstracles.
11	To lean grammer	To lean grammer part like opposite word,sandulu samasalu.
<b>COURSE OUTCOME:</b> Upon successful completion of the course, a student will be able to understand, <ol style="list-style-type: none"><li>1. To learn moral of life stories.</li><li>2. To learn how to overcome situation when problem arises.</li><li>3. To improve the awareness of students about different Socio – Academic &amp; Political problems.</li></ol>		

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**SEMESTER: THIRD**

**SUBJECT: COMMUNICATION SKILLS(SEC-1)**

<b>COURSE OBJECTIVE: -</b>		
1.To understand the role of communication in teaching learning process and understand how all four skills are important.		
2. To Communicate successfully through nonverbal communication and learn to communicate through the digital media.		
3. Understand the importance of emphatic listening and explore communication beyond language.		
<b>Unit</b>	<b>Unit wise Objective</b>	<b>Program Outcome</b>
1	To teach students the importance of listening in common and business communication. To make them aware of its techniques and its barriers.	Realize the importance of listening They can overcome the barriers with the knowledge they received.
2	To teach students Pronunciation and enunciation and explain them how vocabulary, fluency and common errors play important role in speaking skills.	Students can speak and pronounce correctly and improve their speaking skills.
3	To teach students the importance of reading and how one can interpret the text.	Students read more articles and interpret the text appropriately.
4	To emphasize how one can excel in writing by giving tips and inform them the different modes of writing.	Students can write any articles effectively and learnt different modes of writing which are very important for their career.
5	To impart the role of Digital Literacy in professional life and MS-Tools and explain its role in today's communication.	Acquire knowledge on Digital technology and would use it for the betterment of their career.

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6	To impart social media websites and its advantages, to give tips to use google search better, to use digital marketing effectively.	Can use social media productively, can use google search successfully and use technology constructively to promote digital marketing.
7	To elucidate Nonverbal communication and present do's and don'ts of it.	Students can excel in nonverbal communication which would help them in both personal and professional life.
<b>COURSE OUTCOME:</b> Students have a clear understanding of what good communication skills are and how one can improve their abilities to attain excellency.		

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**SEMESTER: THIRD**

**SUBJECT: PYTHON-1(SEC-II)**

<b>COURSE OBJECTIVE:</b> 1. The program objective is to enable students to learn core concepts in python programming. 2. To learn how to write a program in python using variables, operators, control constructs, functions and exceptions. 3. To do input and output with files in python.		
Unit	Unit Objective	Program Outcomes
1	To learn python programming and decision structure and Boolean logics, repetition structures.	To learn how to write a Python program with conditional Statements and Looping Statements.
2	Applicability division of task, and reusable task, repetition tasks. Handling of errors.	Students learn about and Functions and Exceptions handling with Programs.
<b>COURSE OUTCOME:</b> Upon completion of the course, students able to, 1. To learn about Python programming fundamentals 2. Conditional Statements, Looping Statements, Functions and Exceptions. 3. To develop python programs for solving problems. 4. To read and write data from /to files in python programs.		

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**SEMESTER: THREE**

**SUBJECTS: REAL ANALYSIS**

<b>COURSE OBJECTIVE:</b>		
1.The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena.		
2.scientific temper will be developed in students.		
3. students will be aware of and able to develop solution-oriented approach towards various social and environmental issues.		
4.students possess basic subject knowledge required for higher studies.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn the sequences and series of convergent or divergent. Monotone Sequences and Cauchy Sequences -series Subsequence's Alternating Series and Integral Tests	Explore properties and examples of sequences and subsequences ., properties and significance. sequences and series. Understand the concept of alternating series. Apply the Integral Test to determine the convergence of series.
2.	To learn about Continuous Functions, Properties of Continuous Functions, Uniform Continuity, Limits of Function	Understand the definition of a continuous function. Understand counter examples that illustrate situations where continuity fails Define uniform continuity.

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3.	To learn about Basic Properties of the Derivative ,The Mean Value Theorem ,L'Hospital Rule , Taylor's Theorem.	Understand the definition of the derivative of a function. Explore cases where a function is differentiable but not continuous, and vice versa. Explore the geometric interpretation of the MVT.
4.	To learn about The Riemann Integral ,Properties of Riemann Integral,Fundamental Theorem of Calculus.	Familiarize with the notation used to represent Riemann sums and integrals. Understand how these sums are used to approximate the integral.

**COURSE OUTCOMES:**

Upon completion of the course, students able to,

1. Describe the fundamental properties of the real numbers that underpin the formal development of real analysis.
2. Demonstrate an understanding of the theory of sequences and series, continuity, differentiation and integration.
3. Demonstrate skills in constructing rigorous mathematical arguments;
4. Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.

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**SEMESTER: THREE**

**SUBJECT: STATISTICAL METHODS & ESTIMATION**

<b>COURSE OBJECTIVE:</b> The students are exposed to various concepts like correlation, regression, attributes, distributions, unbiasedness consistency MLE estimators.		
Unit	Unit - Objective	Learning Outcomes
1	To learn about Bivariate data, scattered diagram method, correlation concepts. Correlation coefficient for grouped and ungrouped data.	Understand the definition of a data, bivariate data, types of correlation, and its properties, Principle of least squares method and Normal equations. Regression concept and Regression lines of X on Y and Y on X.
2	To learn about Attributes concept, partial and multiple correlation. Yules coefficient of association, colligation	Understand the definition and concept of attributes, with examples. Partial and multiple correlation Different types of criteria with association and independency.
3	To learn about Population, parameter, random sample, Exact sample distributions	Recognize the importance of distributions and its real-life examples. Criteria for good estimation concepts like Unbiasedness, consistency, sufficiency and efficiency.
4	To learn about Neymanns theorem, sufficient statistics, MLE estimators	Understand the definition of Neymanns factorization theorem and its examples, pivot method for finding unknown population parameter, sufficient statistics in Binomial and poison distributions.
<b>COURSE OUTCOMES:</b>		

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- After completion this course students appreciate its interdisciplinary nature.
- Students will be able to, Organize, manage and present data.
- Analyse statistical data graphically using frequency distributions and cumulative frequency distributions.
- Students can use pivot tables in application oriented.

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SEMESTER – THREE

SUBJECT: DATA STRUCTURES USING C++

COURSE OBJECTIVE:		
<ol style="list-style-type: none"><li>1. The program objective is to enable students to learn different types of Data Structures Using C++ Programming Language.</li><li>2. To understand importance of data structures in context of writing efficient programs.</li><li>3. To develop skills to apply appropriate data structures in problem solving.</li></ol>		
Unit	Unit Objective	Program Outcomes
1	To learn about Algorithm, Pseudocode different types of Data Structures ,	Students understand how to write algorithm, pseudocode and program for Stack Data Structure and Expression Evaluation and Conversion.
2	Students able to learn about Recursion, Queue, Linked List data structures and its implementation.	Enable Students to understand Recursion and its types, Queue and its variants, Linked List ADT and its implementation, Linked List variants and applications.
3	Students able to learn Tree ADT operations and its types along with various Searching and Sorting Algorithms.	Students Understand the concepts of Tree Data Structure and its implementation using C++ and able to write searching and sorting algorithms using C++
4	Students able to learn how to implement Graph, Hashing and Heap Data Structures.	Understanding Graph ADT operations and its implementation, Graph traversal techniques, Constructing Minimum Spanning Tree, Hash and Heap Data Structure and its implementation and applications

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**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Understand basic data structures such as arrays, stacks, queues, Linked List, Trees, Graphs Hash and Heap Data Structure and its implementation and applications
2. Understand the various searching and sorting algorithms to implement using C++ Programming Language.
3. Understand different types of operations such as insert, delete, searching, sorting and traversing operations for different data structures using C++.

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# SEMESTER IV



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**SEMESTER: FOUR**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.
2. Ability to be comfortable while speaking or reading English.
3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.

Unit	Unit Objective	Program Outcomes
1	<p><b>Ozymandias(Poem):</b></p> <p>One of the key lessons of Ozymandias is the importance of strong foundation. The “two vast and trunkless legs of stone” that stand in the desert represent the foundation upon which Ozymandias built his empire.</p> <p><b>The Lottery Ticket(Prose):</b></p> <p>The lesson’s theme is that one should not blindly follow traditions simply because they are traditional.</p>	<p>To analyse the theme of power in Ozymandias. To understand the age, Kingship .</p> <p>The message of the poem could be considered to be a remainder that power will not last forever.</p> <p>The theme of the lesson is, it is best for people to be content with what they have and not to start dreaming of things that will be much better than what they have.</p>
2	<p><b>My Last Duchess(Poem):</b></p> <p>The predominant theme of My Last Duchess” is the speaker’s obsession with control. The Duke exhibits an arrogance routed in an audacious sense of male superiority. He is Stuck on himself – full of narcissism and misogyny.</p>	<p>In “My Last DuChess” is the Duke of Ferrara uses his power to control his subjects, and kills his wife because of the way she acts around other men. From beginning to end displays the corrupt power of the domestic</p>

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	<p>The Doll's House(Prose)</p> <p>Understand the influence of Ibsen's work , the themes of family, society and morality in the 19th century, Norway.</p>	<p>tyrant , his arrogance, jealousy and the ruthlessness.</p> <p>A Doll's House explores the ways that societal expectations restrict individuals, especially woman.</p>
3	<p>Hope is the thing with feathers(Poetry):</p> <p>"Hope" has been helpful in times of difficulty and never ask anything in return.</p> <p>Packing(Prose):</p> <p>Packing teaches Students how packing can indeed be a tiring task if not done properly.</p>	<p>Emily Dickinson has successfully rendered an abstract subject ie.,he has personified Hope.</p> <p>Packing when done with friends can become a little messy and time consuming, it has a own charm and fun.</p>
<p><b>COURSE OUTCOMES:</b></p> <p>Upon successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. To promote career dexterity in the students.</li><li>2. To provide Students a platform to understand interrelatedness between life and literature.</li><li>3. To help Students in the development of critical and analytical thinking through literacy.</li></ol>		

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SEMESTER: FOUR

SUBJECT: SECOND LANGUAGE (SANSKRIT)

**COURSE OBJECTIVE:**

1. To teach Chitrapata dharshanam and Vivekandhavijayam.
2. To Equip Vishruthacharitham and Dhrvopakyamam
3. To Impart Krudhantha rupani and Samskrutha sambhashana Abhyasam

Unit	Unit Objective	Program Outcomes
1	Chitrapata dharshanam and Vivekandhavijayam.	Enable to understand the greatness of Swami Vivekananda and Sanskrit Drama
2	Vishruthacharitham and Dhrvopakyamam	Know about Age is not barrier to achieve aim-importance of commitment. Greatness of Prose in Sanskrit.
3	Krudhantha rupani and Samskrutha sambhashana Abhyasam	Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

1. Facilitate comprehension of the magnificence of Swami Vivekananda and Sanskrit drama
2. Realizing that age is not a barrier to achieving goals- commitment is essential.
3. Use Prose in Sanskrit Language.
4. Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.

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**SEMESTER: FOUR**

**SUBJECT: HINDI**

**COURSE OBJECTIVE:**

1. To make the student appreciate the importance of translation.
2. To strengthen Hindi Grammar and improve quality of language by means of Hindi Grammar.
3. Strengths the quality of Hindi language of students by mean of Grammar

Unit	Unit Objective	Program Outcomes
1	History of poet and their poems.	To understand moral values.
2	To lean Hindi literature and history	To make the student understand the History of Hindi literature.
3	To improve the letter writing skills of the student.	Students will be able to develop their writing skill in different letters.

**COURSE OUTCOME:**

Upon successful completion of the course, a student will be able to understand,

1. To improve the letter writing skills of the student.
2. To highlight the salient features of modern Hindi poetry.
3. To improve the reading and writing skills of the student by different stories.

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**SEMESTER: FOUR SUBJECT: LEADERSHIP & MANAGEMENT SKILLS(SEC-III)**

<b>COURSE OBJECTIVE:</b>		
1. To develop critical thinking, managerial abilities and organisation skills in students		
2. To equip the students to take effective decisions by coordinating the teams		
3. To enhance the capabilities of being team members and manage networks		
Unit	Unit Objective	Program Outcomes
1	To develop essential skills to influence and motivate others	Inculcate emotional and social intelligence and integrative thinking for effective leadership
2	To create and maintain an effective and motivated team to work for the society	Demonstrate a set of practical skills such as time management, self-management, handling conflicts, team leadership, etc.
3	To Nurture a creative and entrepreneurial mind-set	Understand the basics of entrepreneurship and develop business plans
4	To describe emotional intelligence, social intelligence and integrative thinking for effective leadership	Apply the design thinking approach for leadership
5	To Inculcate ethics and moral values for developing a balanced personality	Appreciate the importance of ethical principles in professional and social contexts
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Student will understand and use the process of effective decision making		
2. Develop self-awareness and self-management skills		
3. Demonstrate effective interpersonal competence		

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**SEMESTER: FOUR**

**SUBJECT: PYTHON II(SEC-IV)**

<b>COURSE OBJECTIVE:</b> 1. The program objective is to enable students to learn advanced concepts in python programming. 2. To learn how to write a program in python using OOP. 3. To build GUI applications		
Unit	Unit Objective	Program Outcomes
1	To learn python programming concepts like lists, tuples and working with strings.	To learn to write Python programs using advanced concepts.
2	To learn OOP concepts and GUI concepts in detail.	To be able to write programs using OOPS and understand GUI concepts.
<b>COURSE OUTCOME:</b> Upon completion of the course, students able to, 1. To apply advanced concepts in Python programming. 2. tackle programming challenges and contribute to variety of application domains.		

