

**JDMVP CO. SAMAJ'S SHRI S.S. PATIL ARTS, SHRI BHAUSAHEB T.T. SALUNKHE COMMERCE AND SHRI G.R. PANDIT SCIENCE  
COLLEGE JALGAON**

**Program Outcomes 2018- 2019**

<p>Jalgaon District Maratha Vidya Prasarak Co- Operative Samaj's <b>Shri. S.S. Patil Arts, Shri.</b></p>	<p><b>FY.B.A</b> Semester: 1<sup>st</sup>&amp; 2<sup>nd</sup></p>	<p>ECO-G-101- a):<b>Principle of Micro Economics I &amp; II</b></p>	<ol style="list-style-type: none"> <li>1. Understand the fundamentals of microeconomics</li> <li>2. Get an introduction to supply and demand and the basic forces that determine equilibrium in a market economy</li> <li>3. Get introduced to the framework for learning about consumer behavior and analyzing consumer decisions</li> <li>4. To solve basic microeconomic problems</li> </ol>
<p><b>Bhauasaheb T.T. Salunkhe Commerce and Shri. G.R. Pandit Science College, Jalgaon (Nutan Maratha College)</b></p>	<p><b>SY.B.A.</b> Semester: 3<sup>rd</sup>&amp; 4<sup>th</sup></p>	<p>DSC Eco 231 C &amp; DSC Eco 241 D Paper title: <b>Indian Economy Since 1980-I&amp;II</b></p>	<p>On completion of the course, students are able to</p> <ol style="list-style-type: none"> <li>1. To able to understand nature of Indian economy</li> <li>2. To able to understand population &amp; economic development</li> <li>3. To able to understand infrastructure and economic development</li> <li>4. To able to understand role of agriculture in Indian economy</li> </ol>
<p><b><u>Outcomes - Department Of Economics</u></b>  ❖ <b>Class wise Subjects Objectives and</b></p>		<p>1. Paper course no. DSE Eco 232 A &amp; DSE Eco 242 B 2. Paper title: <b>Agricultural Economics – I&amp;II</b></p>	<p>On completion of the course students would be able to:</p> <ol style="list-style-type: none"> <li>1. To able to understand economics of agriculture</li> <li>2. To able to understand Indian agriculture sector</li> <li>3. To able to understand agricultural prices, marketing &amp; subsidies in India</li> </ol>

**Outcome :-**

1. Paper course  
no. DSE Eco

On completion of the course, students are able to:

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College)

2019-20

**Subject Outcomes**

composition and structure of atmosphere, hydrosphere, etc.

- Differentiate between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.
- Get information about the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc.

Department of  
Geography

**2. Skill outcomes:**

PROGRAM  
OUTCOME after  
completing B.A.  
Programmed in  
Geography,  
students will be  
able to

- Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques.
- Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems.
- Construct various types of projections and scales as per requirement of the study.
- Collect primary and secondary data in the field.
- Apply various statistical formulas to analyses data.
- Use cartographic techniques with the help of simple software techniques like MS Excel.
- Handle topographical and weather maps and interpret them.
- Identify types of rocks.

**1. Knowledge outcomes:**

**• Know about Geographical Information System (GIS) and Remote Sensing (RS)**

• Demonstrate knowledge of physical and cultural features of the earth and locate them on a map.  
• Know about the basic disciplines of Geography and its sub branches.  
• Know the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters,

**PROGRAM SPECIFIC OUTCOME**

- Students learn about formation of landforms and identify various landforms around them.
- Students learn about various economic activities of man and their spatial temporal distribution.
- Students acquire knowledge of basic surveying and map making.
- Students know about disasters, their causes and managing disasters.
- Students come to know about geographical, socio-economic and political background of India.
- Students apply geographical knowledge in their day to day life like being alert about disasters, weather and climate data,

**COURSE OUTCOME**

Sr. No.	Class	Subject		<ul style="list-style-type: none"> <li>• Brings direct interaction of different types of surveying</li> <li>• Interpret geological and weather maps.</li> </ul>
<u>01</u>	FYBA Sem.- I	Gg. 101	Demonstrate knowledge of physical and cultural features	<ul style="list-style-type: none"> <li>• Learn the usages of survey instruments.</li> <li>• Brings direct interaction of different types of surveying</li> </ul>
		<u>04</u> PHYSICAL GEOGRAPHY: PART- I (Lithosphere)	<p>DSC-C (Gg. 231): HUMAN GEOGRAPHY</p> <p>Describe each and locate them on a map. HUMAN GEOGRAPHY</p> <ul style="list-style-type: none"> <li>• Know the basic concepts and terminology of Geography like interior of the earth, plate tectonic, sea floor spreading, composition and structure of atmosphere, hydrosphere etc.</li> </ul>	<p>• Acquire and understand the history and evolution of the earth, plate tectonic, sea floor spreading, population and growth, climatic processes of Human Geography, atmosphere, hydrosphere, patterns of habitat and adaptations.</p> <ul style="list-style-type: none"> <li>• Develop an idea about space and society</li> </ul>
<u>02</u>	Sem.- II	Gg. 201	<p>Gg. 201 (SEC 1) Regional Planning and Development</p> <p>Understand and identify regions as an integral part of development and</p>	<ul style="list-style-type: none"> <li>• Understand and identify regions as an integral part of development and</li> </ul>
		<u>05</u> PHYSICAL GEOGRAPHY: PART- II (Atmosphere Hydrosphere)	<p>Regional Planning and Development</p> <ul style="list-style-type: none"> <li>• Know the basic concepts and terminology of Geography like interior of the earth, plate tectonic, sea floor spreading, composition and structure of atmosphere, hydrosphere etc.</li> <li>• Ability to record temperature, pressure, humidity and rainfall</li> <li>• Develop the skills of identification of features</li> </ul>	<p>an integral part of development and</p> <ul style="list-style-type: none"> <li>• Analyzing the concept of regionalization.</li> <li>• Studying typical physiographic, planning, arid and biotic regions of India. Understanding the detailed geography of India.</li> </ul>
		<u>06</u> Sem.- IV	<p>Gg. 244 (SEC 2) Sem. IV Remote Sensing and GPS Based Project Report</p> <p>Have knowledge of the principles of remote sensing, sensor resolutions and image referencing schemes.</p>	<ul style="list-style-type: none"> <li>• Interpret satellite imagery and understand the preparation of false color composites from them.</li> <li>• Training in the use Geographic Information System (GIS) software for contemporary mapping skills.</li> <li>• Analyzing and interpreting remotely sensed satellite imagery and kinds of photographs in order to understand topographical and cultural variations on the Earth's surface.</li> <li>• Conducting field excursions and preparation of field report on the research problem in different areas of India</li> <li>• Learn the usages of GIS to the preparation of thematic maps.</li> </ul>
<u>03</u>	SYBA Sem.- III	DSC-C (Gg.231): GENERAL CARTOGRAPHY	<p>Sem. IV Remote Sensing and GPS Based Project Report</p> <p>Understand and prepare different kinds of topographical maps.</p> <ul style="list-style-type: none"> <li>• Recognize basic topographical maps.</li> <li>• Development of observation skills.</li> <li>• Interpret geological and weather maps.</li> <li>• Learn the usages of GIS to the preparation of thematic maps.</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret satellite imagery and understand the preparation of false color composites from them.</li> <li>• Training in the use Geographic Information System (GIS) software for contemporary mapping skills.</li> <li>• Analyzing and interpreting remotely sensed satellite imagery and kinds of photographs in order to understand topographical and cultural variations on the Earth's surface.</li> <li>• Conducting field excursions and preparation of field report on the research problem in different areas of India</li> <li>• Learn the usages of GIS to the preparation of thematic maps.</li> </ul>

07	SYBA Sem.- III	Gg. 232 (DSE 1 A): GEOGRAPHY OF TOURISM	<ul style="list-style-type: none"> <li>• Learn Scope and Arguments and approaches pertinent to exploring recreation and leisure environment and resource management problems.</li> <li>• Factors influencing tourism, Types of Tourism: Ecotourism, cultural tourism, pilgrimage, inteculture</li> <li>• Collect and analyze different sources of data to inform and drive management policies and strategies</li> <li>• Use of information on factors (Historical, natural, socio-cultural and economic; motivating factors for pilgrimages) DSC plan to understand the scope and content of tourism</li> <li>• From the development of tourism in cultural geography in relation to the development of tourism in cultural geography</li> <li>• Increasing Global tourism diffusion in different regions infrastructure, access, Developing for different budgets of cultural segregation and case study sites of Western Himalayas, technology and development</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and evaluate diverse sources of knowledge, Arguments and approaches pertinent to exploring recreation and leisure environment and resource management problems.</li> <li>• Collect and analyze different sources of data to inform and drive management policies and strategies</li> </ul>
		10 Sem.- VI	<ul style="list-style-type: none"> <li>• Understand the concept of cultural hearth and realm, tourism diffusion in different regions</li> <li>• Increasing Global tourism diffusion in different regions infrastructure, access, Developing for different budgets of cultural segregation and case study sites of Western Himalayas, technology and development</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the concept of cultural hearth and realm, tourism diffusion in different regions</li> </ul>
08	Sem.- IV	Gg. 242 (DSE 1 B): GEOGRAPHY OF INDIA	<ul style="list-style-type: none"> <li>• The central location of India is considered of great significance as it helps India to keep a low cost of India business purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Learn about the various races and racial groups of the world</li> <li>• Identify the cultural regions of India</li> </ul>
		11 TYBA Sem.- V	<ul style="list-style-type: none"> <li>• Understand the concept of economic activity, factors with West Asia, Africa and Europe from economic activity. Gain knowledge and Southeast and East Asia from the past of Economic activities</li> <li>• Learn Global initiatives to analyze the factors of mitigation of agriculture and Kyoto Protocol, climate change, clean development mechanism, COP, climate fund</li> <li>• Understand the evolution of varied types of economic activities.</li> <li>• Analysis of trends of temperatures interpret data on production, economic indices,</li> <li>• Analyze the rainfall transpiration of air and flow of climatic regions of India.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess the significance of Economic Geography, the concept of economic man and theories of choice.</li> <li>• Analyze the factors of mitigation of agriculture and climate change, clean development mechanism, COP, climate fund</li> <li>• Understand the evolution of varied types of economic activities.</li> <li>• Interpret data on production, economic indices, transpiration of air and flow of climatic regions of India.</li> </ul>
09	TYBA Sem.- V	SEM. V (DSC 1E) Gg. 351- Environmental Geography	SEM. VI - (DSE 3B) Gg. 362 – Political Geography and relationship between decision making processes that impact flows, interactions and exchanges at different scales	<ul style="list-style-type: none"> <li>• Analyze the urban morphology models of Burgess, Hoyt, Harris and Ullman</li> <li>• Differentiate between city region and conurbation</li> <li>• Analyze the functional classification of cities</li> <li>• Develop the skill of mapping language distribution of India</li> </ul>

