

SHRI RAM COLLEGE, MUZAFFARNAGAR
DEPARTMENT OF PHYSICAL EDUCATION

Program outcomes

Introduction

Program outcomes examine what a program or process is to do, achieve, or accomplish for its own improvement and/or in support of institutional or divisional goals: generally numbers, needs, or satisfaction driven.

Physical Education is a form of one of the most effective means of education imparted through physical exercises, recreational activities and sports. It is an integral part of education. Which by mere participation in it gives the outcomes. These outcomes are both instant as well as have strong carry over values in the life. The children as well as the adults and the old enjoy physical activities & sports and gets benefit in the form of stronger muscles and bones, increased energy, coordination level and most importantly the decreased risk of developing chronic diseases.


Physical Education is an integral part of the total education process. India has a great tradition in physical education as a means of ensuring physical development, martial valour and recreational competence and the Indian system of exercises include a variety of physical activities such as dands, haithaks, nanwskars, yogicasanas, etc, which formed the integral part of physical education such as Kho - Kho and Kabbadi now promoted as National Games.

PROGRAMME OFFERED

P1: Bachelor of Physical education and sports (BPES) - 3 Year (Semester System)

P2: Bachelor of Physical education (B. P. Ed) - 2 Year (Annual System)

P3: Master of Physical Education (M. P. Ed) - 2 Year (Semester System)


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P1: Bachelor of Physical education and sports **(BPES) - 3 Year (Semester System)**

Programme Outcomes (POs)

Physical Education and Sports is the study, Practice and appreciation of the Art and Science of human movement. While movement is both innate and essential to an individual's growth and development, it is the role of physical education to provide instructional activities that not only promote skill development and proficiency but also enhance an individual's overall health. Physical education not only fulfils a unique role in education but is also an integral part of the whole education process. To develop a comprehensive outlook of an individual with a strong civic position moral qualities, sense of responsibilities, an independent, initiative, tolerant person who is able to successfully socialize and to use different forms of physical education and sports in daily life to protect his or her own health and promote effective professional activities.

The graduate level course in Physical Education and Sports contains subjects varying from foundation of Physical Education to Anatomy, Physiology, Kinesiology, Officiating & coaching, Test & Measurement, Nutrition, Rehabilitation, Psychology, Sports Training, Sports Biomechanics, Methods of Teachings etc. which are aimed to give thorough knowledge and skills to the students. Students pursuing physical education courses are fit to join the jobs as physical trainers, coaches, game officials, referees, umpires, curators, gym trainers, life guards, personal trainers etc. During their course of education the students also develop the expertise to establish their own business as entrepreneurs in the field of sports, fitness, recreation, adventure sports, camping, event management etc.

This programme is designed for students to gain specialized knowledge in the areas of physical education and sports. The programme helps you chalk out your pathway to becoming an innovator in the exciting world of physical education and sports.

Programme Specific Outcomes (PSO)

After successful completion of program the Graduates will be able to;

- Pursue higher education (PG) from India or abroad.


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- Demonstrate knowledge of psychological and sociological concepts, principles, and strategies as they apply to learning and performance of physical activity.
- Demonstrate knowledge and competency of movement patterns and strategies needed to perform a variety of physical activities.
- Achieve a level of physical fitness for health and performance while demonstrating knowledge of fitness concepts, principles, and strategies.
- A variety of motor skills and abilities related to lifetime leisure activities
- Improved understanding of the importance of maintaining a healthy lifestyle
- Improved understanding of movement and the human body
- Improved knowledge of rules and strategies of particular games and sports
- Self-confidence and self-worth as they relate to physical education recreation programs.


Course outcome (COs)

1. This would lead the students to understand historical concept of physical education and relationship between Philosophy, Education and Physical Education. The student would further understand the theoretical implications of philosophies of physical education with modern development and social aspects of Physical Education.
2. The curriculum would enable the pass out to select the inherited talented children for various sports activities.
3. The pass out shall be able to orient children in schools with the fundamental skills of selected sports as per their inherited potential.
4. The pass out shall be able to devise training program for athletes engaged in different sports activities
5. The curriculum shall enable them to officiate, supervise various sports tournaments and orient them in organizing sports events at all levels.
6. The curriculum would enable the pass out students to be entrepreneur (to start their own fitness center, gym, spa etc) and device appropriate fitness program for different genders and age groups of people.
7. The curriculum would enable the pass out to devise training program for physically challenged peoples.