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**SEMESTER: FOUR**

**SUBJECT: ALGEBRA**

**COURSE OBJECTIVE:**

1. The course is aimed at exposing the students to learn some basic algebraic structures like groups, rings etc
2. Scientific temper will be developed in students.
3. Students possess basic subject knowledge required for higher studies.

Unit	Unit Objective	Program Outcomes
1	To learn about Groups, Subgroups, Cyclic Groups, Properties of Cyclic Groups, Classification of Subgroups Cyclic Groups.	Understand the definition of a group in the context of abstract algebra. Learn and apply basic properties of groups. Learn the terminology used in group theory.
2.	To learn about Cycle Notation, Permutations, A Check Digit Scheme Based on D5. Isomorphisms, Cayley's Theorem, Cosets and Lagrange's Theorem Properties	Understand the definition of cycle notation in the context of permutations. understand the concept of permutation groups, the concept of a check digit scheme in the context of D5 and isomorphisms in comparing group structures.
3.	To learn about Normal Subgroups- Factor Groups, Group Homomorphisms , Rings ,Subrings. Integral Domains: Fields ,Characteristics of a Ring .	Explore the properties of normal subgroups. Understand and apply factor groups in various mathematical and real-world scenarios. Explore properties of group homomorphisms. Understand properties of subrings and their relationship to the parent
4.	To learn about Ideals ,Factor Rings - Prime Ideals and Maximal Ideals. Ring Homomorphisms:	Understand the definition of ideals in the context of ring theory. Understand the definition of prime ideals as special types

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		of ideals. Explore properties of ring homomorphisms
<b>COURSE OUTCOMES:</b>		
<ol style="list-style-type: none"><li>1. On successful completion of the course students will be able to recognize algebraic structures that arise in matrix algebra, linear algebra.</li><li>2. Students will be able to apply the skills learnt in understanding various such subjects.</li></ol>		

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**SEMESTER: FOUR**

**SUBJECTS: STATISTICAL INFERENCE**

<b>COURSE OBJECTIVE:</b>		
Students can learn about small sample test and large sample test and statistical hypothesis. Non parametric test and central limit theorem.		
Unit	Unit Objective	Program Outcomes
1	To know about statistical hypothesis, critical region and test functions.	Students can able to learn different types of statistical hypothesis and types of errors one tail and two tail test by using randomized test students can solve the problems of binomial and poisson and exponential distribution.
2.	To learn about large sample test and standard deviation methods, sample proportion.	By large sample test students can learn about test for single mean and difference of means.
3.	To know about chisquare test and goodness of fit and test for independency.	By using chi square test for specified variance ,goodness of fit a square contingency table with examples.
4.	To know about non parametric test, median test, central limit theorem	In non-parametric test students can know about the advantages and disadvantages .comparison with parametric test ,measurement of scales like nominal and ordinal .
<b>COURSE OUTCOMES:</b>		
After successful completion of this course students can		
<ol style="list-style-type: none"><li>1. Identify the sample data by using statistical methods and hypothesis.</li><li>2. They can rectify the errors.</li><li>3. chi-square test they apply in real life for square matrix.</li><li>4. They can apply non parametric test in interval and ratio test.</li></ol>		

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SEMESTER: FOUR

SUBJECTS: DATABASE MANAGMEENT SYSTEM

<b>COURSE OBJECTIVE:</b>		
1.To understand the basic concepts and applications of database systems.		
2. Master basics of SQL and construct queries using SQL		
3.Understand the relational database design principles		
4. Familiarize with basic issues of transaction processing and concurrency control		
Unit	Unit Objective	Program Outcomes
1	To Learn about database systems types, architectures and relational model	Demonstrate the basic elements of DBMS,Identify the data models for relevant problems
2.	Learn ER model, Relational model and Normalization	Understand different data models, convert ER model into relational model and decomposition of a relation to reduce anomalies using normalization.
3.	Learn to create and work with databases by using SQL and advanced SQL	To create tables, queries to retrieve data and advanced SQL by PL/SQL
4.	Learn transaction management, concurrency control and various ACID properties	Understand transaction and need for concurrency control and recovery methods
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
1. Learn to handle and work with data by using DBMS.		
2. Master SQL for database querying and manipulation.		
3. Design efficient and normalized databases		
4. Learn different methods to ensure data consistency.		

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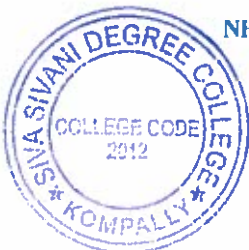


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# SEMESTER V



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S. P. Sampathy's Siva Sivani Educational Society (2906/97)  
**SIVA SIVANI DEGREE COLLEGE**

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**B.Sc (MSCS)**

**SEMESTER: FIVE**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To help students Learn the importance of English in today's world</li><li>2. Students can learn and use English correctly.</li><li>3. Students can write reviews and technical reports which are important in business communication.</li><li>4. To make students aware of the current issues happening around them.</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	To Learn the importance of English ,learn Indianism and to learn framing questions.	Students can speak correct English and they can frame questions and question tags on there own.
2	To make students aware of gender sensitization, to learn word analogy and learn grammar.	Students are aware of gender roles and can do word analogy easily and write with out making grammatical mistakes .
3	To teach students how they can write book and film review, to teach technical vocabularies and use conditionals effectively .	Students can write film and book review, use technical vocabulary and conditionals effectively.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. students become aware of gender sensitization, they can write reviews and can write technical reports and frame questions.</li></ol>		

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**B.Sc (MSCS)**

**SEMESTER: FIVE**

**SUBJECT: SECOND LANGUAGE(SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students		
Unit	Unit-Objective	Program Outcome
1	Learn about Madhuropadeshaha & alankaras	Understand moral values(change from negative attitude to positive attitude) Knowing about Sanskrit alankaras.
2	Learn about Shishyanushasanam & Bhramashakthihi gariyasi	Understand how to live in society with human values. Knowing about power of God
3	Learn about Sanskrita sambhashanam & mahakavi shasthrakara vibhagaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist's.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
1. Know the culture of India		
2. Know the great ness of Sanskrit language		
3. Know about the importance of ancient scientist's		

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**B.Sc (MSCS)**

**SEMESTER: FIVE**

**SUBJECT: HINDI**

**COURSE OBJECTIVE:**

1. To know about Rajya Basha ,Rasra Basha difference and Basha Ka Mahatavu.
2. To know about different types of Literature.
3. To know about how to communicate with people.

Unit	Unit-Objective	Program Outcome
1	Learn about different types of Basha.	Understand different types of Basha like Rajya Basha, Rastra Basha, Prayojanmulak Hindi.
2	Learn about Hindi Literature and different types of literature.	Understand about Natak, Kavitha, Kahani.
3	Learn about Sanskrita sambhashanam & mahakavi shashtrakara vibhagaha	Students Understand about Jansanchka Madhyam

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Know about Rajya Basha, Rastra Basha differences and Basha Mahathav
2. Know the different types of literature.
3. Know about how to communicate with people

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**B.Sc (MSCS)**

**SEMESTER: FIVE**

**SUBJECT: INFORMATION TECHNOLOGIES**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To deal with basic concepts of Computer Networks and Internet</li><li>2. To understand the concepts of Emerging Computer Technologies</li><li>3. To understand the concepts of Email and different types of Security technologies.</li></ol>		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn about Computer Networks and The Internet.	Students understand the concepts of Computer Networks such as Connection Media, Transmission Mode, Multiplexing, Switching, Topologies, Devices, OSI Model. and the concepts of Internet
2	To learn about Emerging Computer Technologies:	Students enable to understand the concepts of Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence
3	To learn about Email, Web Browser and its Information Security.	Students Understand the concepts of Email, Web Browser, Internet Service Providers. Information Security, Threats to Information Systems, Information Assurance and Cyber Security.
4	To learn about Application Security , Security Technologies, E-Cash and Electronic Payment System.	Understand the concepts of Application Security and Counter Measures, Data Security Considerations, Security Technologies, Security Threats, Security Threats to ECommerce, E-Cash and Electronic Payment System.

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**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Understand different concepts of Computer Networks.
2. Develop an understanding of professional, ethical, legal, security, and social issues and responsibilities.
3. Understand ethical and legal issues impacting information technology.

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**B.Sc (MSCS)**

**SEMESTER: FIVE**

**SUBJECT: LINEAR ALGEBRA**

**COURSE OBJECTIVE:**

- 1) Scientific temper will be developed in students.
- 2) Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.
- 3) Students will become employable; they will be eligible for career opportunities in industry or will be able to opt for entrepreneurship.
- 4) Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Unit	Unit Objective	Program Outcomes
1	To learn about Vector Spaces, Linear Transformations, Linearly Independent Sets; Bases, Coordinate Systems, The Dimension of a Vector Space	Understand the definition of a vector space, calculate null spaces and recognize their significance. Understand the concept of column spaces of a matrix, linearly independent, basis and dimension of a vector space.
2.	To learn about Rank-Change of Basis, Eigenvalues and Eigenvectors, The Characteristic Equation	Understand the definition of the rank of a matrix. Learn techniques to calculate the rank of a matrix. Understand the significance of eigen values and eigen vectors in linear algebra, relationship between the characteristic equation and eigen values.
3.	To learn about Diagonalization - Eigen vectors and Linear Transformations, Complex Eigen values, Applications to Differential Equations	Recognize the importance of diagonal matrices in certain applications, when diagonalization is not possible and the importance of the complex eigen values. Understand how eigen values and eigen

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		vectors are used in solving linear systems of differential equations.
4.	To learn about Inner Product, Length, and Orthogonality, Orthogonal Sets, Orthogonal Projections, The Gram-Schmidt Process.	Understand the definition of an inner product on a vector space. Explore how orthogonality simplifies computations and analyses. Apply the Gram-Schmidt process to transform a set of linearly independent vectors into an orthogonal set.

**COURSE OUTCOMES:**

1. After completion of the course students appreciate its interdisciplinary nature.
2. To learn, to find Eigen values, Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.
3. To learn inner product spaces and Gram-Schmidt process of orthogonalization.
4. To get well equipped with mathematical modelling abilities.

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**SEMESTER: FIVE**

**SUBJECT: APPLIED STATISTICS-1**

<b>COURSE OBJECTIVE:</b>		
1. The main objective of this course is to learn different sampling methods and its usage and applicability.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn the concepts of population and draw the samples by using different types of sampling methods.	On successful completion of the course students will collect the samples of different populations & draw the samples by using different types sampling methods.
2.	Stratified random sampling and systematic sampling estimations of means, variances.	To understand concepts of sampling methods and efficiencies of different sampling methods.
3.	Timeseries and components with real life examples. growth curves their fittings.	To understand and identify the variations of data, also expect the future behaviour of long and short term variations.
4.	Importance of SQC and construction of control charts for variables and attributes.	To recognise the good quality levels of different products by using control charts
<b>COURSE OUTCOMES:</b>		
On successful completion of course students will learn about concepts of to collect the sample and sample size, sampling methods and population and also estimate the variances of random samplings		

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**SEMESTER: FIVE**

**SUBJECT: PROGRAMMING IN JAVA**

**COURSE OBJECTIVE:**

1. The objective is to enable students to learn core concepts of Java programming in detail with hands-on experience in programming.
2. Concepts like abstraction, encapsulation, inheritance, polymorphism, multithreading and exception handling will be discussed in detail
3. Concepts like AWT and Swings to create GUI application

Unit	Unit Objective	Program Outcomes
1	To recapitulate basic programming concepts and OOPs concepts and learn the structure of java program.	Recap of basic programming concepts like datatypes, variables and control statements.
2.	Learn OOPS concepts like class inheritance and packages.	Understand the importance of reusability of code by inheritance and packages.
3.	To learn the exception handling so as to be able to handle exceptions, improve the CPU performance by multithreading and file handling by I/O streams.	Understand the way to handle exceptions and the ability to implement high performance through multithreading, handle large volumes of data stored in files.
4.	Learn Applet programming, GUI based applications using AWT and Swing, also to handle events.	To create applet applications, GUI using AWT and Swing.