				<ul style="list-style-type: none"> <li>Learn to plot proportionate squares to understand the importance of the distribution</li> <li>acquire the skill of identifying rural settlement types</li> </ul>	<ul style="list-style-type: none"> <li>Understand how atmospheric pressure and winds work</li> <li>Understand how atmospheric moisture works</li> </ul>
		15	TYBA SEM- V	Gg. 354 (SEI) Physical sheet Field Understanding and Shukry and Bell to Project Report.	<ul style="list-style-type: none"> <li>Understand the difference city based techniques.</li> <li>Knowledge about the preparation of layout.</li> </ul>
13	TYBA Sem.- V	Gg. 353 (DSE 4A)	Practical in Human Geography and Geo-Statistics.	<ul style="list-style-type: none"> <li>To Introduce the students with SO Toposheets and to acquire the knowledge of Toposheets Reading/Interpretation.</li> <li>To familiarize the students with the use of Dumpy level instruments and their applications in Geographical phenomena III.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the socio-economic condition of the students.</li> <li>Acquire knowledge of preparation of drawing of profile with the help of Dumpy level instruments</li> </ul>
		16	Sem.- VI	Gg. 364 (SEI) Geographical knowledge Interpretation System	<ul style="list-style-type: none"> <li>Have knowledge of the principles of remote sensing, sensor resolutions and image referencing schemes.</li> <li>Interpret satellite statistics and understand the essential part of geography.</li> <li>Training in the use Geographic Information System (GIS) and font categories of mapping skills.</li> <li>Analyzing and interpreting remotely sensed satellite images and models of Burgess, Hoyt, Harris and Ullman.</li> <li>Topographical and cultural variations on the Earth's surface.</li> <li>Classification of cities</li> <li>Develop the skill of mapping large scale distribution and preparation of field report on research on problem in different areas of India</li> <li>Apply GIS to the preparation of thematic maps.</li> <li>Use of GNSS.</li> </ul>
14	Sem.- VI	Gg. 363 (DSE 4B)	Practical TYBA Physical Geography - V	Gg. 355 (SEI) Different atmospheric conditions to associate climate with different human issues. Approach for climate classification.	<ul style="list-style-type: none"> <li>Capacity of integrate knowledge and manage the different public health aspects of disaster reduction to associate climate with local and global level and even when limited human issues.</li> <li>Approach for climate classification</li> <li>Capacity to describe, analyze and social, cultural, global climate. Assessing the role of organizational aspects influencing climate change.</li> <li>Assessing the role of organizational vulnerabilities and capacities to face disasters.</li> <li>Capacity in the processes of them.</li> <li>disaster management (disaster risk reduction, response, and meteorological and their interconnections,</li> <li>Learn the interaction between the field of Public Health Aspects of</li> </ul>

		the disasters. <ul style="list-style-type: none"> <li>• Capacity to manage the Public Health Aspects of the disasters.</li> <li>• Capacity to obtain, analyze, and communicate information on risks, relief needs and lessons learned from earlier disasters in order to formulate strategies for mitigation in future scenarios with the ability to clearly present and discuss their conclusions and the knowledge and arguments behind them.</li> </ul>
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SEM-VI	Gg. 365 (GE 1B): SUSTAINABILITY AND DEVELOPMENT	•It brings to attention the Students about the issues which surround Sustainable Development, including its Principles, Processes and Concepts, its Deciding factors, and Potentials it holds.
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Sr. No.	CLASS	PAPER NO. MDGS.	PAPER TITLE	LEARNING OUTCOME
1.	FYBA Sem.- I & II	• Students will get the information and Importance of the GBCS-Core Course:-DEF-101-A & DEF-201-A	Indian Art. of war-I & II	1 The students will immediately connect to the understanding of the course connect because they have introduced with the content at primary level up to their XII th class. 2. The strengthening will help in surrendering the psychological barriers on the part of the students. 3. This newly emerged confidence will also nurture their ability of suing Defence and Strategic Studies .
02.	SYBA Sem.- III & IV	CBCS CORE-DSC-DEF-C 231 & 241 (G2)	Indias National Security – I & II	1. Equip the student with specific knowlwdge of indias threat perceptions. 2. An assessment at both internal and external level beside fair idea of problem the country face as nation state.

**JDMVPS CO OP  
SAMAJS SHRI  
S.S.PATIL  
ARTS,SHRI  
BHAUSAHEB  
T.T.SALUNKHE  
COMMERCE &  
SHRI.G.R.PANDIT  
SCIENCE,  
  
(NUTAN  
MARATHA)COLLE  
GE,JALGAON.  
  
DEPARTMENT OF  
DEFENCE AND  
STRATEGIC  
STUDIES  
  
YEAR 2019-20**

3	SYBA Sem.- III & IV	DSE-DEF-A-232 &DSE-DEF-B- 242 ( S 1)	Contemporary Warfare I & II	1. Student will have a detailed understanding of all types of war and their tactics, nature,scope,and types. 2.Grasp the concept and theories of nuclear war in detail. 3.Clearly understand basic concept of war.
4	SYBA Sem.- III & IV	DSE-DEF-A- 233 &DSE-DEF-B- 243	Defence Mechanism and Organization of India.-I & II	1. Know the higher defence organization of India. 2.Learn about the Defence mechanism of India and evaluate its strength and weekness.
5	SYBA Sem.- III & IV	SEC-DEF-234 (Sem-III) & SEC- DEF-244	Rsearch methodology Defence and strategic studies	1. Learn the basic step and principle of reserch methodology in Defence and Strategic studies. 2.Learn the research related caterogy and sources how to access them.
6	T.Y.B.A. SEM- V & VI	DSC-DEF-E-351 & F-361 (G-3)	International securtiy Issues -I & II	1.Student will learn about international security issues and world peace. 2.student will learn about the enviromental condition and problem of the entire world. 3.student learn about the anylasis and evolutions of international security issues.
7	T.Y.B.A. SEM- V & VI	DSE-DEF-C-352 & D-362 (S-3)	Contemporary study of war & peace- I & II	1.Student will be understand the contemporary war and its fuction. 2.student will know the importance of Detant and its nature. 3.Student will also acquire knowledge of Deterrence and balance of power inworld peace.
8	T.Y.B.A. SEM- V & VI	DSE-DEF-C-353 &D- 363 (S-4 )	Geostrategy and Military Geography	1.after compliting this syllabus student will learn to the concepts and relevant attributes of Geo - politics and military geography for national security.



Semester	Code & Title of Paper	Objectives	Outcomes	
I	ST - 101: Descriptive Statistics - I	❖ Basic concepts of Statistics, ungrouped and grouped data, Role of statistics in Science, Society, and for National Development, Descriptive	❖ Computation of various measures of central tendency and dispersion for ungrouped and grouped data. After successful completion of this course, students are expected to: ❖ Acquire knowledge of statistics and its scope and importance in various	
		ST - 201: Descriptive Statistics - II	❖ To acquaint students with basic statistics. concepts of correlation and theory of attributes, skewness and kurtosis, measures of inequality.	❖ After successful completion of this course, the students are expected to: ❖ Knowledge of correlation and regression analysis ❖ Knowledge of other types of data reflecting qualitative characteristics including concepts of independence and association between two attributes.
		ST - 202: Probability and probability Distributions-II	❖ To acquaint students with basic concepts of mathematical expectation for univariate and bivariate random variable and various standard probability distributions such as discrete uniform, Bernoulli and hypergeometric.	❖ After successful completion of this course, the students are expected to: ❖ Knowledge of important discrete probability distributions such as discrete uniform, Bernoulli, Binomial and hypergeometric.
	ST - 102: Probability and probability Distributions-I	❖ To learn basic concepts of probability, conditional probability	❖ Concepts of independence, probability distribution of a discrete random variable.	❖ After successful completion of this course, the students are expected to: ❖ Acquire ability to distinguish
		ST - 203: Statistics Practical's-II	❖ Drawing of scatter diagram for bivariate data and computation of correlation coefficient. ❖ Fitting of lines of regression and exponential curve and binomial distribution. ❖ Fitting of binomial distribution.	❖ After successful completion of this course, the students are expected to: ❖ Knowledge related to probability distributions introduced in this course.
		ST - 103: Statistics Practical's-I	❖ Introduction of MS-EXCEL software. ❖ Introduction to various sampling schemes such as simple, stratified and systematic sampling. ❖ Graphical representation of statistical data: Histogram, Simple bar diagram, Multiple bar diagram.	❖ This course is based on ST-101 and ST-102 and will provide practical knowledge to the students on various concepts elaborated in these two courses. The learning outcomes will be similar to ST-101 and ST-102. Standard software package namely MS-EXCEL is introduced and used in the practical course.