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S. No.	Course	Out come
1	Hindi (0158401)	1. To strengthen oral communication skills in Hindi/ Regional Language. 2. To develop the knowledge of written in Hindi/ Regional Language. 3. To improve vocabulary in Hindi/ Regional Language. 4. To enrich the knowledge of synonyms, antonyms, idioms and phrases. 5. To inculcate the knowledge of grammar in Hindi/ Regional Language.
	English (0158401)	1. Students would be able to create linguistic skills. 2. Students would be able to understand the societal cultural perspectives. 3. Students would be able to inculcate the knowledge of compositional and comprehension skills. 4. Students would be able to develop the knowledge of various forms of English literature.
2	Principles and History of Physical Education (0158402)	The students can better understand the importance of physical education by studying the history.
3	Foundations of Physical Education (0158403)	This subject helps the students to understand the values and ethics of life and personality development.
4	Olympic Study (0158404)	1: Understand the Educational and cultural values of Olympic movement. 2. Analyze the Modern Olympic Games and Rules of Eligibility for Competition. 3. Know about The organizational structure and functions of Para Olympic Games 4. Analyze the Achievement of India in Team Games and Individual Sports.


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5	Anatomy and Physiology (0258401)	By learning the subject the students will be aware of the various anatomical structures present and functions of Human body.
6	Yoga (0258402)	The students will be introduced to the essential elements of a yogic life-style
7	Kinesiology (0258403)	To understand the various movements and muscles of the body.
8	Sports Nutrition (0258404)	To understand Macronutrients and their primary functions and to Gain basic knowledge of the different nutrients and their role in maintaining health of the community
9	Health Education (0358401)	To understand the concept of optimal health in developing a personal view of health. The history of national disease prevention and health promotion activities
10	Sports Psychology (0358402)	Understand and explanation of various psychological and behaviourist theories.
11	Physiology of Exercise (0358403)	1. Understand the basic principles of physiology and Exercise Physiology 2. Apply the knowledge in the field of physical education and movement activity. 3. Analyze the practical knowledge during the practical situation. 4. Remember and recall the definition of physiology and co-relate the principles of physiology. 5. Appraise the effects during the training and practical sessions
12	Management in Physical Education (0358404)	1. Know sports management and employ principles of strategic planning, and financial and human resource management. 2. Assess marketing needs and formulate short term and long term solutions.


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		3. Develop critical thinking in analysing sport management issues and in managerial planning and decision making.
13	Fundamental of Computer and its use in Physical & Sport (0458401)	1. The student will be oriented with the basic knowledge of computer applications. 2. The student will be able to apply the knowledge in the framing of training programs. 3. The outcome of this course will help him in gathering, storage and processing of huge information in relation to inputs, outputs and feedback of sports training programs.
14	Basic principles of Sports Training (0458402)	1. Understand training as performance based science 2. Explain different means and methods of various training 3. Prepare training schedule for various sports and games 4. Appraise types of periodization for performance development 5. Create various training facilities and plans for novice to advance performers
15	Recreation (0458403)	1. Able to organize recreational camp and activities.
16	Adapted Physical Education (0458404)	1. Understand about classification of Disabilities. 2. Understand adopted games for disability persons. 3. Known the benefits of exercise for disability persons.
17	Sports Sociology (0558401)	Analyze the social structure of education and society.
18	Method of Physical Education	1. Develop a positive attitude towards life and teaching profession. 2. Use the collaborative learning into a course in

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	(0558402)	<p>a way that aligns with students learning objectives and intended outcomes.</p> <p>3. Critically analyse the classroom teaching learning and the ability to observe classroom behaviour.</p>
19	Remedial and Corrective Physical Education (0558403)	It aims to convince the student of health and physical education that one of his greatest concerns should be to help children and young people build efficient and beautiful bodies
20	Test and Measurement in Physical Education (0558404)	<p>1. Understand the Test, Measurement and Evaluation in physical education, Health and Fitness.</p> <p>2. Know about the different types of test for different sports and games.</p>
21	Professional Preparation in Physical Education & Sports (0658401)	Professional preparation programs in Physical education are necessary to provide dynamic leadership in the field in order to help individuals and groups-the consumers-improve their own physical education.
22	Educational Technology (0658402)	Demonstrate knowledge, attitudes, and skills of digital age work and learning. Plan, design, and assess effective learning environments and experiences. Implement curriculum methods and strategies that use technology to maximize student learning. Develop technology-enabled assessment and evaluation strategies.
23	Officiating and Coaching (0658403)	<p>1. The pass out would be oriented with the rules regulations of the chosen game.</p> <p>2. The pass out would be able to lay-out and mark the dimensions of the play court.</p> <p>3. Students would be able to organize the concerned sports event and officiate in it.</p>