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Recapitulate basic programming concepts
2. Use various OOPs concepts to solve a problem
3. Appreciate and understand the working of multithreading and exception handling features.
4. Develop GUI applications by using swings concept

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# SEMESTER VI



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**SIVA SIVANI DEGREE COLLEGE**

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**B.Sc (MSCS)**

**SEMESTER: SIX**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To teach students to use English in right full manner.</li><li>2. To teach vocabulary and different types of sentences.</li><li>3. To teach how one could write CV correctly and use English with out any mistakes .</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Prose is given to teach them the impacts of television and teach them how one can handle failures and imaginations. To teach them one word substitute and relative clauses also.	Student can use television and handle failure and imagination in right manner.
2	To teach student how important suggestions are. To teach them formal and informal vocabulary and learn different types of sentences.	Students understood the importance of suggestions and can use suggestions wisely.
3	To teach how to write CV and learn common errors they commit while writing.	To write CV perfectly and to listen, speak, read and write English properly.
<b>COURSE OUTCOMES:</b>		
<ol style="list-style-type: none"><li>1. Students can listen, speak, read and write English properly with out committing any mistakes.</li><li>2. Students can write CV properly and be aware of few important things in life.</li></ol>		

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**B.Sc (MSCS)**

**SEMESTER: SIX**

**SUBJECT: SECOND LANGUAGE(SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
1. To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students.		
2. understand patriotism and how to protect the country individually.		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Avanthu Bharatha prjaha swathranthra Bharatha prabham & alarankas.	Students understand patriotism and how to protect the country individually.
2	Dhakara katha & nachikethopakhyanam	Students understand Vedic literature.
3	Mahakavishastrakara vibhagaha & sanskrittha sambhashana abhayasaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist 's.
<b>COURSE OUTCOMES:</b>		
4. knowing about the Four vadas.		
5. Able to form the sentence in Sanskrit.		
6. Improve patriotism in the students.		

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**B.Sc (MSCS)**

**SEMESTER: SIX**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
To know how to translate the language		
Know about history, importance, nature of newspapers.		
To know about Rasthya ,dalith ,Adivasi sahithy .		
Unit	Unit-Objective	Program Outcome
1	Learn about Anuvadh.	Understand different types of Anuvad and what are the uses of Anuvad..
2	Learn about Samachar pathru.	Understand about history and types of Samachar pathru..
3	Learn about Srijanjathi ka Sahithy	Students Understand about Nari jagaran.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
1. Know about Anuvadh different types of Anuvd.		
2. Know the Samachar pathru.		
3. Know about hindi sahithy ka vibin ayam.		

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**SEMESTER: SIX**

**SUBJECT: ANALYTICAL SOLID GEOMETRY**

<b>COURSE OBJECTIVE:</b>		
<p>1. Student will acquire basic practical skills and technical knowledge along with domain knowledge of different objects in the science stream.</p> <p>2. Scientific temper will be developed in students.</p> <p>3. Student will be is equipped with mathematical modeling ability, problem solving skills ,creative talent and power of communication necessary for various kinds of employment.</p>		
<b>Unit</b>	<b>Unit - Objective</b>	<b>Learning Outcomes</b>
1	To learn about Sphere, Equations of a Circle, Intersection of a Sphere and a Line-Equation of a Tangent Plane-Angle of Intersection of Two Spheres-Radical Plane	Understand how to find the equation of a sphere that passes through four given points in three-dimensional space. Understand the geometric interpretation of the intersection points in three-dimensional space, the angle of intersection between two spheres. Recognize the geometric significance of the radical plane in relation to the spheres.
2	To learn about a Cone-Cone and a Plane through its Vertex - Intersection of a Line with a Cone.	Learn how to determine the curves formed by the intersection of two cones. Understand the geometric properties of the resulting curve and its significance. Understand how to find the points of intersection between a line and a cone. Learn how to express the conditions for intersection mathematically.
3	To learn about The Right Circular Cone-The Cylinder-The Right Circular Cylinder.	Derive and apply the formula for the surface area of a right circular cone. Identify and interpret the parameters that describe a

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		cylinder. Understand the geometric significance of each term in the formula. Understand how changing parameters affects the shape and properties of both solids. Explore practical applications of cones and cylinders in various fields.
4	To learn about The General Equation of the Second Degree- Intersection of Line with a Conicoid Plane of contact- Enveloping Cone and Cylinder.	Recognize and interpret the terms in the general equation, identify and analyze the various forms of conic sections based on the coefficients in the general equation. Understand the conditions for various types of intersections based on the discriminant. Explore the conditions for a cone or cylinder to be an enveloping surface for a given conicoid.

**COURSE OUTCOMES:**

1. Students understand the beautiful interplay between algebra and geometry.
2. Students learn to describe some of the surfaces by using analytical geometry
3. Problem solving skills of students are enhanced.
4. To learn to apply the various techniques for solving real life problems

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**B.Sc (MSCS)**

**SEMESTER: SIX**

**SUBJECT: APPLIED STATISTICS\_2**

<b>COURSE OBJECTIVE:</b>		
1.To understand multivariate distribution, regression analysis and logistics regression.		
2.Concepts like multivariate data analysis techniques.		
3.Calculation of life tables and NRR and GRR.		
4.Concepts Indian official statistics and agricultural statistics and index numbers.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To understand about ANALYSIS OF VARIANCE(ANOVA).	To determine the amount of variability in groups of data and also see the variability in greater than between groups than with in groups.
2.	To know the principles of experimental designs, different types of analysis of designs.	To interpret various designs of experiments.
3.	Explain definitions of vital statistics with different fertility and death rates also identified population growth.	on successful completion of the course students will expect the life time of different persons in the locality through life tables&population growth
4.	Understand the properties of national income,utility and difficulties and also agricultural,area and yield statistics.Explain concept,limitations of index numbers also identified price,quantity ,volume index numbers.	After learning the course students will expect national income ,its utility &difficulties ,area,yield and agricultural statistics

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**COURSE OUTCOMES:**

On completion of the course, students should be able to:

CO1. Identify the various index numbers and compute them for data sets

CO2. Explain the concepts of base shifting, slicing and deflating of index numbers

CO3. Illustrate the applications of index numbers.

CO4. Understand the need, use, relevance and limitations of official statistics CO5. Explain the roles and responsibilities of various organisations like NSSO, CSO etc. CO6. Explain the methods of data collection and dissemination in population census

CO7. Identify the roles of various organisations involved in the census procedure. CO8.

Explain the concepts of various measures of fertility and mortality. CO9. Compute these fertility and mortality measures. CO10. Distinguish between stationary and stable population.

CO11. Construct abridged life tables.

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**B.Sc (MSCS)**

**SEMESTER: SIX**

**SUBJECT: WEB TECHNOLOGIES**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To become skillful in using web technologies to create web pages</li><li>2. To Acquire knowledge of events, event handlers, and Java Script items.</li><li>3. To comprehend the basics of the internet and web technologies .</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Learn about Introduction and basic concepts to create static and Dynamic Web Pages, adding styles to web pages.	Students understand about HTML and different tags in HTML and effects to the webpages by using CSS.
2	Learn to make web pages interactive and decision making .	Students understand about java scripts with control structures, functions, scope and Recursion.
3	Students Learn Events , Event Handlers and Java Script Objects	Students understand how to registering event and use java script objects in web pages.
4	Students Learn how to transfer data and make user friendly web pages.	Students understand the concepts like XML, Ajax and toolkits.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Learn the introduction and fundamental ideas behind creating both static and dynamic websites, as well as how to style them.</li><li>2. create user-friendly web pages and convey data.</li><li>3. Learn how to add decision-making and interactivity to websites.</li><li>4. Build and interact web applications using AJAX</li></ol>		

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# SEMESTER I



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B.Sc. (DATA SCIENCE)

**SEMESTER: ONE**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To bring out vibrancies, color and show imagery in Indian poet's work</li><li>2. To show towering personalities and display their success stories.</li><li>3. To teach empathy towards the unfortunate in society.</li><li>4. To learn right pronunciation and grammar.</li></ol>		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	<p>In the bazaars of Hyderabad ( Sarojini Naidu)</p> <p>Lesson outcome: In the bazaars of Hyderabad, was a part of the Swadesi Movement, an Indian freedom Movement. The poet wanted to deliver the message that the traditional Indian Products made of Pure materials were of very high quality.</p> <p>The Eyes are not here: (Prose)</p> <p>The story is very interesting to read. Ruskin shows important message for all human being. We should always be alert and not to hide our weakness</p>	<p>The poem is all about the diversity and self-sufficiency of an Indian Market in British India.</p> <p>We also learn how others should not treat a handicapped person as a liability but encourage him and bring out the best in him.</p>
2	<p>"IF" (Poem) by Rudyard Kipling</p> <p>The poem teaches us to overcome obstacles in life. We are all equal and no one is above</p>	<p>Programme outcome of the poem "IF"</p> <p>: Always do what is right ,follow your dreams, Be realistic, set goals.</p>

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	<p>anyone else. Use your every minute of your time wisely.</p> <p>On Saying Please” (Prose) by A. G. Gardiner</p> <p>This prose deals with socially issues that we across in social life. It explains to us that bad behavior though not punishable is not acceptable.</p>	<p>The essay shows how using polite words and phrases like ‘please’ and ‘thank you’ can change the course of our day. Bad behavior cannot be aggressive or violent, good behavior can be welcomed</p>
3	<p>Ulysses (Poem)</p> <p>Ulysses: Tennyson states the need of going forward and braving the struggle of life.</p> <p>Seeing People off (Prose):</p> <p>The story tells us about how people behave at railway stations and bus stops.</p>	<p>Programme Outcome:</p> <p>Ulysses declares that it is disgraceful to “store and hoard” himself, sitting safely in one place just to extend his life “[f]or some three suns.”</p> <p>The story also tells us how strangers are taken care off at the station by those who register with the agency in seeing them off at the station</p>
4	<p>On his having arrived at the age of 23 (Poem) by John Milton.</p> <p>Milton dissatisfaction of his young age wasted .</p> <p>Shyness ,My shield (Prose)</p> <p>Gandhiji s habit of not speaking turned out to be a blessing.His inability to speak turned out into a blessing.</p>	<p>Milton accomplishment in the literary field of his literary master piece ‘Paradise Lost’.</p> <p>Shyness, My shield : Programme Outcome</p> <p>Gandhi could not ever speak at meetings. But this inability become a spiritual asset.</p>

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## COURSE OUTCOME:

Upon Successful completion of course, a student will be able to

1. The students sensitivity to others problems is heightened.
2. Students learn values.
3. Students enrich vocabulary.
4. Students enjoy reading memorable stories.

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**SIVA SIVANI DEGREE COLLEGE**

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: ONE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
1.To teach Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah		
2. To impart about Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi		
3.To make them learn Esha dhramaha sanathanaha and Ajantha shabdaha		
4.To Create awareness on Sandhis and samskutha Sambhashana Abhaysaha		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah	Enable the students to know about Ramayana and Character of Sri Rama and scriptures of Great poet maha kavi Kalidhasas.
2	Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi	Understand about the greatness of Roughtionous and how to help others in society
3	Esha dhramaha sanathanaha and Ajantha shabdaha	Know how to use Sanskrit literature Neethi shlokasas and grammar
4	Sandhis and samskutha Sambhashana Abhaysaha	Students able to use Grammar and sentence formation of Sanskrit language.
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Facilitate in learning about the Ramayana, the attributes of Sri Rama, and the writings of the renowned poet Mahakavi Kalidhasas.		
2. Recognize the virtues of Roughtionous and learn how to be a good neighbor.		
3. Understand and use Sanskrit literature Grammar and Neethi shlokasas.		
4. competent to create sentences in Sanskrit and apply grammar.		