			<p><b>Statistics Department (S.Y.B.Sc, CBCS 2019-20) Objectives &amp; Outcomes</b></p>
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Semester	Code & Title of Paper	Objectives	Outcomes
III	ST - 301: Probability Distributions-I	<ul style="list-style-type: none"> <li>❖ To introduce some continuous probability distributions which are highly useful in modeling real life uncertain issues.</li> </ul>	<p><u>After successful completion of this course, students are expected to:</u></p> <ul style="list-style-type: none"> <li>❖ Acquire knowledge related to continuous random variables and their probability distributions including expectation and higher order moments.</li> <li>❖ Knowledge of important continuous distributions such as normal, exponential and Gamma.</li> <li>❖ Acumen to apply standard continuous probability distributions to different situations.</li> <li>❖ Ability to handle transformed random variables and derived associated distributions.</li> <li>❖ Ability to use and interpret Normal probability.</li> </ul>
	ST - 302: Statistical Methods-I	<ul style="list-style-type: none"> <li>❖ To learn some common and simple concepts of applied statistics which will be useful to them while analyzing data sets obtained from different scientific experiments.</li> </ul>	<p><u>After successful completion of this course, the students are expected to:</u></p> <ul style="list-style-type: none"> <li>❖ Demonstrate theory in multiple regression model, time series and statistical process control.</li> <li>❖ Know the basic concepts of statistical process control such as control chart for variables and attributes.</li> <li>❖ Able to draw control chart for variables and attributes.</li> <li>❖ Ability to check whether the given process is under statistical control using different criteria.</li> <li>❖ Know about time series data, its application to various fields.</li> <li>❖ Understand the different components and models of time series.</li> <li>❖ Understand different methods for measurement of trend and seasonal variations.</li> <li>❖ Know about fitting of trend by Least square method and Moving Average method.</li> </ul>
	ST - 303: Statistics Practical-III	<ul style="list-style-type: none"> <li>❖ To apply normal distribution in real life situations.</li> <li>❖ To obtain model sample from normal distribution.</li> <li>❖ To fit regression equation, to compute and interpret multiple and partial correlation coefficient.</li> <li>❖ To construct and interpret control charts for quality control purposes.</li> <li>❖ To determine trend values and seasonal indices for the given time series data.</li> </ul>	<ul style="list-style-type: none"> <li>● This course is based on ST-301 and ST-302 and will provide practical knowledge to the students on various concepts elaborated in these two courses. The learning outcomes will be similar to ST-301 and ST-302. All standard software packages namely EXCEL, R are introduced and also used in the practical course.</li> </ul>

	<b>ST 304 SEC- I: Statistical data Analysis using R</b> (Skill Enhancement)	To acquaint students with basic concepts in R programming such as basics of R, operators in R, working with data objects and using functions and graphics.	<u>After successful completion of this course, the students are expected to:</u> <ul style="list-style-type: none"> <li>❖ R programming with some basic notions for developing their own simple programs and visualizing some graphics in R.</li> <li>❖</li> </ul>
IV	<b>ST - 401: Probability Distributions-II</b>	<ul style="list-style-type: none"> <li>❖ To acquaint students with basic concepts bivariate continuous probability distribution, Chi-square, Student's t and Snedecor's F distributions and their interrelationships.</li> </ul>	After successful completion of this course, the students are expected to: <ul style="list-style-type: none"> <li>❖ Knowledge of bivariate continuous probability distribution, their associated distributions, characteristics, marginal and conditional distribution.</li> <li>❖ Knowledge of important continuous distributions such as Beta distribution of first and second kind, Chi-square, Student's t and Snedecor's F distributions.</li> </ul>
	<b>ST - 402: Statistical Methods-II</b>	<ul style="list-style-type: none"> <li>❖ To acquaint students with basic concepts sampling distributions, testing of hypotheses, large sample tests and small sample tests.</li> </ul>	<u>After successful completion of this course, the students are expected to:</u> <ul style="list-style-type: none"> <li>❖ Acquire concept of random sample from a distribution, sampling distribution of a statistic, standard error of important estimates such as mean and proportions.</li> <li>❖ Knowledge about tests of hypotheses and associated concepts.</li> <li>❖ Acquaint with various basic concepts on sampling distributions and large sample tests based on normal distribution.</li> <li>❖ Acquaint with small sample tests based on Chi-square, Student's t and Snedecor's F distributions.</li> </ul>
	<b>ST - 403: Statistics Practical-IV</b>	<ul style="list-style-type: none"> <li>❖ To apply large and small sample tests in real life situations.</li> <li>❖ To sketch pdf and cdf of different distributions.</li> </ul>	<ul style="list-style-type: none"> <li>● This course is based on ST-401 and ST-402 and will provide practical knowledge to the students on various concepts elaborated in these two courses. The learning outcomes will similar to ST-401 and ST-402. All standard software packages namely EXCEL, R are introduced and also used in the practical course.</li> </ul>
	<b>ST - 404: SEC-II: Applied Statistics</b> (Skill Enhancement)	<ul style="list-style-type: none"> <li>❖ To acquaint students with basic concepts related to Index numbers (INs) such as meaning, utility, limitations, weighted and unweighted INs, Fixed and chain based Index numbers, various types of Index numbers, testing for adequacy of INs.</li> <li>❖ To acquaint students with basic concepts of vital Statistics.</li> </ul>	<u>After successful completion of this course students are expected to:</u> <ul style="list-style-type: none"> <li>❖ Expose to computation of different types of Index numbers, consumer price index number.</li> <li>❖ Get ideas about commonly used measures of Demography pertaining to its three basic aspects viz. the fertility, mortality</li> </ul>

			and migration. ❖ Real data implementation of various demographic concepts through numerical examples.
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# **JDMVPS's Arts, Science and Commerce College, Jalgaon**

## **Department of Mathematics**

### **Course Outcomes**

#### **F. Y. B. Sc.**

##### **I. MTH- 101 Matrix Algebra**

**Course outcomes:**

- Understand concepts on matrix operations and rank of the matrix.
- Understand use of matrix for solving the system of linear equations.
- Understand basic knowledge of the eigen values and eigen vectors.
- Apply Cayley-Hamilton theorem to find the inverse of the matrix.
- Know the matrix transformation and its applications in rotation, reflection, translation

**II. MTH-102 Calculus of Single Variable**

**Course outcomes:**

- Understand basic concepts on limits and continuity.
- Understand use of differentiations in various theorems.
- Know the Mean value theorems and its applications.
- Make the applications of Taylor's, Maclaurin's theorem.
- Know the applications of calculus

**III. MTH-103(B) Discrete Mathematics**

**Course outcomes:**

- Students are able to understand the concepts of relations.
- Know about coding and decoding.
- Understand mathematical logic, Boolean algebra.

**IV. MTH 201 Ordinary Differential Equations**

**Course outcomes:**

- Understand basic concepts in differential equations.
- Understand method of solving differential equations.
- Understand use of differential equations in various fields.

**V. MTH 202 Theory of Equations**

**Course outcomes:**

- Students can find out roots of any equation of degree less than or equal to five.
- Theory of equations is highly useful in various subjects like algebra, linear algebra, calculus, ordinary and partial differential equations etc.

**VI. MTH 203(A) Laplace Transforms**

**Course outcomes:**

- Know about piecewise continuous functions, Dirac delta function, Laplace transform and its properties.
- Know about Unit step, Periodic, Error, Gamma and Null functions.
- Understand Laplace and Inverse Laplace transforms.
- Know the basic properties of Laplace and inverse Laplace transforms.
- Calculate the Laplace transform of basic functions using the definition.
- Find the Laplace transform of derivatives of functions.

- Compute inverse Laplace transforms.
- Solve ordinary differential equations using Laplace transforms

## **JDMVPS's Arts, Science and Commerce College, Jalgaon**

### **Department of Mathematics**

#### **Course Outcomes**

##### **S. Y. B. Sc.**

##### **I. MTH- 301 Calculus of Several Variables**

###### **Course outcomes:**

- Understand limit and continuity of functions of several variables.
- Know fundamental concepts of multivariable Calculus.
- Understand series expansion of functions.

- Understand extreme points of function and their maximum, minimum values at those points.
- Know meaning of definite integral as limit as sums.
- solve double and triple integration and use them to find area by double integration and volume by triple integration.

## II. MTH-302 Algebra

### Course outcomes:

- understand group and their types which is one of the building blocks of pure and applied mathematics.
- understand Lagrange, Euler and Fermat theorem.
- understand concept of automorphism of groups.
- understand concepts of homomorphism and isomorphism.
- understand basic properties of rings and their types such as integral domain and field.

## III. MTH-304 Set Theory and Logic

### Course outcomes:

- Uses of the language of set theory.
- understand the issues associated with different types of finite and infinite sets
- Understand knowledge of the concepts and methods of mathematical logic, set theory, relation calculus, and concepts concerning functions.
- understanding the role of propositional and predicate calculus.
- able to provide the logical mathematical reasoning, formulate theorems and definitions

## IV. MTH-401 Complex Variables

### Course outcomes:

- introduce the theory for functions of complex variables.
- understand the concept of analytic function.
- understand the Cauchy Riemann Equations.
- understand harmonic functions.
- understand complex integrations.
- understand calculus of residues.
- acquire the skill of contour integrations.

## V. MTH-402(A) Differential Equations

### Course outcomes:

- aware of formation of differential equations and their solutions.
- understand the concept of Lipschitz condition.
- understand method of variation of parameters for second order L.D.E.
- understand simultaneous linear differential equations and method of their solutions.
- understand Pfaffian differential equations and method of their solutions.
- understand difference equations and their solutions.

## VI. MTH-404 Vector Calculus



**Course outcomes:**

- understand scalar and vector products.
- understand vector valued functions and their limits and continuity
- calculate the curl and divergence of a vector field.
- evaluate line integrals of functions along curves.

**JDMVPS's Arts, Science and Commerce College, Jalgaon**

**Department of Mathematics**

Course Outcomes

**T. Y. B. Sc.**

**I. MTH- 501 Metric Spaces**

**Course outcomes:**

- Understand the Euclidean distance function and its properties, and state and use the Triangle and Reverse Triangle Inequalities for the Euclidean distance function.
- Explain the geometric meaning of each of the metric space properties and be able to verify whether a given distance function is a metric.
- Distinguish between open and closed balls in a metric space and be able to determine them for given metric spaces.
- Define convergence for sequences in a metric space and determine whether a given sequence in a metric space converges.
- State the definition of continuity of a function between two metric spaces.

**II. MTH-502 Real Analysis-I**

**Course outcomes:**

- Understand the structure of Riemann Integration.
- Represent lattice in diagrammatic form.
- Understand the Improper integrals with finite limit and infinite limit their properties.
- Learn the concepts of Beta and Gamma Integrals.