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		<p>4. Students would be oriented in the art of coaching the sports team.</p> <p>5. Students shall also be able to organize and officiate in yogic events.</p>
24	Fitness & Wellness (0658404)	Students will be able to explain the process to become physically fit and They will also understand how food affects your personal well-being and learn how to make smart choices.
25	Class Room Teaching (0358484,0458484, 0558483,0558484)	Understand the needs to address the children with diversities in classroom and ground practical class.
26	Game Specialization (0158480, 0258480, 0358480, 0458480, 0558480, 0658480)	<ol style="list-style-type: none"> 1. Know the fundamental of all the games and sports 2. Understand the rules of all the games and sports 3. Preparing the students for the competition 4. Classify the students accordingly for various games and sports. 5. Design and practice the new methods of technique and training.
27	Athletics (0158481, 0258481, 0358482, 0458481, 0558481, 0658482)	To equip the students to learn fundamental skills and techniques of Athletics events.
28	Project Organized (0648484)	By carrying out a intensive project work in an organization, the students would be able to have hands on experience, in identifying the real time problem in the organization and analyzing the same using relevant methods and reaching to logical conclusions.
29	Yoga	1. Know the fundamental Yoga Aasanas and other yogic activities.

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	(0158482, 0258482, 0558482)	2. Understand the rules of Performing aasans, Shuddhi Kriyas, bandhs and other yogic activites. 3. Preparing the students for the Yoga competition 4. Classify the students accordingly for various yogic activities like aasans, bandhas, shuddhi kriyas, Pranayam etc.
30	Gymnastic (0158483, 0258483, 0358483, 0458483, 0658481)	1. Know the fundamental of all types of Gymnastic Events. 2. Understand the rules of all Gymnastic Events. 3. Preparing the students for the Gymnastic competition 4. Classify the students accordingly for various Gymnastic Activities. 5. Design and practice the new methods of technique and training.

P2: Bachelor of Physical education (B. P. Ed) - 2 Year **(Annual System)**

Programme Outcomes (POs)

The Bachelor of Physical Education (B. P. Ed.) Programme is a professional Programme meant for preparing physical education teacher for high school (classes I to X) level. The curriculum and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each course in the program spells out clear instructional objectives which are mapped to the student outcomes.

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Programme Specific Outcomes (PSO)

After successful completion of program the Graduates will be able to

Career as a coach or a physical education instructor is the main option in the field. Their job entails selecting potential players and then teaching them the rules of the game, demonstrate various techniques, ways to plan a game and devise strategy. They also observe players and offer them guidance and helpful criticism. They accompany players for competitions and motivate them so as to bring out the best in them.

One can also join one of the many health centers that are opening in clubs and hotels as fitness experts and have a respectable job and a handsome pay package. Experienced coaches are in great demand at all the training centers set up by SAI and by state and central sports bodies. Besides sports clubs, schools and colleges, they can also work as in-house coaches for corporate sports teams. Opportunity after B. P. Ed course-Physical Education Teacher, Insurance agencies, Steel authority of India, Banks, Indian Oil Corporation and Food Corporation are appointing sportspersons for jobs, Experienced sportsperson can work as coach, fitness instructor, team manager, umpire or referee, Class XII - any subject with physical education, Graduate degree in Physical education; in Physical education. Jobs as Physical education trainers/ educators/therapists/coaches.