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# SIVA SIVANI DEGREE COLLEGE

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## B.Sc. (DATA SCIENCE)

SEMESTER: ONE

SUBJECT: HINDI

COURSE OBJECTIVE:		
1. To understand basic life lessons, knowledge of grammar and Hindi in literature it can help to students to build the skills of creativity and intellectual ideas and makes them to enrich their career.		
Unit	Unit Objective	Program Outcomes
1	To learn what are the qualities required for human being.	Students can understand how to be in society as a good person.
2	To understand how to control human at the time of purchasing.	Students can understand proper utilization of money.
3	To know about historical widow system	What are the problems faced by widows in social and cultural challenges.
4	To learn the concepts of Indian culture	To be aware of civilized communication, beliefs, values, etiquette, and rituals.
5	Learn Indian structure	To acknowledge Indian architectures, is rooted in the history, culture, climatical conditions and religion of India.
6	To understand caste system in Indian in olden days	To learn how low cast people will be treated in olden days and Indian culture.
7	To learn concept of understand humanity nature and helping to their parents.	To understand to how-to live-in society and how to maintain good relationship with their parents.
8	To learn story about elder aunt(thai)	To learn about how to accept people.
9	To learn a story about realization towards parents	To acknowledge towards their parents.
10	To learn story about Obedience towards peoples	To learn Obedience to their friend when problem arises how to be in society

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11	Understanding about grammer.	To learn grammer part like Singler, plural, vibhakti
<b>COURSE OUTCOMES:</b> Upon Successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. To learn moral of life stories.</li><li>2. How-to live-in society as a peron.</li><li>3. To lean how to overcome situation when problem arises.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: ONE**

**SUBJECT: ENVIRONMENTAL STUDIES (AECC I)**

### COURSE OBJECTIVE:

1. To create awareness about environmental problems among people.
2. To develop attitude of concern for the environment in the students.
3. To help students to explore possible solutions of environmental problems.

Unit	Unit Objective	Program Outcomes
1	To create awareness about environment and ecosystem.	Able to know the importance of Ecosystem, Bio Diversity and Natural Resources
2	To develop concern about pollution and global issues.	Can analyse the impacts of environment pollution and Global issues

### COURSE OUTCOMES:

Upon Successful completion of course, a student will be able to

1. Understand the transactional character of the environmental problems and ways of addressing them, including the interaction across local and global scales.
2. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
3. Understand the importance of sustainable development and modern approaches that enable humans to protect the environment

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# SIVA SIVANI DEGREE COLLEGE

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B.Sc. (DATA SCIENCE)

SEMESTER: ONE

SUBJECT: DIFFERENTIAL AND INTEGRAL CALCULUS

### COURSE OBJECTIVE:

1. The course is aimed at exposing the students to some basic notions in differential calculus.
2. Scientific temper will be developed in students.
3. Students possess basic subject knowledge required for higher studies.
4. Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.

Unit	Unit Objective	Program Outcomes
1	To learn about Functions of two variables, Continuity of a Function of two variables, Limit of a Function of two variables, Partial Derivatives Geometrical representation of a Function of two Variables, Homogeneous Functions.	Explore how continuity relates to the limit of a function. Understand the geometric interpretation of partial derivatives and homogenous functions
2	To learn about Differentials, Composite Functions, Implicit Functions, Equality of $f_{xy}(a, b)$ and $f_{yz}(a, b)$ , Taylor's theorem, Maxima and Minima of functions of two variables, Lagrange's Method.	Understand the process of finding partial derivatives of composite functions and the second-order partial derivative test for identifying extrema. Apply Lagrange multipliers to solve optimization problems with constraints.
3	To learn about Radius of Curvature, Length of Arc as a Function Newtonian Method, Centre of Curvature, Chord of Curvature, Evolutes and Involutives, Properties of the evolute. Envelopes. One Parameter Family of Curves.	Learn to compute the derivative of arc length with respect to a parameter. Understand how to find the radius of curvature for a given curve. Understand the relationship between a curve and its evolute and envelope.

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4	To learn about Expression for the lengths of curve , Volumes and Surfaces of Revolution and Pappu's theorem	Derive and understand the formula for calculating the volume and surface area of a solid to different forms. Derive and comprehend the formula for calculating the surface area of a solid obtained by revolving a curve around an axis.
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### COURSE OUTCOMES:

After successful completion of the course, the students will be able to

1. Realize the wide ranging applications of the subject.
2. Study functions in detail which is a fundamental structure in all sciences and to be able to check continuity of a function.

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## SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc. (DATA SCIENCE)

SEMESTER: ONE

SUBJECT: DESCRIPTIVE STATISTICS AND PROBABILITY

### COURSE OBJECTIVE:

1. The primary objectives of this course are to learn different measures of central tendency and to understand mathematical and statistical concepts, different applied theories.
2. Basic concepts of probability and proves of Bayes, Booles theorems with some real life examples.

Unit	Unit Objective	Program Outcomes
1	To understand primary and secondary data, classifications of data and measures of central tendency concepts of dispersion skewness and moments.	Students will be able to recognise statistical averages and student should collect primary and secondary data & also analyse the data.
2.	To understand basic concepts of probability, mathematical, statistical, axiomatic definitions with real life examples.	To apply in real life what are changes in getting an event.
3.	Random variables, types of random variables, distribution functions and its properties, bi variate distributions and also properties.	After learning the course students will identify discrete and continuous variables.
4.	Mathematical expectations of a random variable's definitions of MGF, CF, PGF and CGF, Chebyshev's and Cauchy-Schwartz's inequalities and applications	students should expect the variable values by using some mathematical formulae's

### COURSE OUTCOMES:

After successful completion of this course, students can learn to

1. Calculate the expectation and moments of random variables.
2. Identify the applications of various moment inequalities.
3. Find the expressions for the characteristic function of a random variable and verify its properties.
4. Apply the various laws of large numbers to sequences of random variable



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: ONE SUBJECT: FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**COURSE OBJECTIVE:**

1. To learn the basic concepts of computers.
2. To discuss about the computer hardware, its components and software.
3. To introduce the software development process.
4. To introduce the basic concepts of programming.

Unit	Unit Objective	Program Outcomes
1	To learn basic concepts of computers including data, its types, processing, output; input and output units; internal and external representation of data; error detection.	To identify the different types of data, processing and different number systems and conversions.
2.	To learn about the computer hardware, its components and basic architecture; learn components of a computer and their functions.	To distinguish between different storage devices, their characteristics and the structure, specifications and functioning of CPU.
3.	To understand the basic computer software including the operating system and its concepts; understand the concept of networking, LAN, internet and working of www.	To learn importance of operating system, its functions, a clearly understanding different networks, LAN and its technologies.
4.	To learn software development process and basic concept; understand the notion of problem-solving using computer by programming	To analyse software project, different development models and programming fundamentals.

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Identify the components of a computer and their functions.
2. Understand the concept of networking, LAN, Internet and working of www.
3. Understand the notion of problem solving by programming.
4. Understand the notion of Software Project and the Process of software development.



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# SEMESTER II



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. To teach students the basics of grammar and teach them how one can write paragraph without making mistakes.
2. To teach students good literary work so that they can learn good moral things from that.
3. To learn different types of verbs and frequently used figures of speech.

Unit	Unit Objective	Program Outcomes
1	To expose students to good literary work. To teach them the basics of grammar and help them to write paragraph correctly	Students learnt good literary work and learnt to use words, sentences and paragraphs correctly using the right tenses. They understood the important factors for writing paragraphs and can write paragraphs.
2	To introduce different writers and their writings to students. To teach loan words and auxiliary verbs.	Students are inspired to write something on the current issues easily. Students know what loan words are and how it is used. They wisely use the essential to write a paragraph correctly.
3	Students are exposed to history and speeches given by famous people. To learn nonfinite verbs and descriptive writing.	Inspired to deliver speeches in public places and win awards in future. Know to write portmanteau words and can write descriptive writing in an amazing manner.
4	To introduce the works of famous writer Shakespeare. To teach them how one can	Students learnt famous works of Shakespeare and can excel in Public

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	excel in public speaking and argumentative writing. To learn few important frequently used simile and metaphors	speaking and use figures of speech correctly. They can write argumentative writing easily also.
<b>COURSE OUTCOME:</b> Upon Successful completion of course, a student will be able to 1. Students get an overall idea of grammar. 2. Students can deliver public speeches and use English appropriately.		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: SECOND LANGUAGE**

<b>COURSE OBJECTIVE:</b>		
1. To develop attitude of Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha.		
2. To be aware of Vignanika samhitha and nagangadathaha punarethi kupam.		
3. To know the qualities of daivasurasampadvibhagayogaha.		
4. To teach the Samasaha and Samskrutha Sambhashana Abhyasaha.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	Sakthuprasthasya mahathvam and Budhasya vayragyodhayaha	Understand the importance of Charity sacrifice and detachment to the world pleasures.
2	Vignanika samhitha and nagangadathaha punarethi kupam.	Know about Astrology, Astronomy and Regarding values of Friendship and Gratitude.
3	daivasurasampadvibhagayogaha	Enable the students about Goddess qualities and Demons qualities in human being.
4	Samasaha and Samskrutha Sambhashana Abhyasaha	Know about Sanskrit grammar and sentence formation of Sanskrit language.
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Recognize the value of charity, selflessness, and disengagement from worldly pleasures.		
2. Learn about astrology, astronomy, and the importance of gratitude and friendship.		
3. Know about the characteristics of both goddesses and demons in humans.		
4. Understand the syntax and sentence structure of the Sanskrit language.		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
1. Students can learn about life lessons. 2. They can understand about political and environmental conditions. 3. To understand about grammer.		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn about kashmir	To learn history of Kashmir, climatical and weather, people living conditions and boundaries of kashmir.
2	To learn story about thai.	To learn how to accept people.
3	To lean about about politicians	To understand about politicians and how they are distributing their positions and powers.
4	To learn about Vivekananda life story.	To lean about great leader and his compassion and faith optimism and mindfulness.
5	To understand about Environmental	To understanding importance of environment.
6	To lean about dare ness of a women	To understand how women can survive their life's in critical conditions.
7	To learn about how people can convert situations in matters of money	To understand about people surrounded by us ,how they are converting situations in matters of money.
8	Story about a person who can dedicate his entire life towards their family	To learn how parent are sacrifice their life towards their children's.

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9	To learn story of parents	To understand moral of how parents dedicating their life to their children ,but when it turn to children why they are not dedicating their time to their parents.
10	To learn story about seliva.	To understand about how to get abstracles.
11	To learn grammer	To learn grammer part like opposite word,sandulu samasalu.
<b>COURSE OUTCOME:</b> Upon successful completion of the course, a student will be able to understand, <ol style="list-style-type: none"><li>1. To learn moral of life stories.</li><li>2. To learn how to overcome situation when problem arises.</li><li>3. To improve the awareness of students about different Socio – Academic &amp; Political problems.</li></ol>		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: BASIC COMPUTER SKILLS(AECC-2)**

**COURSE OBJECTIVE:**

- 1.This course is aimed to impart a basic level understanding of working of a computer and its usage.
- 2.Understand Familiarity with all the components of computer,
- 3.Understand networking and its importance.

Unit	Unit Objective	Program Outcomes
1	To imbibe students with basic knowledge of computer, its architecture, components. A vivid understanding of operating system and working in GUI	Able to distinguish hardware, software, learn to use word processing software
2	To learn spreadsheet, presentation software and web terminology and navigation	Able to work with spreadsheets ,create presentations and also working with internet and www.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

- 1.Use the computer for basic purposes, preparing one's personnel/business letters.
- 2.Viewing information on the web, sending mails, using internet banking services.



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: DIFFERENTIAL EQUATIONS**

**COURSE OBJECTIVE:**

1. The main aim of this course is to introduce the students to the techniques of solving differential equations
2. Train students to apply their skills in solving some of the problems of engineering and science.

Unit	Unit Objective	Program Outcomes
1	To learn about differential equations , Differential Equations Reducible to Homogeneous Form, Differential Equations Reducible to Linear Form, Exact differential equations	Learn how to identify homogeneous differential equations, techniques. Explore the linearity property and how it applies to both the dependent variable and its derivatives.
2.	To learn about Equations Solvable for p, y and x, Equations that do not contain x (or y), Equations Homogeneous in x and y , Equations of the First Degree in x and y , Clairaut's equation.	Learn methods for solving equations, explore techniques for solving equations in which the dependent variable can be expressed explicitly in terms of the independent variable(s).
3.	To learn about homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations. Method of undetermined coefficients	Learn the concept of a particular solution representing the non-homogeneous part of the equation. Understand the motivation behind the method of undetermined coefficients
4.	To learn about Method of variation of parameters, Linear differential equations with non-constant coefficients, The Cauchy, Euler Equation, Legendre's Linear Equations, Miscellaneous Differential Equations. Partial Differential Equations:	Understand the characteristics of linear differential equations with coefficients that are functions of the independent variable and Legendre's linear equations and their significance.



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**COURSE OUTCOMES:**

Upon successful completion of course, a student will be

1. Equipped with the various tools to solve few types of differential equations that arise in several branches of science.



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## SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO**

**SUBJECT: PROBABILITY AND DISTRIBUTIONS**

### COURSE OBJECTIVE:

1. The main objective of this course is to understand discrete type of distributions and continuous distributions and to understand mean mode median and generating functions.
2. To calculate all generating functions of discrete and continuous distributions with real life examples.