**III. MTH-503 Algebra**

**Course outcomes:**

- know the use Permutation Groups.
- know normal Subgroups and group isomorphisms.
- Know Ideals in rings, Quotient Rings and Isomorphism of Rings.
- Know polynomial Rings and irreducibility of polynomials.

**IV. MTH-504 Lattice Theory**

**Course outcomes:**

- Understand the structure of poset and lattice.
- Represent lattice in diagrammatic form.
- Understand the terms Maximal element, Minimal element, Greatest element, Least elements.
- Learn the concepts of ideals and their properties.
- Learn the concepts of homomorphism.
- Understand modular and distributive lattice and their inter-relation.
- Understand complemented and relatively complemented lattice.

**V. MTH-505 Integral Transforms**

**Course outcomes:**

- Know the use of Fourier transform in Wave equation.
- Solve Boundary Value Problems, also problem on Heat-flow in semi-infinite bar.
- use Fourier transform for solving partial differential equations for problems on gravity.
- able to use Z-transform

**VI. MTH-506(B) Number Theory**

**Course outcomes:**

- solve Diophantine equations.
- use Fermat's theorem, Euler's theorem and Wilson's theorem for finding remainders.
- understand perfect, Mersenne and Fermat's numbers.
- understand Fibonacci sequence.
- solve Diophantine equations by using finite continued fractions.

**VII. MTH-601 Measure Theory**

**Course outcomes:**

- Learn measurable sets.
- Learn the concept of Sets of measure zero.
- Show that certain functions are measurable.
- Understand properties of the Lebesgue integrals.

**VIII. MTH-602 Real Analysis-II**

**Course outcomes:**

- solve Convergence and divergence.
- use Test for absolute convergence.
- understand Fourier series for even and odd functions.

- understand Sine and cosine series in half range.

#### **IX. MTH-603 Linear Algebra**

##### **Course outcomes:**

- solve Rank and nullity theorem.
- use Cayley Hamilton theorem, Euler's theorem and finding Eigen values and Eigen vectors of linear transformation.
- understand Kernel and image of linear transformations.
- understand Singular and non-singular linear transformations.

#### **X. MTH-604 Ordinary and Partial Differential Equations**

##### **Course outcomes:**

- Know the exact differential equation and its solution.
- Solve the exact differential equations by using integrating factor.
- Solve the linear differential equation of second order by using various methods.

#### **XI. MTH-605 Graph Theory**

##### **Course outcomes:**

- Understanding graphs, types of graphs, operations on graphs.
- Understand complement of graphs, isomorphism of graphs.
- Connected and disconnected graph.
- Understand Eulerian and Hamiltonian graphs.
- Understanding a concept of Cut set and cut vertices.
- Understand planar graphs and applications of graphs.
- Matrix representation of graphs.

#### **XII. MTH-606(B) Operations Research**

##### **Course outcomes:**

- solve the linear programming problem by graphical method and simplex method.
- learn the unbounded, alternative and infeasible solutions of LPP by graphical and simplex method.
- understand the standard and canonical form of LPP.
- find the optimal solution of TP by MODI method.
- solve the solution of assignment problems by Hungarian Method.
- Understand the unbalanced, balanced, maximization, restricted AP and alternative solution of AP.
- understand the saddle point, maximin-minimax principal, two persons zero sum game.
- use of dominance property to find the solution games.

**(NUTAN MARATHA) COLLEGE, JALGAON.**  
**DEPARTMENT OF COMMERCE**  
**YEAR 2019-2020 F.Y.B.COM**

**SEM – I & II**

	<b>CLASS</b>	<b>PAPER NO.</b>	<b>PAPER TITLE</b>	<b>LEARNING OUTCOME</b>
1.	F.Y.B.COM SEM-I & II	104 & 204	<b>Financial Accounting and Costing</b>	<p>1) Foundation became strong of students of the Accounting Standards issued by the ICAI.</p> <p>2) Students able to solve problems relating to settlement of obligations on dissolution of partnership firm and also relating to their business combinations</p> <p>3) Students knew about the concepts used in Cost Accounting, elements of costs and the concept of cost sheet.</p> <p>4) Foundation of students became strong of the recording of financial transactions concerning specialized area related to non-corporate entities and for preparing the related accounts or statements.</p> <p>5) Foundation became strong of financial statements from incomplete record.</p> <p>6) Foundation became strong of Accounting procedure for Material cost and price methods.</p>
02.	F.Y.B.COM SEM-I & II	<b>105 &amp; 205</b>	<b>Computing Skills &amp; Quantitative Techniques</b>	<p>1) Students familiar with basics of Internet.</p> <p>2) Students understood the use of Office application.</p> <p>3) Students knew about the role of word processor, Spread sheet, presentation in industry .</p>

3	F.Y.B.COM SEM-I &II	106 a & 206 a	<b>Modern Office Management</b>	<p>1) Students understood the concept of office management.</p> <p>2) Students introduce with operational skills of office management.</p> <p>3) interest developed in methods and procedures of office management of students</p>
4	F.Y.B.COM SEM-I &II	107 c & 107 c	<b>Marketing &amp; Advertisin g</b>	<p>1) Students aware about marketing &amp; advertising</p> <p>2) Students understood basic concepts of marketing &amp; advertising</p> <p>3) Students knew the difference between business and marketing &amp; advertising</p>

**(NUTAN MARATHA) COLLEGE, JALGAON.**  
**DEPARTMENT OF COMMERCE**  
**YEAR 2019-2020 S.Y.B.COM**

**SEM – III & IV**

Sr. No.	CLASS	PAPER NO.	PAPER TITLE	LEARNING OUTCOME
1.	<b>S.Y.B.Com</b> <b>SEM III</b> <b>&amp;IV</b>	<b>301</b> <b>&amp;401</b>	<b>Business Skill</b>	1) Understand the significance and essence of a wide range of soft skills 2) Learn how to apply soft skills in a wide range of routine social and professional settings. 3) Learn how to employ soft skills to improve interpersonal relationships. 4) Understand the significance and essence of a wide range of soft skills 5) Learn how to apply soft skills in a wide range of routine social and professional settings. 6) Learn how to employ soft skills to improve interpersonal relationships.
2	<b>S.Y.B.Com</b> <b>SEM III</b> <b>&amp;IV</b>	<b>302</b> <b>&amp;402</b>	<b>Macro Economics</b>	1) Students introduce with the three major focuses in macroeconomics. 2) Students knew about the real gross domestic product. 3) Students knew about the aggregate demand and aggregate supply. 4) Students introduce with the Low levels of inflation.

3	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>303 &amp; 403</b>	<b>Business and TaxLaws</b>	<ol style="list-style-type: none"> <li>1) Describe the legal system and the legal environment of business.</li> <li>2) Describe the relationship of ethics and law in business.</li> <li>3) Define relevant legal terms in business.</li> <li>4) Explain basic principles of law that apply to business and business transactions.</li> <li>5) Describe business law in the Indian context.</li> <li>6) Describe current law, rules, and regulations related to settling business disputes.</li> <li>7) Understand different technical terminology used in this act</li> </ol>
4	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>304 &amp; 404</b>	<b>Corporate Accountin g</b>	<ol style="list-style-type: none"> <li>1) A comprehensive understanding of the advanced issues in accounting for assets, liabilities and owner's equity.</li> <li>2) The ability to account for a range of advanced financial accounting issues</li> <li>3) The ability to prepare consolidated accounts for a corporate group.</li> </ol>
5	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>305 &amp; 405</b>	<b>Computing Management &amp; Cost Accounting</b>	<ol style="list-style-type: none"> <li>1) Demonstrate a basic understanding of computer hardware and software.</li> <li>2) Demonstrate problem-solving skills.</li> <li>3) Apply logical skills to programming in a variety of languages.</li> <li>4) Utilize web technologies.</li> <li>5) Demonstrate basic understanding of network principles.</li> <li>6) Working effectively in teams.</li> <li>7) Apply the skills that are the focus of this program to business scenarios.</li> </ol>
6	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>306 (a) &amp; 406(a )</b>	<b>Business Entrepreneurshi p</b>	<ol style="list-style-type: none"> <li>1) Students understood different methods to assess the attractiveness of business opportunities.</li> <li>2) Students understood what characterizes an attractive business opportunity and common pitfalls during the entrepreneurial process.</li> <li>3) to products or services to market.</li> <li>4) Students understood different methods that can be used to minimize uncertainties at different stages of the entrepreneurial process.</li> <li>5) Students understood the dynamics of how teams develop and function as well as the various types of conflicts that can arise during teamwork.</li> </ol>

7	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>307 (a) &amp; 407 (a)</b>	<b>Modern Banking &amp;Financial System</b>	<p>1) Students Introduce with the new concepts of Banking.</p> <p>2) Students got new information about new changes in Banking.</p> <p>3) To know the relevance Banking practices in modern competitive world.</p> <p>4) Students understood of Banking operations.</p>
8	<b>S.Y.B.Com SEM III &amp;IV</b>	<b>307 (c) &amp; 407 (c)</b>	<b>Retail Management</b>	<p>1) Explain the central role of retail in industrialised societies, and the impact of key market/retail trends upon this sector in the local and global contexts.</p> <p>2) Identify the key stakeholders and the roles/responsibilities of retail towards these stakeholders</p> <p>3) Understand and apply appropriate frameworks to develop high level retail marketing strategy, and identify the role of marketing strategies in the building of brand equity and shareholder value in the retail industry</p> <p>4) Evaluate the implementation of marketing strategy through the retail mix – including product and merchandise mix, pricing, location and store- design, promotions, and store management - to improve the total customer experience and retailer market competitiveness.</p> <p>5) Interpret retail problems and be capable of critically evaluating and applying appropriate retail management models and theories to generate strategic and tactical solutions</p> <p>6. Analyse how retail managers can make informed strategic choices in relation to managing channel partners, retail form (online vs. bricks and mortar), global sourcing, and managing staff to improve strategic outcomes.</p>