Course Outcome (Cos)


S. No.	Course	Out come
1	History, Principles and Foundation of Physical Education (0158201)	<ol style="list-style-type: none">1. Know the origin and development of Physical Education2. Apply the knowledge of Olympism in organizing various sport activities.3. Distinguish the functional operations on National and International Olympic Federations.4. Analyze the concepts and issues pertaining to Physical Education.5. Formulate the principles, philosophy and

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		concepts about Physical Education
2	Anatomy and Physiology (0158202)	<ol style="list-style-type: none"> 1. Learn about the anatomy of human body from the cell structure to the major systems of the body 2. Understand the physiology, unique anatomical features, and the functions of the major systems of the body
3	Health Education and Environmental Studies (0158203)	<ol style="list-style-type: none"> 1. To understand the concept of optimal health in developing a personal view of health. 2. The history of national disease prevention and health promotion activities.
4	Yoga Education (0158204)	<ol style="list-style-type: none"> 1. Understand the basic Concepts of Yoga 2. Apply the principles of Yoga to live healthy and active life style. 3. Promote the awareness of health through yoga 4. Analyze the techniques and of body posture to bring out healthy change. 5. Able to execute loosening exercise, Asanas, Pranayama and Shatkriyas.
5	Educational Technology and Methods of Teaching in Physical Education (0158205)	<ol style="list-style-type: none"> 1. Demonstrate knowledge, attitudes, and skills of digital age work and learning. Plan, design, and assess effective learning environments and experiences. 2. Implement curriculum methods and strategies that use technology to maximize student learning. 3. Develop technology-enabled assessment and evaluation strategies. 4. Develop a positive attitude towards life


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		<p>and teaching profession.</p> <p>5. Use the collaborative learning into a course in a way that aligns with students learning objectives and intended outcomes.</p> <p>6. Critically analyse the classroom teaching learning and the ability to observe classroom behaviour.</p>
6	<p>Organization and Administration (0158206)</p>	<p>1. Understand the principles and process of Administration and Management</p> <p>2. Administer physical education and sports programs in schools.</p> <p>3. Develop appropriate physical education curriculum, tools and budget to manage school programs</p> <p>4. Appraise and manage physical education facilities and personnel in school</p> <p>5. Design tournament fixtures and structures to organize competitions</p>
7	<p>Officiating and Coaching (0158207)</p>	<p>1. Able to mark Track and Field and Officiate</p> <p>2. Able to understand the rules of the games and sports</p> <p>3. Able to give seeding and Heats in Track and Field. Combined Events.</p> <p>4. Design and practice the new methods of technique of officiating</p>
8	<p>Sports Nutrition and Weight Management (0158208)</p>	<p>1. Restate the role of nutrients and caloric requirements</p> <p>2. Sketch the basic classification, functions and utilization of nutrients.</p> <p>3. Point out diet for various competitions</p>

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		<p>and nutrient supplements for performance.</p> <p>4. Evaluate the factors affects weight management and solutions for obesity.</p> <p>5. Design caloric requirements for various sports and age group</p>
9	Sports Training (0258201)	<p>1. Understand training as performance based science</p> <p>2. Explain different means and methods of various training</p> <p>3. Prepare training schedule for various sports and games</p> <p>4. Appraise types of periodization for performance development</p> <p>5. Create various training facilities and plans for novice to advance performers</p>
10	Computer Applications in Physical Education (0258202)	<p>1. The student will be oriented with the basic knowledge of computer applications. 2. The student will be able to apply the knowledge in the framing of training programs. 3. The outcome of this course will help him in gathering, storage and processing of huge information in relation to inputs, outputs and feedback of sports training programs.</p>
11	Sports Psychology and Sociology (0258203)	<p>1. Explain group mechanisms and group psychology in a sports context</p> <p>2. Reflect upon motivational psychology as applied to sports activities</p> <p>3. Formulate relevant constructs of exercise psychology</p> <p>4. Demonstrate the ability to discuss sociological theories, concepts, and ideas in</p>

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		<p>large and small groups and to express empirically as well as theoretically-based opinions.</p> <p>5. To apply core sociological theories to specific social problems in order to analyses social problems.</p>
12	<p>Measurement and Evaluation in Physical Education. (0258204)</p>	<p>1. Understand the Measurement and Evaluation in physical education, Health and Fitness.</p> <p>2. Know about the different types of test for different sports and games.</p>
13	<p>Kinesiology and Biomechanics (0258205)</p>	<p>1. Analyze and explain the mechanisms underlying biomechanical, physiological and psychological changes that occur during after acute and chronic exercise.</p> <p>2. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.</p> <p>3. Know effectiveness of human movement using mechanical principles.</p>
14	<p>Research and Statistics in Physical Education (0258206)</p>	<p>1. Identify the research problem in the field of physical Education and sports</p> <p>2. Know to Summarize the various research literature</p> <p>3. Understand and apply the basics of statistics in research.</p> <p>4. Organize the samples and sampling</p>