Unit	Unit Objective	Program Outcomes
1	To understand definitions, mean, variance, MGF, CGF, Gmelina mode of binomial, poisson, Bernoulli's distribution.	After learning the course students will be identified expected frequencies through some observed values by using different distributions of discrete like binomial, poisson etc &also calculate their properties.
2.	To understand definitions, mean, variance, MGF, CGF, PGF, median mode of geometric, hyper geometric distribution, NBD distribution.	On successful completion this concept students will identify the concept in geometric and NBD distribution.
3.	To understand definitions, mean, variance, MGF, CGF, PGF, median mode of normal, exponential distributions.	On successful completion of the course students will identify expected frequencies through some observed values by using different continuous distributions.
4.	To understand definitions, mean, variance, MGF, CGF, PGF, median mode of rectangle, Gamma, Beta distributions.	By using these concept students can identified expected frequencies by using density functions.



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**COURSE OUTCOMES:**

After successful completion of this course students will learn to,

1. Understand various specifications such as probability density functions and cumulative distribution functions etc, of the probability distribution of a random variables.
2. Derive various generating functions of random variables such as probability generating function, moment generating functions, characteristic functions, etc.
3. Find out characteristics of random variables like moments from either probability density (mass) functions or the generating functions.
4. Understand the probability distribution of bivariate random variables and the terms marginal distributions, conditional distributions, marginal, joint and conditional moments.



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## SIVA SIVANI DEGREE COLLEGE

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: TWO SUBJECT: PROBLEM SOLVING AND PYTHON PROGRAMMING**

### COURSE OBJECTIVE:

1. To know the basic programming.
2. To convert an algorithm into Python program.
3. To structure Python program as a set of functions.
4. To use Python data structures-lists, tuples, dictionaries.
5. To construct Python programs as a set of objects,

Unit	Unit Objective	Program Outcomes
1	To learn the algorithms for the problem solving and some of the control structures to write basic python programs.	To be able to understand the problem, write algorithms in an efficient way and write simple programs
2	To learn String related operations and built-in functions.	To be able to work with strings and built in functions to minimize the coding .
3	To understand list, tuples, dictionaries and the operations on them	To be able to write complex programs, use sorting techniques and to solve the file exceptions.
4	To learn the overall OOPs concepts	To have a deep knowledge of programming using Python

### COURSE OUTCOMES:

Upon successful completion of course, a student will be able to

1. Develop algorithmic solutions to simple computational problems.
2. Develop and execute simple Python programs.
3. Structure a Python program into functions.
4. Represent compound data using Python lists, tuples, dictionaries.
5. Read and write data from/to files in Python Program.

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# SEMESTER III



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: THREE**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.
2. Ability to be comfortable while speaking or reading English.
3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.
4. Develop wide knowledge in their major and allied subjects necessary to qualify for the degree.

Unit	Unit Objective	Program Outcomes
1	<p>O Captain! My Captain- Wall Whitman(Poem)</p> <p>Mallika Srinivasan (Prose):</p> <p>The poem gives a chance to learn many poetic devices and brings to mind the transience of human life.</p>	<p>To inform the students the life history of Abraham Lincoln; To also teach them extended Metaphor and also the U.S. Civil war morning and rejoicing are a part of life.</p> <p>A part from observing the business Acumen and the business success graph. Make sure that all words are spelled correctly; Try different keywords and learn them all.</p>
2	<p>The Solitary Reaper (Poem):</p> <p>The students' senses are sharpened to observe the beauty of nature, valleys, meadows etc.,</p>	<p>The message of the poem solitary Reaper is that even the lowliest individuals and ordinary situations have a beauty.</p>

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	<p>How to live to be a 200(Prose):</p> <p>This piece of prose explains that everything practiced in moderation is good, extreme is bad.</p>	<p>The individual logic of health doesn't matter. What we think gives health really doesn't give health. Holistic health purpose is better.</p>
3	<p>La Belle Dame Sans Merci (Poem)</p> <p>Students learn that even if the best person leaves you, one has to motivate himself to get back to a normal state.</p> <p>Ilyas(Prose):</p> <p>This lesson redefines the ethics of life.</p>	<p>The poem is about a beautiful lady entering a man's life and casts a temporary spell on him and after words leaves him.</p> <p>This merciless act is records in this poem.</p> <p>A rich man amasses wealth. Then loses it only to find out that wealth is not everything but fostering relationships is important.</p>
<p><b>COURSE OUTCOMES:</b></p> <p>Upon successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. Develop style in speech and writing and manipulate the tools of language for effective communication.</li><li>2. The course should provide exposure to the learners in good pros, texts, poems and expose the learners to value based ideas.</li><li>3. Enhance their language skills especially in the areas of grammar and punctuation.</li><li>4. Acquire a rich asset of value-added courses, soft skills and communication skills, in stilling, self-confidence and moral values.</li></ol>		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: THREE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

**COURSE OBJECTIVE:**

1. To teach Pravarthatham Prakruthi hithaya Parthivaha and Navarathnani
2. To equip Shudhraka Vayshampayana yoho Sambhashanam and Ramadhasaha
3. To impart Shabdaha(Halantha) and Samskrutha Sambhashana Abhyasaha.

Unit	Unit Objective	Program Outcomes
1	Pravarthatham Prakruthi hithaya Parthivaha and Navarathnani	Know about the dramas in Sanskrit literature and Greatness of Mahabharata. and to be equipped with the information of King Vikramadithya.
2	Shudhraka Vayshampayana yoho Sambhashanam and Ramadhasaha	Understand the importance of Prose in Sanskrit Literature and Rama dasa the Devote.
3	Shabdaha(Halantha) and Samskrutha Sambhashana Abhyasaha.	Able to understand Sanskrit Grammar and frame sentences in Sanskrit language.

**Course Outcomes:**

Upon Successful completion of course, a student will be able to

1. Learn about the dramas in Sanskrit literature as well as Mahabharata's magnificence and furnished with King Vikramadithya's knowledge.
2. Recognize the significance of Rama dasa the Devote and prose in Sanskrit literature.
3. Able to construct sentences in Sanskrit and comprehend Sanskrit grammar.

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: THREE**

**SUBJECT: HINDI**

**Course Objective:**

1. To make the student appreciate the importance of translation.
2. To strengthen Hindi Grammar and improve quality of language by means of Hindi Grammar.
3. Strengths the quality of Hindi language of students by mean of Grammar.

Unit	Unit Objective	Program Outcomes
1	History of poet and their poems.	To understand moral values.
2	To lean Hindi literature and history	To make students to understand olden tradition and golden age of hindi literature
3	To improve the letter writing skills of the student.	Students will be able to develop their writing skill in different letters.

**COURSE OUTCOME:**

Upon successful completion of the course, a student will be able to understand,

1. To improve the letter writing skills of the student.
2. To highlight the salient features of modern Hindi poetry.
3. To improve the reading and writing skills of the student by different stories

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: THREE**

**SUBJECT: COMMUNICATION SKILLS(SEC)**

**COURSE OBJECTIVE:**

1. To understand the role of communication in teaching learning process and understand how all four skills are important.
2. To Communicate successfully through nonverbal communication and learn to communicate through the digital media.
3. Understand the importance of emphatic listening and explore communication beyond language.

Unit	Unit Objective	Program Outcome
1	To teach students the importance of listening in common and business communication. To make them aware of its techniques and its barriers.	Realize the importance of listening and listen attentively to get cent percent result. They can overcome the barriers with the knowledge they received.
2	To teach students Pronunciation and enunciation and explain them how vocabulary, fluency and common errors play important role in speaking skills.	Students can speak and pronounce correctly and improve their speaking skills.
3	To teach students the importance of reading and how one can interpret the text.	Students read more articles and interpret the text appropriately.
4	To emphasize how one can excel in writing by giving tips and inform them the different modes of writing.	Students can write any articles effectively and learnt different modes of writing which are very important for their career.
5	To impart the role of Digital Literacy in professional life and MS-Tools and explain its role in today's communication.	Acquire knowledge on Digital technology and would use it for the betterment of their career.
6	To impart social media websites and	Can use social media productively, can use



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	its advantages, to give tips to use google search better, to use digital marketing effectively.	google search successfully and use technology constructively to promote digital marketing.
7	To elucidate Nonverbal Communication and present do's and don'ts of it.	Students can excel in nonverbal communication which would help them in both personal and professional life.

**COURSE OUTCOME:**

Students have a clear understanding of what good communication skills are and how one can improve their abilities to attain excellency.



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: THREE**

**SUBJECT: REAL ANALYSIS**

**COURSE OBJECTIVE:**

1. The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena.
2. scientific temper will be developed in students.
3. students will be aware of and able to develop solution-oriented approach towards various social and environmental issues.
4. students possess basic subject knowledge required for higher studies.

Unit	Unit Objective	Program Outcomes
1	To learn the sequences and series of convergent or divergent. Monotone Sequences and Cauchy Sequences -series Subsequence's Alternating Series and Integral Tests	Explore properties and examples of sequences and subsequences, properties and significance. sequences and series. Understand the concept of alternating series. Apply the Integral Test to determine the convergence of series.
2.	To learn about Continuous Functions, Properties of Continuous Functions, Uniform Continuity, Limits of Function.	Understand the definition of a continuous function. Understand counter examples that illustrate situations where continuity fails Define uniform continuity.
3.	To learn about Basic Properties of the Derivative ,The Mean Value Theorem ,Hospital Rule , Taylor's Theorem.	Understand the definition of the derivative of a function. Explore cases where a function is differentiable but not continuous, and vice versa. Explore the geometric interpretation of the MVT.
4.	To learn about The Riemann Integral ,Properties of Riemann Integral, Fundamental Theorem of Calculus.	Familiarize with the notation used to represent Riemann sums and integrals. Understand how these sums are used to approximate the integral.



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**COURSE OUTCOMES:**

1. Describe the fundamental properties of the real numbers that underpin the formal development of real analysis.
2. Demonstrate an understanding of the theory of sequences and series, continuity, differentiation and integration.
3. Demonstrate skills in constructing rigorous mathematical arguments;
4. Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.



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B.Sc. (DATA SCIENCE)

SEMESTER: THREE

SUBJECT: STATISTICAL METHODS & ESTIMATION

**COURSE OBJECTIVE:**

1. The students are exposed to various concepts like correlation, regression, attributes, distributions.
2. Identify test of consistency including consistency, unbiasedness, efficiency, sufficiency and MLE estimators

Unit	Unit - Objective	Learning Outcomes
1	To learn about Bivariate data, scattered diagram method, correlation concepts. Correlation coefficient for grouped and ungrouped data.	Understand the definition of a data, bivariate data, types of correlation, and its properties, Principle of least squares method and Normal equations. Regression concept and Regression lines of X on Y and Y on X.
2	To learn about Attributes concept, partial and multiple correlation. Yules coefficient of association, colligation	Understand the definition and concept of attributes, with examples. Partial and multiple correlation Different types of criteria with association and independency.
3	To learn about Population, parameter, random sample, Exact sample distributions	Recognize the importance of distributions and its real-life examples. Criteria for good estimation concepts like Unbiasedness, consistency, sufficiency and efficiency.
4	To learn about neymanns theorem, sufficient statistics, MLE estimators	Understand the definition of Neymanns factorization theorem and its examples, pivot method for finding unknown population parameter, sufficient statistics in Binomial and poisson distributions.



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**COURSE OUTCOMES:**

After the completion of this course, students will

1. Appreciate its interdisciplinary nature.
2. be able to organize, manage and present data.
3. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.



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## SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc. (DATA SCIENCE)

SEMESTER: THREE

SUBJECT: DATA ENGINEERING WITH PYTHON

### COURSE OBJECTIVE:

1. The main objective of this course is to teach how to extract raw data, clean the data, perform transformations on data, load data and visualize the data.

Unit	Unit Objective	Program Outcomes
1	To learn how to gather the data and analyse it, also learn about different files like Text, Binary, CSV etc.	To understand how to work with text, binary files using python
2.	To learn different natural processing techniques using NLTK module and regular expressions	To understand pattern matching using regular expressions in huge amount of data.
3.	To learn different databases like relational and non-relational (MYSQL, MongoDB) and NumPy module	Working with databases using Python and dealing with NumPy arrays.
4.	To learn Pandas and displaying the data in different plot types	To understand different data structures like series and data frame present in Pandas.

### COURSE OUTCOMES:

Upon successful completion of course, a student will be able to

1. Handle different types of files and work with text data
2. Use regular expression operations
3. Use relational databases via SQL
4. Use tabular numeric data
5. Use the data structures: data series and frames
6. Use PyPlot for visualization



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# SEMESTER IV

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. The program outcome is to enable students to learn core concepts of English in detail with hands-on experience in English.
2. Ability to be comfortable while speaking or reading English.
3. Ability to sharpen skills through reading and listening to acquire good exposure to language and literature.