**JDMVPS CO OP SAMAJ S SHRI S.S.PATIL ARTS, SHRI BHAUSAHEB  
T.T.SALUNKHE COMMERCE & SHRI.G.R.PANDIT SCIENCE,**

**(NUTAN MARATHA) COLLEGE, JALGAON.**

**DEPARTMENT OF COMMERCE**

**YEAR 2019-2020 T.Y.B.COM**



## SEM – V & VI

Sr.No	CLASS	PAPER NO.	PAPER TITLE	LEARNING OUTCOME
1.	T.Y.B.COM SEM-V &VI	<b>501 &amp; 601</b>	<b>Indian Economic Scenario</b>	<p>1) Student will be able To Understand Present Economic Scenario of Indian Economy.</p> <p>2) Student will be able To Understand Population &amp; Economic Development.</p> <p>3) Student will be able To Understand Human Resource Development.</p> <p>4) Student will be able To Understand India's Foreign Trade Capital &amp; Foreign Exchange Reserve.</p> <p>5) Student will be able To Understand Price Trends &amp; Inflation.</p> <p>6) Student will be able To Understand Concept of Public Finance, Federal Finance &amp; Fiscal Development.</p>
02.	T.Y.B.COM SEM-V &VI	<b>502 &amp; 602</b>	<b>Principle of Auditing</b>	<p>1) understand the concept of Audit and its objectives,</p> <p>2) understand the various types of audit done by an auditor, and the principles of behind these audits,</p> <p>3) prepare an audit programme, collect the evidence supporting the recorded transactions, and maintain the necessary documentation in relation to the audit, and</p> <p>4) understand the concept of Investigation, and the systems of internal check and internal control used in the processing of transactions,</p> <p>5) understand the various provisions of the Companies Act, 2013 in relation to the appointment of auditors, and their powers, duties and liabilities,</p> <p>6) understand the provisions of the Companies Act, 2013, and the procedure of auditing the capital and borrowing raised by a limited company</p>

3	T.Y.B.COM SEM-V &VI	503 & 603	<b>Business Management</b>	<ol style="list-style-type: none"> <li>1) Understand the significance and essence of management concepts, principles and skills.</li> <li>2) Learn how to apply Management concepts, principles and skills in business setting and improving business environment.</li> <li>3) Learn how to employ Management skills to enhance employability and ensure workplace and career success.</li> <li>4) Understand the significance and essence of management concepts, principles and skills.</li> <li>5) Learn how to apply management concepts, principles and skills in business setting and improving business environment.</li> <li>6) Learn how to employ Management skills to enhance employability and ensure workplace and career success</li> </ol>
4	T.Y.B.COM SEM-V &VI	504 & 604	<b>Income Tax &amp; Goods &amp; Services Tax (GST)</b>	<ol style="list-style-type: none"> <li>1.) Understand the various provisions relating to Income Tax</li> <li>2) Determine the basic concepts of the Income Tax Act 1961</li> <li>3) Describe the elementary knowledge of scheme of taxation in India</li> </ol>
5	T.Y.B.COM SEM-V &VI	505 & 605	<b>Human Resource Management</b>	<ol style="list-style-type: none"> <li>1) Students can know concepts , principles and practices of HRM.</li> <li>2) Familiar with concepts of HR Planning , job analysis, recruitment and selection.</li> <li>3) Development in total personality of students as future human resource of India.</li> <li>4) Students have the knowledge of management development and training procedure to Human Resource.</li> <li>5) Students are familiar to the recent trends in Human Resource Management.</li> <li>6) Total Personality of students can be develop as a future Human Resource of India.</li> </ol>

7	T.Y.B.COM SEM-V &VI	506-A & 606-A	<b>Advanced Accounting- I</b>	<ol style="list-style-type: none"> <li>1) Understand the various concepts of Advanced Accounting</li> <li>2) Utilize working knowledge with application skill of Advanced Accounting.</li> <li>3) Preparing the Bank Companies Statements in accordance with the statutory requirements.</li> <li>4) Understand the various concepts of Management Accounting</li> <li>5) Describe the elementary knowledge of Financial Statement Analysis and Interpretation.</li> <li>6) Utilize working knowledge with application skill of Management Accounting.</li> </ol>
8	T.Y.B.COM SEM-V &VI	506 -A & 606 -A	<b>Advanced Accounting – II</b>	<ol style="list-style-type: none"> <li>1) Understand the various concepts of Corporate Sector Accounting.</li> <li>2) Developing techniques of reconstruction of Companies financial statement.</li> <li>3) Preparing the Reconstructed Financial Statements</li> <li>4) Understand the various concepts of Management Accounting</li> <li>5) Describe the elementary knowledge of Financial Statement Analysis and Interpretation.</li> <li>6) Utilize working knowledge with application skill of Management Accounting.</li> </ol>
9	T.Y.B.COM SEM-V &VI	506 -D & 506 -D	<b>Business Administratio n -I</b>	<ol style="list-style-type: none"> <li>1) Students Introduce with the concepts and issues in Business Administration.</li> <li>2) Familiar the students with the nature and scope of Business Administration.</li> </ol>
10	T.Y.B.COM SEM-V &VI	506 -D & 506 -D	<b>Business Administratio n -II</b>	<ol style="list-style-type: none"> <li>1) Students Introduce with the concepts and issues in Business Administration.</li> <li>2) Familiar the students with the nature and scope of Business Administration.</li> </ol>

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T.T.SALUNKHE COMMERCE & SHRI.G.R.PANDIT SCIENCE,**

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DEPARTMENT OF COMMERCE**

**YEAR 2019-2020 M.COM PART- I**  
**SEM – I & II**

Sr. No.	CLASS	PAPER NO.	PAPER TITLE	LEARNING OUTCOME
1.	M.COM PART-I SEM-I &II	102 & 202	<b>STRATEGIC MANAGEMENT &amp; CASE STUDIES IN STRATEGIC MANAGEMENT:-</b>	<ol style="list-style-type: none"> <li>1) Students knew about the main concepts &amp; level of Strategic Management.</li> <li>2) Students understood the strategic planning, business policy and implementation in the organization</li> <li>3) Students understood co-operate level strategies in the competitive situation.</li> <li>4) Students understood the different environment of business organisation through practical cases</li> <li>5) Students able to solve the situational problem and understand the importance</li> <li>6) Students observe the real life situation through cases.</li> </ol>
02.	M.COM PART-I SEM-I &II	103 & 104	<b>RESEARCH METHODOLOGY &amp; INVESTMENT AND WEALTH MANAGEMENT</b>	<ol style="list-style-type: none"> <li>1) Students studied about Research Methodology for decision making in business.</li> <li>2) Students knew the methods of Data Collection.</li> <li>3) Students understood process of research by students for preparation of research report.</li> <li>4) Students understood the concept of Investment and Wealth Management</li> <li>5) Students obtained the knowledge of Portfolio Management and Types of Investment</li> <li>6) Introduce the students with the Risk and Return Components of Investment</li> </ol>
3	M.COM PART-I SEM-I &II	104 A & 204 A	<b>ADVANCED ACCOUNTANCY &amp; ADVANCED ACCOUNTANCY</b>	<ol style="list-style-type: none"> <li>1) obtain knowledge about Disclosure requirements of AS 20,21,22 and 23.</li> <li>2) Apply the Consolidation Procedures for Consolidation of financial statements of single as well as multiple subsidiaries and prepare consolidated financial statements.</li> <li>3) Prepare Statement of Affairs, Draw Deficiency Account and prepare liquidators final statement of account.</li> <li>4) Understand the provisions of Insurance Act requiring preparation of financial statements for the insurance business and maintenance of records of policies.</li> <li>4) To obtain knowledge about Disclosure requirements of AS 7,11,16 &amp; 17.</li> <li>5) Journalise the hire purchase entries in books of both parties as well as learn about various methods of accounting for hire purchase transactions</li> <li>6) Prepare Contract Account and carry out Accounting for Construction businesses</li> </ol>

4	M.COM PART-I SEM-I &II	104 C & 204C	<b>HUMAN RESOURCE MANAGEMENT</b>	<ol style="list-style-type: none"> <li>1) students got vast knowledge about broad perspective on themes and issues of Human Resource Management.</li> <li>2) Students know how to apply theories of social science disciplines to work place issues.</li> <li>3) Students understood the importance of training and morale.</li> <li>4) endow the student with a broad perspective on themes and issues of Human Resource Development.</li> <li>5) know the importance of various theories of motivation.</li> <li>6) Students learn about evaluation of company's implementation of a performance based pay system.</li> </ol>
5	M.COM PART-I SEM-I &II	104 D & 204 D	<b>MARKETING MANAGEMENT</b>	<ol style="list-style-type: none"> <li>1) students able to comprehend various situations and marketing terminologies.</li> <li>2) Students Knew the various marketing tools/models for solving marketing problems.</li> <li>3) Students understood effective marketing strategies to achieve organizational objectives</li> <li>4) students able to comprehend various situations and marketing terminologies.</li> <li>5) Students Knew the various marketing tools/models for solving marketing problems.</li> <li>6) Students understood effective marketing strategies to achieve organizational objectives</li> </ol>

**M.Com PART-II**  
**YEAR:- 2019-2020**

**For Semester III & Semester IV**  
**Semester III**

Sr. No.	CLASS	PAPER NO.	PAPER TITLE	LEARNING OUTCOME
1	M.COM PART-II SEM-III & IV	301 & 401	MANAGEMENT ACCOUNTING	1) Get the insight of the philosophy and techniques of cost control and decision making. 2) Get equipped with the techniques of budgetary control and standard costing, and to familiarize with the macro as well as micro level techniques of cost control. 3) Make an in-depth analysis of causes of variation in actual cost from the standard cost, and to decide on the necessary action so as to increase the efficacy of the business entities 4) Get the insight of the philosophy and techniques of cost control and decision making. 5) Get equipped with the techniques of budgetary control and standard costing, and to familiarize with the macro as well as micro level techniques of cost control. 6) Make an in-depth analysis of causes of variation in actual cost from the standard cost, and to decide on the necessary action so as to increase the efficacy of the business entities
2	M.COM PART-II SEM-III & IV	302 & 402	ENTREPRENEURSHIP MANAGEMENT & MODERN RETAIL MANAGEMENT	1) encourage and inspire the students to become an Entrepreneur 2) Students introduce with the challenges to start a new venture . 3) Students knew about the theoretical foundation for executing various projects. 4) Gave the Knowledge to students with the various concepts and theoretical aspect of retail management 5) Introduce students with the most modern techniques and practices of retailing for employment opportunity 6) The students understood dynamics of modern organised retail trade

3	M.COM PART- II SEM- III & IV	403 & 403 C	<b>ORGANIZATIONAL BEHAVIOUR &amp; CORPORATE SOCIAL RESPONSIBILITY</b>	<ul style="list-style-type: none"> <li>1) Introduce the students with organizational behaviour and the challenges and opportunities.</li> <li>2) Students understood the concept of behaviour – individual and Organizational Behaviour.</li> <li>3) Students knew about the perception, learning, attitude, values and emotions.</li> <li>4) The Students understand the Concept of Philosophy and Mechanics of Corporate Social Responsibility.</li> <li>5) The Students knew about the provisions of the Companies Act, 2013 relating to the Corporate Social Responsibilities of companies</li> </ul>
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				in India. 6) The Students knew about the concept of business ethics in relation to CSR
4	M.COM PART-II SEM-III & IV	304 A & 404 A	<b>ADVANCED ACCOUNTANCY</b>	<ol style="list-style-type: none"> <li>1) Obtain an understanding of various types of leases and perform accounting treatment for Operating and Finance Leases</li> <li>2) Prepare Final Statements of Cooperative Credit Societies taking into consideration various accounting adjustments applicable to Cooperative Credit Societies.</li> <li>3) Obtain Understanding of special accounting procedures to be followed while accounting for service sector entities like Hotels, Hospitals and transporters</li> <li>4) To Understand the legal framework of Bank Audit and to gain knowledge of financial statements of banks in brief.</li> <li>5) To Understand the audit procedures to be followed at the time of audit of Cooperative Societies</li> </ol>
5	M.COM PART-II SEM-III & IV	304 C & 404 C	<b>HUMAN RESOURCE MANAGEMENT</b>	<ol style="list-style-type: none"> <li>1) Students Understood the value and importance of human resources in an organization.</li> <li>2) Students Became innovative in managing human resource aspects &amp; Industrial Relations.</li> <li>3) Students aware about mechanisms of Industrial Dispute and friendly interventions to deal with employee-employer problems.</li> <li>4) Student knew about the legal framework governing the industrial behavior and relationship at the workplace.</li> <li>5) Student Understood the basic provisions of the Acts relating to Labour, Industrial disputes, Wages and other benefits available to the workers.</li> <li>6) Students aware about mechanisms of settlement of industrial disputes</li> </ol>
6	M.COM PART-II SEM-III & IV	304 D & 404 D	<b>MARKETING MANAGEMENT</b>	<ol style="list-style-type: none"> <li>1) Students understood various concepts and theoretical aspect of internet marketing</li> <li>2) Students knew about the mechanism of internet marketing</li> <li>3) Students studied about the strategies of internet advertising</li> <li>4) The students understood various concepts and theoretical aspect of marketing research</li> <li>5) The students knew about the sources of marketing information and the mechanism of collecting and processing the market information for making intelligent decisions</li> <li>6) The students learn about the ways of which the marketing research can be applied in business</li> </ol>

Department of Chemistry. Course objectives and Outcomes

F.Y.B.Sc.



<b>Sem.-I</b>		
<b>Paper</b>	<b>Objectives</b>	<b>Outcome</b>
CH-101 Physical and Inorganic Chemistry	Develop the knowledge of basic principles of physical chemistry and to introduce mathematical preparations. Introduction to periodic properties with reference to S-Block elements	Students are able to understand the basic principles of physical chemistry and the skills of mathematical preparations. Students understood periodic properties of S-Block elements and were able to co-relate the same.
CH-102 Organic and Inorganic Chemistry	Give introduction of organic chemistry with reference to hydrocarbon, halogen derivatives, alcohol phenol ether. Knowledge of ionic Equilibria, Knowledge of shapes of covalent molecules with reference to VSEPR.	Students understood organic chemistry with reference to hydrocarbon, halogen derivatives, alcohol phenol ether. Students came to know various terms, equations and ability to solve numerical of ionic Equilibria, They learnt to draw shapes of electronic structures of covalent molecules.
CH-103 Chemistry Practical	Develop the skill to handle instruments, preparation of solutions and analytical experiments. Introduction to basic inorganic qualitative analysis.	Students were able to develop the skill to handle instruments, preparation of solutions and analytical experiments. Students understood basic inorganic qualitative analysis.
<b>Sem.-II</b>		
CH-201 Physical and	Develop knowledge of	Students were able to understand

Inorganic Chemistry	physical properties of matter. Develop knowledge of metals and metallurgy as well as P-Block elements	physical states of matter. They are able to understand metallurgical processes and properties of P-Block
CH-202 Organic and Inorganic Chemistry	Introduction to various organic compounds like aldehydes, ketones, carboxylic acids and their derivatives. Basic knowledge of volumetric analysis and bond and structure of molecules.	Students gained the knowledge of various organic compounds like aldehydes, ketones, carboxylic acids and their derivatives with reference to their preparation and properties. Students understood volumetric analysis and bond and structure of molecules.
CH-203 Chemistry Practical	Develop skill to perform simple physical chemistry experiments and analytical chemistry experiments. Introduction to basic organic qualitative analysis.	Students were able to develop skill to perform simple physical chemistry experiments and analytical chemistry experiments. Students were introduced to basic organic qualitative analysis.

### S.Y.B.Sc.

<b>Sem.-III</b>		
CH-301 Physical and Inorganic chemistry	To know Physical properties of solutions, colligative properties of solution. Introduction to D-Block elements.	Students came to know the physical properties of solutions, and understand colligative properties and able to solve the numerical. They understood various terms of the D-Block Elements.
CH-302 Organic and Inorganic Chemistry	Introduction to stereochemistry with reference to projection formula, optical and geometrical isomers, conformational isomers, stereochemistry of cyclohexan.	Students gained the knowledge of stereochemistry with reference to projection formula, optical and geometrical isomers, conformational isomers, stereochemistry of cyclohexan. They developed knowledge of heterocyclic and polycyclic compounds, solvents, solutions, acids and bases.

	To develop knowledge of heterocyclic and polycyclic compounds, solvents, solutions, acids and bases.	
CH-303 Chemistry Practical	Develop skill to perform physical chemistry experiment, volumetric and chromatographic analysis. Prepare organic compounds.	Students are able to perform practical based on physical and organic chemistry, chromatography and volumetric analysis.
CH-304 Advanced Analytical Chemistry(Skill enhancement course)	Introduction to analytical chemistry and volumetric analysis with reference to acid base titration and precipitation titration and chromatographic methods.	Students were able to understand principle and of acid base titration and precipitation titration and chromatographic methods. Students were able to understand sampling, accuracy, errors and good laboratory practices.
<b>Sem.-IV</b>		
CH-401 Physical and Inorganic chemistry	To give knowledge of electro chemistry and chemical thermodynamics. Introduction to coordination chemistry.	Students gained the knowledge of electrochemistry and chemical thermodynamics and gained the ability to solve the numerical. Students understood coordination chemistry, complexes, their nomenclature, Ligands and chelates
CH-402 Organic and Inorganic Chemistry	Introduction to organic synthesis with reference to AAE, ME and organo metallic compounds. Introduction to molecular orbital theory	Students knew synthetic reagents and organo metallic compounds, their preparation and uses. Students developed the ability to understand combination of orbitals, molecular orbital treatment LCAO
CH-403 Chemistry Practical	To develop skill to handle instruments and perform physical chemistry experiments. To identify organic compounds, to prepare inorganic compounds	Students developed skill to handle instruments and perform physical chemistry experiments. Students learnt to identify organic compounds, to prepare inorganic compounds and gravimetric analysis

	and gravimetric analysis	
CH-404 Advanced Analytical Chemistry(Skill enhancement course)	To know the volumetric analysis with reference to redox and complexometric titration, methods and gravimetric analysis.	Students gained the knowledge of the volumetric analysis with reference to redox and complexometric titration, methods and gravimetric analysis.

### T.Y.B.Sc.

<b>Sem.-V</b>		
CH-501 - Principles of Physical Chemistry-I	To acquire knowledge about rates of chemical reactions and distinguishing the reaction of different order and their characteristics. To understand the basic principles of phase rules and phase diagrams. To learn the underlying principles of electrode reactions, electrochemical cells and applications of EMF	After successful completion of this course, students are expected to: Understand the significance of wave function and postulates of quantum mechanics. Deduce rate equations and half-life equations for first and second order reactions Draw and explain the one and two component system phase diagrams. Explain the principles of electrode processes and apply them during Practicals.
CH-502 Subject- Inorganic Chemistry	To describe the VSEPR theory to predict shape of molecules from electron pairs. To describe the bonding in simple compounds using VBT. To describe the principles of VBT to predict hybridization of orbitals. To understand how CFT explains electronic	Learn about the VSEPR theory and how it can be used to explain molecular shapes. Learn about the VBT to describe the formation of covalent bonds in terms of atomic orbital overlap. Learn about stability of complexes using CFSE. Learn about MOT to draw energy diagrams and to predict bond order

	<p>structure, colour and magnetic properties of co-ordination compounds.</p> <p>To introduce the basic principles of MOT and electronic geometry of molecules</p>	
CH-503- Organic Reaction Mechanism	<p>To study different types of organic reactions.</p> <p>To understand the mechanisms of different types of reactions.</p> <p>To distinguish between types of substrates and types of reagents.</p> <p>To understand ways of attack of reagent, breaking and formation of bonds in different reaction mechanisms.</p> <p>To study kinetics, evidences and factors affecting different types of reactions.</p> <p>To study stereochemistry of different reactions.</p> <p>To understand role of different reagents in different reactions</p>	<p>Students will learn organic reactions like nucleophilic substitution, electrophilic substitution, nucleophilic addition, electrophilic addition and elimination.</p> <p>Students will be able to write/ explain mechanisms of those types of reactions.</p> <p>Students will understand how a reaction takes place in one or more steps.</p> <p>Students will understand the types of intermediates formed in different reactions.</p> <p>Students will learn how reagent attacks the substrate molecule and accordingly how bonds break and formed.</p> <p>Students will learn how change in structure of substrate, reagent and solvent changes the product formed and its stereochemistry.</p> <p>Students will be able to predict the products and to suggest the mechanisms</p>
CH-504 - Industrial Chemistry	<p>To produce graduates with enhanced skills, applied knowledge, aptitude to carry out higher studies or research and development in the various industrial areas.</p> <p>To make the student cognizant about important aspects of Chemical Industries, Industrial work culture</p>	<p>Student will be able to understand: Basic requirements of Chemical Industry, different terms, operations and processes involved in chemical Industry.</p> <p>Describe Copy Right Act, Patent Act and Trade Marks, Bureau of Indian Standards (BIS) and International Organization for Standardization (ISO).</p> <p>Basic requirements, raw materials, different processes and operations involved in Sugar Industry and also different grades of sugar and uses of</p>