Unit	Unit Objective	Program Outcomes
1	<p><b>Ozymandias(Poem):</b></p> <p>One of the key lessons of Ozymandias is the importance of strong foundation. The “two vast and trunkless legs of stone” that stand in the desert represent the foundation upon which Ozymandias built his empire.</p> <p><b>The Lottery Ticket(Prose):</b></p> <p>The lesson’s theme is that one should not blindly follow traditions simply because they are traditional.</p>	<p>To analyse the theme of power in Ozymandias. To understand the age, Kingship .</p> <p>The message of the poem could be considered to be a remainder that power will not last forever.</p> <p>The theme of the lesson is, it is best for people to be content with what they have and not to start dreaming of things that will be much better than what they have.</p>
2	<p><b>My Last Duchess(Poem):</b></p> <p>The predominant theme of My Last Duchess” is the speaker’s obsession with control. The Duke exhibits an arrogance routed in an audacious sense of male superiority. He is</p>	<p>In “My Last DuChess” is the Duke of Ferrara uses his power to control his subjects, and kills his wife because of the way she acts around other men. From beginning to end displays the</p>

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	<p>Stuck on himself – full of narcissism and misogyny.</p> <p>The Doll's House(Prose)</p> <p>Understand the influence of Ibsen's work , the themes of family, society and morality in the 19th century, Norway.</p>	<p>corrupt power of the domestic tyrant , his arrogance, jealousy and the ruthlessness.</p> <p>A Doll's House explores the ways that societal expectations restrict individuals, especially woman.</p>
3	<p>Hope is the thing with feathers(Poetry):</p> <p>“Hope” has been helpful in times of difficulty and never ask anything in return.</p> <p>Packing(Prose):</p> <p>Packing teaches Students how packing can indeed be a tiring task if not done properly.</p>	<p>Emily Dickinson has successfully rendered an abstract subject ie.,he has personified Hope.</p> <p>Packing when done with friends can become a little messy and time consuming, it has a own charm and fun.</p>
<p><b>COURSE OUTCOMES:</b></p> <p>Upon successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. To promote career dexterity in the students.</li><li>2. To provide Students a platform to understand interrelatedness between life and literature.</li><li>3. To help Students in the development of critical and analytical thinking through literacy.</li></ol>		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

**COURSE OBJECTIVE:**

1. To teach Chitrapata dharshanam and Vivekandhavijayam.
2. To Equip Vishruthacharitham and Dhrvopakyanam
3. To Impart Krudhantha rupani and Samskrutha sambhashana Abhyasam

Unit	Unit Objective	Program Outcomes
1	Chitrapata dharshanam and Vivekandhavijayam.	Enable to understand the greatness of Swami Vivekananda and Sanskrit Drama
2	Vishruthacharitham and Dhrvopakyanam	Know about Age is not barrier to achieve aim-importance of commitment. Greatness of Prose in Sanskrit.
3	Krudhantha rupani and Samskrutha sambhashana Abhyasam	Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.

**COURSE OUTCOMES:**

Upon Successful completion of course, a student will be able to

1. Facilitate comprehension of the magnificence of Swami Vivekananda and Sanskrit drama
2. Realizing that age is not a barrier to achieving goals- commitment is essential.
3. Use Prose in Sanskrit Language.
4. Applicability of Sanskrit grammar and Sentence Formation in Sanskrit language.

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**SIVA SIVANI DEGREE COLLEGE**

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: HINDI**

**COURSE OBJECTIVE:**

1. To make the student appreciate the importance of translation.
2. To strengthen Hindi Grammar and improve quality of language by means of Hindi Grammar.
3. Strengths the quality of Hindi language of students by mean of Grammar

Unit	Unit Objective	Program Outcomes
1	History of poet and their poems.	To understand moral values.
2	To lean Hindi literature and history	To make the student understand the History of Hindi literature.
3	To improve the letter writing skills of the student.	Students will be able to develop their writing skill in different letters.

**COURSE OUTCOME:**

Upon successful completion of the course, a student will be able to understand,

4. To improve the letter writing skills of the student.
5. To highlight the salient features of modern Hindi poetry.
6. To improve the reading and writing skills of the student by different stories.

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: LEADERSHIP AND MANAGEMENT SKILLS**

**Course Objective:**

1. To develop critical thinking, managerial abilities and organisation skills in students
2. To equip the students to take effective decisions by coordinating the teams
3. To enhance the capabilities of being team members and manage networks

Unit	Unit Objective	Program Outcomes
1	To develop essential skills to influence and motivate others	Inculcate emotional and social intelligence and integrative thinking for effective leadership
2	To create and maintain an effective and motivated team to work for the society	Demonstrate a set of practical skills such as time management, self-management, handling conflicts, team leadership, etc.
3	To Nurture a creative and entrepreneurial mind-set	Understand the basics of entrepreneurship and develop business plans
4	To describe emotional intelligence, social intelligence and integrative thinking for effective leadership	Apply the design thinking approach for leadership
5	To Inculcate ethics and moral values for developing a balanced personality	Appreciate the importance of ethical principles in professional and social contexts

**Course Outcomes:**

Upon Successful completion of course, a student will be able to

1. Student will understand and use the process of effective decision making
2. Develop self-awareness and self-management skills
3. Demonstrate effective interpersonal competence



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: ALGEBRA**

**COURSE OBJECTIVE:**

1. The course is aimed at exposing the students to learn some basic algebraic structures like groups, rings etc
2. Scientific temper will be developed in students.
3. Students possess basic subject knowledge required for higher studies.

Unit	Unit Objective	Program Outcomes
1	To learn about Groups, Subgroups, Cyclic Groups, Properties of Cyclic Groups, Classification of Subgroups Cyclic Groups.	Understand the definition of a group in the context of abstract algebra. Learn and apply basic properties of groups. Learn the terminology used in group theory.
2.	To learn about Cycle Notation, Permutations, A Check Digit Scheme Based on D5. Isomorphisms, Cayley's Theorem, Cosets and Lagrange's Theorem Properties	Understand the definition of cycle notation in the context of permutations. understand the concept of permutation groups, the concept of a check digit scheme in the context of D5 and isomorphisms in comparing group structures.
3.	To learn about Normal Subgroups- Factor Groups, Group Homomorphism, Rings, Subrings. Integral Domains: Fields ,Characteristics of a Ring .	Explore the properties of normal subgroups. Understand and apply factor groups in various mathematical and real-world scenarios. Explore properties of group homomorphisms. Understand properties of subrings and their relationship to the parent
4.	To learn about Ideals, Factor Rings -Prime Ideals and Maximal Ideals. Ring Homomorphisms:	Understand the definition of ideals in the context of ring theory. Understand the definition of prime ideals as special types of ideals. Explore properties of ring homomorphisms



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### COURSE OUTCOMES:

On successful completion of the course, students will be able

1. To recognize algebraic structures that arise in matrix algebra, linear algebra.
2. To apply the skills learnt in understanding various such subjects.

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B.Sc. (DATA SCIENCE)

SEMESTER: FOUR

SUBJECT: STATISTICAL INFERENCE

**COURSE OBJECTIVE:**

1. Students can learn about small sample test and large sample test and statistical hypothesis.
2. Non parametric test and central limit theorem.

Unit	Unit Objective	Program Outcomes
1	To know about statistical hypothesis, critical region and test functions.	Students can able to learn different types of statistical hypothesis and types of errors one tail and two tail test by using randomized test students can solve the problems of binomial and poisson and exponential distribution.
2.	To learn about large sample test and standard deviation methods, sample proportion.	By large sample test students can learn about test for single mean and difference of means.
3.	To know about chisquare test and goodness of fit and test for independency.	By using chi square test for specified variance ,goodness of fit a square contingency table with examples.
4.	To know about non parametric test, median test, central limit theorem	In non-parametric test students can know about the advantages and disadvantages. comparison with parametric test ,measurement of scales like nominal and ordinal .

**COURSE OUTCOMES:**

After successful completion of the course, students can

1. Identify the sample data by using statistical methods and hypothesis.
2. rectify the errors.
3. apply chi-square test in real life for square matrix.
4. apply non parametric test in interval and ratio test.



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## SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: FOUR**

**SUBJECT: MACHINE LEARNING**

### COURSE OBJECTIVE:

1. The main objective of this course is to teach the principles and foundations of machine learning algorithms
2. Predicting future values based on past values.

Unit	Unit Objective	Program Outcomes
1	To learn different problems in machine learning in real time applications and algorithms like decision tree and KNN.	Understand the overall the concepts like different learning techniques and binary classifications.
2.	To learn about bio inspired learning like perceptron and some linear models.	To understand training and test data and types of testing as well as perceptron algorithms.
3.	To learn about probabilistic modelling and neural networks like back propagation algorithm.	To recognize Statistical estimation and naive bayes models and breadth vs depth basis functions.
4.	To learn about unsupervised learning and association rules like aprior algorithms.	To acknowledge minimum spanning trees, large items sets and different algorithms.

### COURSE OUTCOMES:

Upon successful completion of course, a student will be able to learn

1. Basics of Machine Learning and its limitations
2. Machine Learning Algorithms: supervised, unsupervised, bio-inspired
3. Probabilistic Modelling and Association Rule Mining



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**SIVA SIVANI DEGREE COLLEGE**

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# SEMESTER V



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To help students Learn the importance of English in today's world</li><li>2. Students can learn and use English correctly.</li><li>3. Students can write reviews and technical reports which are important in business communication.</li><li>4. To make students aware of the current issues happening around them.</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	To Learn the importance of English ,learn Indianism and to learn framing questions.	Students can speak correct English and they can frame questions and question tags on there own.
2	To make students aware of gender sensitization, to learn word analogy and learn grammar.	Students are aware of gender roles and can do word analogy easily and write without making grammatical mistakes .
3	To teach students how they can write book and film review, to teach technical vocabularies and use conditionals effectively	Students can write film and book review, use technical vocabulary and conditionals effectively.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. students become aware of gender sensitization, they can write reviews and can write technical reports and frame questions.</li></ol>		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: SANSKRIT**

<b>COURSE OBJECTIVE:</b>		
To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students		
Unit	Unit-Objective	Program Outcome
1	Learn about Madhuropadeshaha & alankaras	Understand moral values(change from negative attitude to positive attitude) Knowing about Sanskrit alankaras.
2	Learn about Shishyanushasanam & Bhramashakthihi gariyasi	Understand how to live in society with human values. Knowing about power of God
3	Learn about Sanskrita sambhashanam & mahakavi shastrakara vibhagaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist's .
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
<ol style="list-style-type: none"><li>1. Know the culture of India</li><li>2. Know the great ness of Sanskrit language</li><li>3. Know about the importance of ancient scientist's</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: HINDI**

**COURSE OBJECTIVE:**

1. To know about Rajya Basha ,Rasra Basha difference and Basha Ka Mahatavu.
2. To know about different types of Literature.
3. To know about how to communicate with people.