	<p>and environment. To prepare the students for immediate entry to the workplace with sound theoretical knowledge and some basic experimental concepts in the area of various industries viz. Sugar Industry, Fermentation Industry, Petroleum and Petrochemicals. To offers the synergism between basic concepts of Chemistry with Industrial applications. To equip the students with knowledge of some industrial organic synthesis as requirement of diverse chemical industries. Empower the students to understand the concepts in chemical</p>	<p>by-products of sugar industry. Importance of fermented products, basic requirements, theory and process of alcohol making, fractional distillation and various terms involved in Fermentation Industry. Understand Occurrence of Petroleum, theories of formation of Petroleum and different terms Viz. Knocking, Anti-Knock Compounds, Octane number, Cetane number, Gasohol and Power alcohol etc. Manufacturing processes involved in Industrial Organic Synthesis such as Methanol, Isopropanol, Glycerol, Acetylene and Aromatic hydrocarbon i.e. Toluene from petroleum with their uses.</p>
CH-505 Subject-Analytical Instrumentation	<p>To develop an understanding of the range and uses of analytical methods in chemistry. To understand and establish the role of chemistry in quantitative analysis. To enhance the Analytical instrumental skill of the students.</p>	<p>Explain the fundamentals of analytical methods and instruments for qualitative and quantitative Analysis. Express the role of analytical chemistry in science. Students will be able to function as a member of an interdisciplinary problem solving team.</p>
CH-506(A) - Biochemistry	<p>To study different types of biomolecules. To study structure of biomolecules. To study classification of</p>	<p>Students will study biomolecules like carbohydrates, amino acids, proteins, enzymes, lipids and nucleic acids. Students will understand definitions, classifications and examples of these</p>

	<p>each type of biomolecules. To study reactions of the biomolecules. Study of metabolism and thus, study of metabolic processes and reactions involved. To study energetics of the metabolic processes. Students should understand: Structure and role of Carbohydrates, Amino acids, Proteins, Enzymes, lipids, Nucleic Acids and energy rich compounds in biochemical reactions</p>	<p>biomolecules. Students will learn the detailed structure of these biomolecules along with types of bonds or linkages present in their molecules. Students will learn the chemical properties of these biomolecules and the action of some reagents on them in the form of reactions or graphical presentation. Students will understand biochemical energetics of common energy rich compounds along with hydrolytic reactions. Students will learn metabolisms like Glycolysis, TCA cycle, Transamination, deamination and <math>\beta</math>- oxidation through reactions, enzymes involved, outlines and energetics</p>
<p>CH-507 Physical Chemistry Practical</p>	<p>To develop skills required in chemistry such as the appropriate handling of apparatus, instruments and chemicals. The student will learn the laboratory skills needed to design, safely conduct and interpret chemical research. To expose the students to an extent of experimental techniques using modern instrumentation. The student will develop the ability to effectively communicate scientific information and research results in written and oral formats</p>	<p>Students will get basic analytical and technical skills to work effectively in the various fields of chemistry. Students will be able to calibrate and handle instruments like conductometer, potentiometer, pH meter, colorimeter, spectrophotometer, polarimeter. They have ability to perform accurate quantitative measurements with an understanding of the theory and use of contemporary chemical instrumentation, interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. They get skills required in chemistry such as the proper handling of apparatus and chemicals. They will have ability to present scientific and technical information resulting from laboratory experimentation in both written and oral formats. Students will apply conductometer, potentiometer, pH</p>

		meter, colorimeter, spectrophotometer, polarimetry techniques for analysis and measurement.
CH-508 -Inorganic Chemistry Practical	To analyze the inorganic mixtures. To determine metal from ore and alloy analysis. Using colorimetric analysis to determine amount of metal.	Student will able to determine cation & anion from inorganic mixtures by using qualitative analysis. Student will able to determine metal from ore & alloys. Students will be able to design & carry out scientific experiments as well as accurately record & analyze the results of experiments. Students will be able to handle colorimeter for estimation of metal ions
CH-509 - Organic Chemistry Practical	To develop skills required in chemistry such as the appropriate handling of apparatus and chemicals. The student will learn the laboratory skills needed to design, safely conduct and interpret chemical research. To expose the students to an extent of experimental techniques using modern instrumentation. The student will develop the ability to effectively communicate scientific information and research results in written and oral formats	Separate and analyze binary water insoluble mixture. Separate and analyze binary water soluble mixture. Estimate - Acetamide, Glucose and Glycine by volumetric method, Estimate basicity of various acids. Synthesis of various organic compounds through greener alternatives. Understand Thin Layer Chromatographic techniques and physical constant. Understand the purification technique use in organic chemistry.
<b>Sem.-VI</b>		
CH-601 - Principles of Physical Chemistry-II	To learn the basics of molecular spectroscopy and rotational spectra. To understand the basic principles and	After successful completion of this course, students are expected to: Analyze the rotational spectra of diatomic molecules and determine the bond length.



	<p>applications of nuclear chemistry.</p> <p>To learn the consequences of light absorption by atoms and molecules and photochemical reactions.</p> <p>To learn the laws of crystallography and basics of crystal structure</p>	<p>Explain and apply the radioactivity principles for various chemical and biological investigations. Describe the mechanism of fluorescence, phosphorescence and photochemical reactions.</p> <p>Analyze the given crystal structure and determine the indices of planes, interplaner distances and type of crystal structure</p>
CH-602 - Chemistry of Inorganic Solids	<p>To describe the VSEPR theory to predict shape of molecules from electron pairs.</p> <p>To describe the bonding in simple compounds using VBT.</p> <p>To describe the principles of VBT to predict hybridization of orbitals.</p> <p>To understand how CFT explains electronic structure, colour and magnetic properties of co-ordination compounds.</p> <p>To introduce the basic principles of MOT and electronic geometry of molecules.</p>	<p>Learn about basic principles and synthesis of nanomaterials.</p> <p>Learn about classification, composition and processing of cement.</p> <p>Learn about classification and composition of alloys.</p> <p>Learn about types manufacture and applications of fertilizers.</p>
CH-603 - Spectroscopic Methods of Structure Determination	<p>To study principle of spectroscopy and to understand wave parameters and terms involved in spectroscopy.</p> <p>To study different types of spectroscopy.</p> <p>To understand principle, concept and the terms used in each type of</p>	<p>Students will learn interaction of radiations with matter. They will understand different regions of electromagnetic radiations. They will know different wave parameters.</p> <p>Students will learn principle of mass spectroscopy, its instrumentation and nature of mass spectrum.</p> <p>Students will understand principle of UV spectroscopy and nature of UV spectrum. They will learn types of</p>

	<p>spectroscopy.          Interpretation of UV, IR, NMR spectra.          Use of spectral data for determination of structure of unknown organic compounds.          To study different applications of each type of spectroscopy</p>	<p>electronic excitations.          Students will be able to calculate maximum wavelength for any conjugated system. And from the value of <math>\lambda</math>-max they will be able to find out extent of conjugation in the compound. Students will understand principle of IR spectroscopy, types of vibrations and the nature of IR spectrum. From IR spectrum, they will be able to find out IR frequencies of different functional groups. And thus, they will be able to find out functional groups present in the compound.          Students will understand principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy. They will learn measurement of chemical shift and coupling constants.          Students will be able to interpret the NMR data and they will be able to use it for determination of structure of organic compound. Students will be able to determine structure of simple organic compounds on the basis of spectral data such as <math>\lambda</math> max values, IR frequencies, chemical shift (<math>\delta</math> values).</p>
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<p>CH-604 - Chemistry of Industrially Important Products</p>	<p>To make student perceptive about various commodity industries viz. Cosmetics and Perfumes, Dyes and Pharmaceuticals, Pesticides, Soaps and Detergents, related diversified and multidisciplinary fields of chemical industry. To produce graduates with enhanced skills, knowledge and research aptitude to carry out higher studies or research and development in the various industrial areas. To equip students with advance knowledge about various industrially important products. To makes students ready for immediate entry to the workplace with sound theoretical and basic experimental knowledge in the areas of various industries. To engender the substantial interest in the students to understand the concepts in chemical processing, engineering and industrial development of present era viz. Cosmetics and Perfumes Industry, Dyes and Pharmaceuticals, Pesticides, Soaps and Detergents, related</p>	<p>Student will be able to understand: Describe the industrial production of a number of important organic and inorganic compounds / chemicals and products of end use. Gain comprehensive knowledge of cutting-edge developments in a field of different chemical industries. Importance of Cosmetics Industry and a general study including preparation and uses of the Hair dye, hair spray, shampoo, suntan lotions, lipsticks, talcum powder, nail enamel, creams (cold, and shaving creams). Perfumes and identify the distinguishing features of its components and also an essential oils and their importance in cosmetic industries with reference to Eugenol, Geraniol, sandalwood oil, eucalyptus, rose oil, 2- phenyl ethyl alcohol, Jasmone, Civetone, Muscone etc. Know about pesticides both natural and synthetic, benefits and adverse effects of it, also synthesis, manufacture and uses of pesticides viz. Organochlorines (DDT, Gammexene,); Organophosphates (Malathion, Parathion); Anilides (Alachlor and Butachlor). Definition, classification, raw material used in soaps and detergents, reaction involved in it, Manufacture of Soaps and cleansing action of soaps and detergents. Definition, properties of good dyes, relation between colour and constitution, classification of dyes according to their mode of application and chemical constitution. Importance's, definition and meaning of the different terms involved in Drugs and Pharmaceuticals Industry and also synthesis, uses, properties and</p>
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	<p>multidisciplinary and diversified fields of chemical industry.</p> <p>To describe the industrial production of a number of important organic and inorganic compounds / chemicals and products of end use. To gain comprehensive knowledge of cutting-edge developments in a field of different chemical industries by discussions and exchange of experiences and knowledge.</p>	<p>industrial manufacture of Paracetamol, Aspirin, and Chloramphenicol.</p>
CH-605 Analytical Chemistry	<p>To provide knowledge of instruments which are used in Chemical, Pharma, Petroleum, and insecticide and pesticide industry</p> <p>To increase student technical skill as per industry need.</p> <p>To develop an understanding of the range and uses of analytical methods in chemistry</p>	<p>Students are able to gain the knowledge of instruments which are used in Chemical, Pharma, Petroleum, and insecticide and pesticide industry</p> <p>Technical skills of students were raised as per industry need.</p> <p>Develop an understanding of the range and uses of analytical methods in chemistry.</p>
CH-606(A) - Polymer Chemistry	<p>The course offers the basic concepts of polymer, polymerization, classes of polymers, important properties, and poly(lactic acid) as a biodegradable polymer.</p> <p>The course also offers to study preparation, properties, and applications of industrially important</p>	<p>Define terms like monomer, polymer, polymerization, polydispersity index, etc., classify polymers based on their origin, native backbone chain, and thermal response.</p> <p>Know glass transition temperature and its determination, various ways to express molecular weights of polymers and polydispersity index.</p> <p>Identify different mechanisms of polymerizations viz. free radical, ionic, and condensation polymerizations.</p>