Unit	Unit-Objective	Program Outcome
1	Learn about different types of Basha.	Understand different types of Basha like Rajya Basha, Rastra Basha, Prayojanmulak Hindi.
2	Learn about Hindi Literature and different types of literature.	Understand about Natak,Kavitha,Kahani.
3	Learn about Sanskrita sambhashanam & mahakavi shastrakara vibhagaha	Students Understand about Jansanchka Madhyam

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Know about Rajya Basha, Rastra Basha differences and Basha Mahathav
2. Know the different types of literature.
3. Know about how to communicate with people

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: DATA STRUCTURES AND ALGORITHMS(GE)**

**COURSE OBJECTIVES:**

1. To introduce the time and space complexities of algorithms, to discuss the linear and non-linear data structures and their applications
2. To introduce the creation, insertion and deletion operations on binary search trees and balanced binary search trees
3. Learn and implement the non-linear data structure using graphs
4. To introduce various searching and sorting techniques and their time complexities

Unit	Unit Objective	Program Outcomes
1	To introduce the time and space complexities of algorithms, to discuss the linear and non-linear data structures and their applications	Able to analyze the time and space complexities of algorithms, Able to implement linear data structures using stacks, queues and linked lists
2	To introduce the creation, insertion and deletion operations on binary search trees and balanced binary search trees	Able to implement non-linear data structures by using trees, binary trees, binary search trees and balanced binary trees
3	Learn and implement the non-linear data structure using graphs	Able to implement non-linear data structures by using trees, binary trees, binary search trees and balanced binary trees
4	To introduce various searching and sorting techniques and their time complexities	Able to analyze and implement various kinds of searching and sorting techniques

**COURSE OUTCOMES:**

1. Able to analyze the time and space complexities of algorithms
2. Able to implement linear data structures using stacks, queues and linked lists
3. Able to implement non-linear data structures by using trees, binary trees, binary search trees and balanced binary trees and graphs
4. Able to find a suitable data structure and algorithm to solve a real-world problem
5. Able to analyze and implement various kinds of searching and sorting techniques



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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: LINEAR ALGEBRA**

**COURSE OBJECTIVE:**

1. Scientific temper will be developed in students.
2. Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.
3. Students will become employable; they will be eligible for career opportunities in industry or will be able to opt for entrepreneurship.
4. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Unit	Unit Objective	Program Outcomes
1	To learn about Vector Spaces, Linear Transformations, Linearly Independent Sets; Bases, Coordinate Systems, The Dimension of a Vector Space.	Understand the definition of a vector space, calculate null spaces and recognize their significance. Understand the concept of column spaces of a matrix, linearly independent, basis and dimension of a vector space.
2.	To learn about Rank, Change of Basis, Eigenvalues and Eigenvectors, The Characteristic Equation	Understand the definition of the rank of a matrix. Learn techniques to calculate the rank of a matrix. Understand the significance of eigen values and eigen vectors in linear algebra, relationship between the characteristic equation and eigen values.
3.	To learn about Diagonalization - Eigen vectors and Linear Transformations, Complex Eigen values, Applications to Differential Equations	Recognize the importance of diagonal matrices in certain applications, when diagonalization is not possible and the importance of the complex eigen values. Understand how eigen values and eigen vectors are used in solving linear systems of differential equations.
4.	To learn about Inner Product, Length, and Orthogonality,	Understand the definition of an inner product on a vector space. Explore how orthogonality



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Orthogonal Sets, Orthogonal Projections, The Gram-Schmidt Process.	simplifies computations and analyses. Apply the Gram-Schmidt process to transform a set of linearly independent vectors into an orthogonal set.
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**COURSE OUTCOMES:**

After completion of the course, students will

1. appreciate its interdisciplinary nature.
2. learn, to find Eigen values, Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.
3. learn inner product spaces and Gram-Schmidt process of orthogonalization.
4. get well equipped with mathematical modelling abilities.





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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: FIVE**

**SUBJECT: ANALYTICAL STATISTICS 1**

### COURSE OBJECTIVE:

1. The main objective of this course is to learn different sampling methods and its usage and applicability.
2. To learn control charts for variables and attributes, also calculate quality levels of different products.

Unit	Unit Objective	Program Outcomes
1	To learn the concepts of population and draw the samples by using different types of sampling methods. Stratified random sampling and systematic sampling estimations of means, variances.	On successful completion of the course students will collect the samples of different populations & draw the samples by using different types sampling methods. To understand concepts of sampling methods and efficiencies of different sampling methods.
2.	Time series and components with real life examples. Growth curves their fittings.	To understand and identify the variations of data also expect the future behaviour of long and short term variations.
3.	Importance of SQC and construction of control charts for variables and attributes.	To recognise the good quality levels of different products by using control charts
4.	To understand about ANALYSIS OF VARIANCE(ANOVA)and experimental designs.	To determine the amount of variability in groups of data and also see the variability in greater than between groups than with in groups.to interpret various designs of experiments.

### COURSE OUTCOMES:

On successful completion of course students will learn

1. about concepts to collect the sample and sample size, sampling methods and population and also estimate the variances of random samplings.
2. To know how to apply statistical tools in business and economics by using time series.



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3. Understand concept of control charts and control limits apply the concept using problem solving.  
And ability to design, use and interpret the control charts.
4. To apply in real life situation to know the homogeneity of several groups.



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# SEMESTER VI

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: ENGLISH**

<b>COURSE OBJECTIVE:</b>		
<ol style="list-style-type: none"><li>1. To teach students to use English in right full manner.</li><li>2. To teach vocabulary and different types of sentences.</li><li>3. To teach how one could write CV correctly and use English with out any mistakes .</li></ol>		
<b>Unit</b>	<b>Unit-Objective</b>	<b>Program Outcome</b>
1	Prose is given to teach them the impacts of television and teach them how one can handle failures and imaginations. To teach them one word substitute and relative clauses also.	Student can use television and handle failure and imagination in right manner.
2	To teach student how important suggestions are. To teach them formal and informal vocabulary and learn different types of sentences.	Students understood the importance of suggestions and can use suggestions wisely.
3	To teach how to write CV and learn common errors they commit while writing.	To write CV perfectly and to listen, speak, read and write English properly.
<b>COURSE OUTCOMES:</b>		
<ol style="list-style-type: none"><li>1. Students can listen, speak, read and write English properly with out committing any mistakes.</li><li>2. Students can write CV properly and be aware of few important things in life.</li></ol>		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: SANSKRIT**

<b>COURSE OBJECTIVE:</b>		
1. To promote Vedic knowledge, Sanskrit grammar, knowing about ancient scientist's and improve moral values of the students.		
2. understand patriotism and how to protect the country individually.		
Unit	Unit-Objective	Program Outcome
1	Avanthu Bharatha prjaha swathanthra Bharatha prabham & alarankas .	Students understand patriotism and how to protect the country individually.
2	Dhakara katha & nachikethopakhyanam	Students understand Vedic literature.
3	Mahakavishastrakara vibhagaha & sanskritaha sambhashana abhayasaha	Students Understand about Sanskrit sentence formation and knowing about ancient scientist 's.
<b>COURSE OUTCOMES:</b>		
4. knowing about the Four vadas.		
5. Able to form the sentence in Sanskrit.		
6. Improve patriotism in the students.		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: HINDI**

<b>COURSE OBJECTIVE:</b>		
To know how to translate the language		
Know about history, importance, nature of news papers.		
To know about Rastrya ,dalith ,Adivasi sahithy .		
Unit	Unit-Objective	Program Outcome
1	Learn about Anuvadh.	Understand different types of Anuvad and what are the uses of Anuvad..
2	Learn about Samachar pathru.	Understand about history and types of Samachar pathru..
3	Learn about Srijanjathi ka Sahithy	Students Understand about Nari jagaran.
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to		
1. Know about Anuvadh different types of Anuvdh.		
2. Know the Samachar pathru.		
3. Know about hiindi sahithy ka vibin ayam.		

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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: NO SQL DATABASES**

**COURSE OBJECTIVE:**

1. The main objective of this course is to cover core concepts of NoSQL databases, along with an example database for each of the key-value, document, column family, and graph databases.
2. To study the available systems of non-relational databases in order to obtain a more specific knowledge about the broad range of existing technologies.

Unit	Unit Objective	Program Outcomes
1	Learn fundamental concepts of Non-relational database, advantages of NOSQL database over RDBMS, various databases in NoSQL, designing aggregate models of various NOSQL databases.	Understand the need for NoSQL databases and their characteristics, Designing various NoSQL Databases structures And the concept of clustering.
2.	Learn how the data is distributed using NoSQL databases, to relax consistency, durability. Learn CAP theorem.	Learn about designing data distribution models. Understand Consistency, Durability and how to achieve in NoSQL databases, how data will be filtered using map-reduce
3.	Learn implementation of Key-value Databases using Redis Database software, Document Database using Mongo Database software. Discuss suitable use cases of Key-value and Document databases	Understand the implementation of Key-value and Document database. Design databases and performing CRUD operations using Redis and MongoDB
4	Learn implementation of Column-family Databases using Cassandra software and Graph Database using Neo4j software.	Learn to analyse and implement Column-family and Graph databases. Designing databases and performing CRUD operations using Cassandra and Neo4j.

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**COURSE OUTCOMES:**

1. Understand the need for NoSQL databases and their characteristics
2. Understand the concepts of NoSQL databases
3. Implement the concepts of NoSQL databases using four example databases:
4. Redis for key-value databases, MongoDB for document databases, Cassandra for column-family databases and Neo4J for graph databases.





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**SIVA SIVANI DEGREE COLLEGE**  
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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

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**SUBJECT: ANALYTICSL SOLID GEOMETRY**

**COURSE OBJECTIVE:**

1. Student will acquire basic practical skills and technical knowledge along with domain knowledge of different objects in the science stream.
2. Scientific temper will be developed in students.
3. Student will be is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.

Unit	Unit Objective	Program Outcomes
1	To learn about Sphere, Equations of a Circle, Intersection of a Sphere and a Line, Equation of a Tangent Plane-Angle of Intersection of Two Spheres-Radical Plane	Understand how to find the equation of a sphere that passes through four given points in three-dimensional space, geometric interpretation of the intersection points in three-dimensional space, the angle of intersection between two spheres. Recognize the geometric significance of the radical plane in relation to the spheres.
2	To learn about a Cone-Cone and a Plane through its Vertex - Intersection of a Line with a Cone.	Learn how to determine the curves formed by the intersection of two cones. Understand the geometric properties of the resulting curve and its significance. Understand how to find the points of intersection between a line and a cone. Learn how to express the conditions for intersection mathematically.
3	To learn about The Right Circular Cone-The Cylinder- The Right Circular Cylinder.	Derive and apply the formula for the surface area of a right circular cone. Identify and interpret the parameters that describe a cylinder. Understand the geometric significance of each term in the formula. Understand how changing parameters affects the shape and properties of both solids. Explore practical applications of cones and cylinders in various fields.
4	To learn about The General	Recognize and interpret the terms in the general equation,



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Equation of the Second Degree- Intersection of Line with a Conicoid Plane of contact- Enveloping Cone and Cylinder.	identify and analyze the various forms of conic sections based on the coefficients in the general equation. Understand the conditions for various types of intersections based on the discriminant. Explore the conditions for a cone or cylinder to be an enveloping surface for a given conicoid.
<b>Course Outcomes:</b> <ol style="list-style-type: none"><li>1. Students understand the beautiful interplay between algebra and geometry.</li><li>2. Students learn to describe some of the surfaces by using analytical geometry</li><li>3. Problem solving skills of students are enhanced</li><li>4. To learn to apply the various techniques for solving real life problems.</li></ol>	



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: ANALYTICAL STATISTICS 2**

**COURSE OBJECTIVE:**

- 1.To understand multivariate distribution, regression analysis and logistics regression.
2. Concepts like multivariate data analysis techniques.
3. Calculation of life tables and NRR and GRR.
4. Concepts Indian official statistics and agricultural statics and index numbers.

Unit	Unit Objective	Program Outcomes
1	To learn basic concepts of multivariate distributions and multivariate normal distribution with real life example and also basic concepts of regressions and logistic regressions.	After learning about multivariate distributions, students will expect the future behaviour of statistical data and analyse different components. regression logistic analysis, will recognise average relationship between variables and also identify missing variables which are useful for statistical queries.
2.	To Learn definitions and statements of properties of principle component analysis and factor and cluster analysis with applications and interpretations of multi-dimensional scaling.	After learning the course students will recognize the components and also analyse the data.
3.	To learn definitions of vital statistics with different fertility and death rates also identify population growth.	Students will expect the life time of different persons in the locality through life tables and population growth
4.	Understand the properties of national income, utility and difficulties and also agricultural, area and yield statistics and also concept, limitations of index numbers also identify price, quantity, volume index numbers.	Understand national income, its utility and difficulties, area, yield and agricultural statistics

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**COURSE OUTCOMES:**

On completion of the course, students should be able to:

1. Identify the various index numbers and compute them for data sets
2. Explain the concepts of base shifting, slicing and deflating of index numbers
3. Illustrate the applications of index numbers.



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**B.Sc. (DATA SCIENCE)**

**SEMESTER: SIX**

**SUBJECT: DEEP LEARNING**

**COURSE OBJECTIVE:**

1. The primary objective of deep learning is to enable machines to learn and make intelligent decisions without explicit programming.
2. Deep learning aims to mimic the human brain's neural network structure by using artificial neural networks to recognize patterns, extract features, and make predictions or decisions from data.

Unit	Unit Objective	Program Outcome
1	Learn about Data representations, finding error over a number of data points efficiently. Learn to depict sequential data, such as time series, in which each element represents a data point at a particular time step.	Students understand about Scalars, Vectors, Matrices, Real-world examples of data tensors.
2	Learn to represent multi-dimensional arrays of numerical values and also organizing and manipulating data in neural networks	Students understand about Tensor operations, Element-wise operations, Broadcasting, Tensor dot, Tensor reshaping, Geometric interpretation of tensor operations, A geometric interpretation of deep learning,
3	Students Learn about difference between predicted and actual values and how small changes in parameters impact the overall model performance.	Students understand the concepts like Gradient-based optimization, Neural networks.
4	Students learn models construction and experimentation a high-level, user-friendly interface and efficiently represent and capture data's sequential dependencies.	Students understand the Keras, Recurrent neural networks for data dependencies.

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Understand the basics of deep learning
2. Understand the usage of tensors in deep learning
3. Use Python deep-learning framework Keras, with Tensor-Flow as a backend engine.