	<p>selected polymers.</p> <p>The course will give chance to study various mechanisms of polymerization and learn different techniques of polymerization.</p> <p>The student will be able to understand glass transition temperature and factors affecting on it and various ways to express molecular weight of polymers.</p>	<p>Distinguish techniques of polymerization based on physical conditions required for the preparation of polymers in laboratory or industry. Familiar with preparation, properties, and applications of industrially important selected polymers.</p>
CH-607 - Physical Chemistry Practical	<p>To develop skills required in chemistry such as the appropriate handling of apparatus, instruments and chemicals.</p> <p>The student will learn the laboratory skills needed to design, safely conduct and interpret chemical research.</p> <p>To expose the students to an extent of experimental techniques using modern instrumentation.</p> <p>The student will develop the ability to effectively communicate scientific information and research results in written and oral formats.</p>	<p>Students will get basic analytical and technical skills to work effectively in the various fields of chemistry.</p> <p>Students will able to calibrate and handle instruments like conductometer, potentiometer, pH meter, colorimeter, spectrophotometer, polarimeter.</p> <p>They have ability to perform accurate quantitative measurements with an understanding of the theory and use of contemporary chemical instrumentation, interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions.</p> <p>They get skills required in chemistry such as the proper handling of apparatus and chemicals. They will have ability to present scientific and technical information resulting from laboratory experimentation in both written and oral formats</p>
CH-608 - Inorganic Chemistry Practical	<p>To determine metal from gravimetric estimations.</p> <p>To determine amount of metal by volumetric analysis.</p> <p>To determine preparation /synthesis of co-</p>	<p>Students will be able to prepare co-ordination compounds.</p> <p>Students will be able to determine amount of metal by using quantitative analysis.</p> <p>Students will be able to calculate Rf value of metal.</p>

	<p>ordination compound. To study separation techniques of metals. To use colorimetric analysis of metal</p>	<p>Students will be able to design &amp; carry out scientific experiments as well as accurately record &amp; analyze the results of experiments. Students will be able to explain why chemistry is an integral activity for addressing social, economic &amp; environmental problems.</p>
CH-609 - Organic Chemistry Practical	<p>To develop skills required in chemistry such as the appropriate handling of apparatus and chemicals. The student will learn the laboratory skills needed to design, safely conduct and interpret chemical research.</p>	<p>Separate and analyze binary water insoluble mixture. Separate and analyze binary water soluble mixture. Estimate - Acetamide, Glucose and Glycine by volumetric method, Estimate basicity of various acids. Synthesis of various organic compounds through greener alternatives. Understand Thin Layer Chromatographic techniques and physical constant. Understand the purification technique use in organic chemistry</p>

### M.Sc.-I

<b>Sem.-I</b>		
CH-110 Physical Chemistry	Introduction to quantum chemistry, nuclear chemistry and adsorption	Students understood quantum chemistry, Nuclear and radiation chemistry, Electrochemistry, Adsorption-principles, rules, theories and numerical problems based on this
CH-130 Inorganic Chemistry	Introduction to MOT, Organo metallic compounds, symmetry and group theory and transition metals.	Introduce to MOT, Organometallic compounds, Molecular symmetry-elements of symmetry, point groups, introduction to transition metals,
CH-150 Basic Organic Chemistry	Stereochemistry, reaction mechanisms	Introduction and revision of Stereochemistry, Basic Mechanisms of organic reactions like Nucleophilic

		substitution reaction, Electrophilic substitution reaction, Addition and elimination reactions.
<b>Sem.-II</b>		
CH-210 Physical Chemistry	Introduction to thermodynamics, spectroscopy	Thermodynamics, Statistical Thermodynamics, chemical, kinetics Molecular spectroscopy- students understood principles, theories, rules derivations and numerical problems based on this.
CH-230 Inorganic Chemistry,	Introduction to transition metal complex, ionic bonds, catalysis	Students understood Reaction mechanism in transition metal complexes, ionic bonds, Catalysis, spectra, preparation and applications of complexes.
CH-250 Name reaction, Synthetic Organic Chemistry & Spectroscopy	Introduction to some name reactions	Students understood Name reactions, Synthetic reagents, Rearrangement reactions which are useful for organic synthesis, introduce to spectroscopy.
General Chemistry	Introduction to basic analytical chemistry and maths related to chemistry	Introduced to basic analytical chemistry and maths related to chemistry
CH_P_I-Physical chemistry Practical-yearly	Handling of Instruments, perform of experiment, calculation	Develop a skill to handle instruments, preparation of solution and calculations.
CH-I-I- Inorganic chemistry practical-Yearly	Introduction to ore analysis, binary mixture analysis, drug analysis	Able to analyses ores like pyrolusite, Haematite, Chromite, Dolomite. Develop a skill to perform binary mixtures, analysis of drugs, chromatography
CH-O-I Organic Chemistry Practical Yearly	Organic preparations TLC, use of software to draw structures of organic compounds.	Develop a skill to prepare organic compounds in single stage monitored by TLC. Use of software like ISI draw, chem. Draw, Chem. Sketch to design reaction mechanism, IUPAC names etc.

## M.Sc.-II

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<b>Sem.-III</b>		
CH-350 Organic Reaction Mechanism	Physical approach to organic chemistry, reaction intermediates, neighbouring group effect, carbon nucleophile reactions, ester hydrolysis.	Students understood Strength of acids and bases, Determining mechanism of a reaction, Intermediated and concerted Reaction, linear free energy relationship, Aromaticity and neighboring group effect. Hydrolysis of ester and reactions of carbon nucleophile
CH-351 Spectroscopic methods in structure determination	Introduction to H1 NMR, C1NMR Mass spectroscopy. Problems related to this	Students introduce to H NMR, C NMR, Mass spectroscopy, and problems based on spectroscopy
CH-352 Organic Spectroscopy	Introduction to stereochemistry, Asymmetric synthesis, stereochemistry of six member and other than six member ring	Principle of spectroscopy, Asymmetric synthesis and applications, Stereochemistry of six member ring, other than six member ring, fused rings.
CH-353 Free radical, photochemistry, pericyclic reactions and their applications	Introduction to free radical and photochemistry, aromatic compound alkenes. Pericyclic reactions, electrocyclic reactions	Students understood quantum yield and electronic state. Norrish –I and Norrish –II charges. Paterno-Buchi reaction Photochemistry of alkenes and arenes Free radical reactions Selection rule for thermal and photochemical reactions. Frontier molecular orbital approach.
<b>Sem.-IV</b>		
CH-450 Chemistry of natural products	Introduction to secondary metabolism natural products, synthesis and application vitamins, enzymes,	Students understood importance of vitamins B1, B2, B6, B-12, Folic acid, C, D-1, E, K1 and K2, sources, structure, stereochemistry and biogenesis of vitamins, Role of enzymes in reaction
CH-451 Synthetic methods in organic chemistry	Introduction to application of some elements in organic synthesis, Designing of organic synthesis, one and two stage	Students understood Transition metals in organic synthesis, Design the organic compounds, Role of Umpolung in organic synthesis, Polypeptide and poly nucleotides, principles of green chemistry, solvents, catalyst and



	disjunction, protection of group, advanced synthetic reactions.	reaction conditions.
CH_452 Heterocyclic chemistry, Chiron approach, Chiral drugs and medicinal chemistry	Introduction to heterocycle chemistry and chiral approach. Drug discovery, synthesis	Students understood Synthetic routes, reaction and reactivity of heterocyclic compounds, important terms used in medicinal chemistry, structure of triose, pentose, hexose, stereochemistry and reactions. Synthesis and pharmacological activity of S-Lbuprofen, S- Metoprolol
CH-O2 Organic chemistry practical (Ternary mixture)	Introduction to various types of organic mixtures, their separation, identification and purification and chromatographic study	Students are able to separate organic compound in different phases, Qualitative analysis of organic compounds, distillation techniques, Detection of elements N, S, X, Purification techniques.
CH-O-3 Organic chemistry Practical (Three stage preparation)	Introduction to organic three stage preparation. Purification and chromatographic study of organic compounds	Students are able to perform three stage preparation, draw the reaction mechanism, purify the organic compounds by crystallization, perform chromatographic technique to check completion of reaction, apply the knowledge about different reaction conditions.
CH-O4 –Short Research Project	Introduction to research, survey literature review, synthesis of raw products, purification and analysis of products	Students understood literature survey for the topic of the project, Standardize reaction conditions for synthesis, new methods of synthesis, isolation of product and give mechanism, handle instruments for analysis and discuss their experimental results, Used ICT tools to prepare project reports and present it using power point presentation, work within a small

		team to achieve a common research goal.
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