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# SEMESTER I



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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. HONOURS (CSE)**

**SEMESTER: ONE**

**SUBJECT: Fundamentals of Information Technology**

<b>COURSE OBJECTIVE:</b>		
1. To learn the basic concepts of computers. 2. To discuss about the computer hardware and software. 3. To introduce networking concept 4. To understand Information Systems and methods to safeguard computers		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	To learn basic concepts of computers ,hardware, software and operating system	Vivid understanding of computer, its components ,importance of O/S and a brief understanding of programming languages.
2.	To learn about peripherals of computer in detail, processor, storage devices and introduction to managing data in different methods.	Able distinguish between different storage devices, their characteristics, functioning of CPU and understand FMS vs DBMS
3.	Understand the concept of networking, LAN, internet and www. Learn different application S/W.	A clear understanding different networks and to be able to work with word processing, spreadsheets and to create presentations.
4.	To learn about IS and security issues.	Understand software development process by SDLC, steps to write a program and measures to protect IS
<b>COURSE OUTCOMES:</b>		
Upon successful completion of course, a student will be able to 1. Identify the components of a computer and their functions. 2. Understand the concept of networking, LAN, Internet and working of www. 3. Use the computer for basic purposes, preparing one's personnel/business letters.		

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# SIVA SIVANI DEGREE COLLEGE

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## B.Sc. HONOURS (CSE)

SEMESTER: ONE

SUBJECT: PROGRAMMING WITH C

<b>COURSE OBJECTIVE:</b>		
1. Learn basic concepts of programming. 2. To develop strong logical and algorithmic thinking skills to solve problems. 3. Emphasizing the importance of writing clean, readable code		
Unit	Unit Objective	Program Outcomes
1	Learn fundamental concepts of computer system, functions, types, generations of computers. I/O Devices, memory and its types. Basics of programming.	Understand clearly basic components of computers and also basic concepts of programming like tokens identifiers data types.
2.	Learn I/O control statements, Arrays and strings.	To be able to format outputs and to write simple programs using control statements and Arrays.
3.	Learn concepts of functions and pointers	Understand modularization by using functions and to access and work with memory by using pointers.
4.	Learn user defined data types structures and unions, working with files.	To be able to create user defined data types and handle large volume of data stored in files.
<b>COURSE OUTCOMES:</b>		
1. Analyse the given problem and develop an algorithm to solve the problem. 2. To use C language constructs in the right way. 3. Design, develop and write programs using C.		



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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

B.Sc. HONOURS (CSE)

SEMESTER: ONE SUBJECT: CALCULUS AND DIFFERENTIAL EQUATIONS

**COURSE OBJECTIVE:**

1. The main aim of the course is to introduce the students to the technique of solving various problems of engineering and science.
2. Distinguish between linear, nonlinear, partial and ordinary differential equations.
3. Solve basic application problems described the second order linear differential equations with constant coefficients.

Unit	Unit Objective	Program Outcomes
1	To learn successive differentiation.	Understand the basic formulae of nth derivative and also Leibnitz's theorem.
2.	To learn about first order and first degree differential equations	learn operators and exact equations and non-exact equations and Bernoulli's equation
3.	To learn about first order but not first degree differential equation.	learn solvable for P,X,Y and clairaut's equation
4.	To learn higher order differential equation	Learn homogenous ,non homogenous with constant and variable coefficients.

**COURSE OUTCOMES:**

Upon successful completion of course, a student will be able to

1. Scientific temper will be developed in students.
- 2 Students will acquire basic practical skills and technical knowledge along with knowledge of different subjects in the science stream.
3. Students possess basic subject knowledge required for higher studies.

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. HONOURS (CSE)**

**SEMESTER:ONE**

**SUBJECT: STATISTICS AND PROBABILITY MODEL**

**COURSE OBJECTIVE:**

1. The primary objectives of this course are to learn different measures of central tendency and to understand mathematical and statistical concepts, different applied theories.
2. Basic concepts of probability and proves of Bayes, Booles theorems with some real life examples.
3. Calculation of moments and discrete and continuous distributions.

Unit	Unit Objective	Program Outcomes
1	To understand measures of central tendency, concepts of dispersion skewness and moments, basic concepts of probability, mathematical, statistical, axiomatic definitions with real life examples.	Students will be able to recognise statistical averages and also analyse the data. To apply in the real life what are changes in getting an event.
2.	Random variables, types of random variables, distribution functions and its properties, bi variate distributions and also properties. Mathematical expectations of a random variable's definitions of MGF, CF, PGF and CGF, Chebyshev's and Cauchy-Schwartz's in equalities and applications	After learning the course students will identify discrete and continuous variables. students should expect the variable values by using some mathematical formulae
3.	To understand definitions, mean, variance, MGF, CGF, CF, PGF and mode of binomial, poisson, geometric, NBD distribution.	Students will identify expected frequencies through some observed values by using different distributions of discrete like binomial, poisson, geometric and NBD distribution and also calculate their properties.
4.	To understand definitions, mean, variance, MGF, CGF, PGF, median, mode of normal, exponential distribution, rectangle, Gamma, Beta distributions	Students can identify expected frequencies through some observed values by using different continuous distributions,

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		by using probability density functions.
<b>COURSE OUTCOMES:</b> After successful completion of this course, students can learn to 1. Calculate the expectation and moments of random variables. 2. Derive various generating functions of random variables such as probability generating function, moment generating functions, characteristic functions, etc. 3. Find out characteristics of random variables like moments from either probability density (mass) functions or the generating functions. 4. Understand the probability distribution of bivariate random variables and the terms marginal distributions, conditional distributions, marginal, joint and conditional moments.		





# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. HONOURS (CSE)**

**SEMESTER: ONE**

**SUBJECT: ENGLISH**

**COURSE OBJECTIVE:**

1. To bring out vibrancies, color and show imagery in Indian poet's work
2. To show towering personalities and display their success stories.
3. To teach empathy towards the unfortunate in society.
4. To learn right pronunciation and grammar.

Unit	Unit Objective	Program Outcomes
1	<p>In the bazaars of Hyderabad ( Sarojini Naidu)</p> <p>Lesson outcome: In the bazaars of Hyderabad, was a part of the Swadesi Movement, an Indian freedom Movement. The poet wanted to deliver the message that the traditional Indian Products made of Pure materials were of very high quality.</p> <p>The Eyes are not here: (Prose)</p> <p>The story is very interesting to read. Ruskin shows important message for all human being. We should always be alert and not to hide our weakness</p>	<p>The poem is all about the diversity and self-sufficiency of an Indian Market in British India.</p> <p>We also learn how others should not treat a handicapped person as a liability but encourage him and bring out the best in him.</p>





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2	<p>“IF” (Poem) by Rudyard Kipling</p> <p>The poem teaches us to overcome obstacles in life. We are all equal and no one is above anyone else. Use your every minute of your time wisely.</p> <p>On Saying Please” (Prose) by A. G. Gardiner</p> <p>This prose deals with socially issues that we across in social life. It explains to us that bad behavior though not punishable is not acceptable.</p>	<p>Programme outcome of the poem “IF” : Always do what is right ,follow your dreams, Be realistic, set goals.</p> <p>The essay shows how using polite words and phrases like ‘please’ and ‘thank you’ can change the course of our day. Bad behavior cannot be aggressive or violent, good behavior can be welcomed</p>
3	<p>Ulysses (Poem)</p> <p>Ulysses: Tennyson states the need of going forward and braving the struggle of life.</p> <p>Seeing People off (Prose);</p> <p>The story tells us about how people behave at railway stations and bus stops.</p>	<p>Programme Outcome:</p> <p>Ulysses declares that it is disgraceful to “store and hoard” himself, sitting safely in one place just to extend his life “[f]or some three suns.”</p> <p>The story also tells us how strangers are taken care off at the station by those who register with the agency in seeing them off at the station</p>
4	<p>On his having arrived at the age of 23 (Poem) by John Milton.</p> <p>Milton dissatisfaction of his young age wasted .</p> <p>Shyness ,My shield (Prose)</p>	<p>Milton accomplishment in the literary field of his literary master piece ‘Paradise Lost’.</p> <p>Shyness, My shield : Programme Outcome</p>



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	Gandhi's habit of not speaking turned out to be a blessing. His inability to speak turned out into a blessing.	Gandhi could not ever speak at meetings. But this inability became a spiritual asset.
<p><b>COURSE OUTCOME:</b></p> <p>Upon Successful completion of course, a student will be able to</p> <ol style="list-style-type: none"><li>1. The student's sensitivity to others' problems is heightened.</li><li>2. Students learn values.</li><li>3. Students enrich vocabulary.</li><li>4. Students enjoy reading memorable stories.</li></ol>		

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# SIVA SIVANI DEGREE COLLEGE

(Affiliated to Osmania University)

**B.Sc. HONOURS (CSE)**

**SEMESTER: ONE**

**SUBJECT: SECOND LANGUAGE (SANSKRIT)**

<b>COURSE OBJECTIVE:</b>		
1.To teach Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah		
2. To impart about Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi		
3.To make them learn Esha dhramaha sanathanaha and Ajantha shabdhaha		
4.To Create awareness on Sandhis and samskutha Sambhashana Abhaysaha		
<b>Unit</b>	<b>Unit Objective</b>	<b>Program Outcomes</b>
1	Mudhabhishekthum varadhathvm arhasi and Himalayo nama nagadhi rajahah	Enable the students to know about Ramayana and Character of Sri Rama and scriptures of Great poet maha kavi Kalidhasas.
2	Dharmabhadho dhuvvarikaha and kruthagne nasthi nishkruthihi	Understand about the greatness of Roughtionous and how to help others in society
3	Esha dhramaha sanathanaha and Ajantha shabdhaha	Know how to use Sanskrit literature Neethi shlokasas and grammar
4	Sandhis and samskutha Sambhashana Abhaysaha	Students able to use Grammar and sentence formation of Sanskrit language.
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Facilitate in learning about the Ramayana, the attributes of Sri Rama, and the writings of the renowned poet Mahakavi Kalidhasas.		



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2. Recognize the virtues of Roughtionous and learn how to be a good neighbor.
3. Understand and use Sanskrit literature Grammar and Neethi shlokasas.
4. competent to create sentences in Sanskrit and apply grammar.

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. HONOURS (CSE)**

**SEMESTER: ONE**

**SUBJECT: HINDI**

**COURSE OBJECTIVE:**

1. To understand basic life lessons, knowledge of grammar and Hindi in literature it can help to students to build the skills of creativity and intellectual ideas and makes them to enrich their career.

Unit	Unit Objective	Program Outcomes
1	To learn what are the qualities required for human being,	Students can understand how to be in society as a good person.
2	To understand how to control human at the time of purchasing.	Students can understand proper utilization of money.
3	To know about historical widow system	What are the problems faced by widows in social and cultural challenges.
4	To learn the concepts of Indian culture	To be aware of civilized communication, beliefs, values, etiquette, and rituals.
5	Learn Indian structure	To acknowledge Indian architectures, is rooted in the history, culture, climatical conditions and religion of India.
6	To understand caste system in Indian in olden days	To learn how low cast people will be treated in olden days and Indian culture.
7	To learn concept of understand humanity nature and helping to their parents.	To understand how to live-in society and how to maintain good relationship with their parents.
8	To learn story about elder aunt(thai)	To learn about how to accept people.

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9	To learn a story about realization towards parents	To acknowledge towards their parents.
10	To learn story about Obedience towards peoples	To learn Obidence to their friend when problem arises how to be in society
11	Understanding about grammer.	To learn grammer part like Singler, plural, vibhakti

### COURSE OUTCOMES:

Upon Successful completion of course, a student will be able to

1. To learn moral of life stories.
2. How-to live-in society as a peron.
3. To lean how to overcome situation when problem arises.

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# SIVA SIVANI DEGREE COLLEGE

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**B.Sc. HONOURS (CSE)**

**SEMESTER: ONE**

**SUBJECT: ENVIRONMENTAL STUDIES**

<b>COURSE OBJECTIVE:</b>		
1. To create awareness about environmental problems among people.		
2. To develop attitude of concern for the environment in the students.		
3. To help students to explore possible solutions of environmental problems.		
Unit	Unit Objective	Program Outcomes
1	To create awareness about environment and ecosystem	Able to know the importance of Ecosystem, Bio Diversity and Natural Resources
2	To develop the concern about pollution and global issues.	Can analyse the impacts of environment pollution and Global issues
<b>COURSE OUTCOMES:</b>		
Upon Successful completion of course, a student will be able to		
1. Understand the transactional character of the environmental problems and ways of addressing them, including the interaction across local and global scales.		
2. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.		
3. Understand the importance of sustainable development and modern approaches that enable humans to protect the environment		

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