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		techniques which is relevant to the study.
15	Sports Medicine, Physiotherapy and Rehabilitation. (0258207)	<ol style="list-style-type: none"> 1. Perform and report on the exploratory analysis of data collected using sports technology 2. Analyze sporting data of various types via astute use of statistical packages. 3. Practice mathematics, statistics, and information technology in sport technology related problems. 4. Support a conclusion based upon quantitative prediction, performance and analysis of a sporting team, code, or gaming environment. 5. Offer Hands on Knowledge in sports Technology
16	Sports Management. (0258208)	<ol style="list-style-type: none"> 1. Know sports management and employ principles of strategic planning, and financial and human resource management. 2. Assess marketing needs and formulate short term and long term solutions. 3. Conceive, plan, execute, and evaluate a sports event.
17	Teaching Practices/ Internship/ Class Teaching (0158286, 0158287, 0258286, 0258287)	Experience in designing Physical Education programmes for various age groups
18	Athletics (Track and Field) (0158280, 0258280)	<ol style="list-style-type: none"> 1. To equip the students to learn fundamental skills and techniques of track and field events. 2. To familiarize with mechanical principles

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		involved in skills and technique track and field events. 3. To understand and conduct the qualitative and quantitative analysis in track and field events
19	Games and Sports (0158283, 0158285, 0258281, 0258282, 0258284)	<ol style="list-style-type: none"> 1. Know the fundamental of all the games and sports 2. Understand the rules of all the games and sports 3. Preparing the students for the competition 4. Classify the students accordingly for various games and sports.. 5. Design and practice the new methods of technique and training.
20	Yoga (0158282)	<ol style="list-style-type: none"> 1. Know the fundamental Yoga Aasanas and other yogic activities. 2. Understand the rules of Performing aasans, Shuddhi Kriyas, bandhs and other yogic activites. 3. Preparing the students for the Yoga competition 4. Classify the students accordingly for various yogic activities like aasans, bandhas, shuddhi kriyas, Pranayam etc.
21	Gymnastic (0158281, 0258283)	<ol style="list-style-type: none"> 1. Know the fundamental of all types of Gymnastic Events. 2. Understand the rules of all Gymnastic Events. 3. Preparing the students for the Gymnastic competition 4. Classify the students accordingly for


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		various Gymnastic Activities. 5. Design and practice the new methods of technique and training.
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P3: Master of Physical Education (M. P. Ed) - 2 Year **(Semester System)**

Programme Outcomes (POs)

The Master of Physical Education (M.P.Ed.) Programme is a professional Programme meant for preparing physical education teacher for senior secondary (classes XI and XII) level as well as assistant professor / directors / sports officers in colleges /universities and teacher educators in college of physical education and university departments of physical education. The curriculum and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each course in the program spells out clear instructional objectives which are mapped to the student outcomes

Programme Specific Outcomes PSO

After successful completion of program the will be able to;

1. Physical Education Instructors:

- ✓ Conducting physical training classes, organising games and coaching students in games and athletics.
- ✓ Training students in callisthenics, gymnastics and other physical exercises to promote strength and gracefulness, or to correct body posture.
- ✓ Organising and instructing or refereeing for games such as hockey, basketball, football etc.
- ✓ Assuming responsibility for the maintenance of gymnasiums and sports equipment.
- ✓ Physical Education teachers also supervise games in junior classes.

2. Coaches :

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- ✓ There are coaches for each game and athletic event.
- ✓ Selecting potential players
- ✓ Giving them instructions about the rules of the games, planning and precision of movements.
- ✓ Demonstrating techniques of play, drilling them in fundamentals until players become familiar with them.
- ✓ Observe players in action, and offer helpful criticism and corrective methods.
- ✓ Accompany the player during tournaments and provide the necessary guidance as well as boost up the morale of the players.

3. Umpire/Referee :

This job requires knowledge of the rules of the game one is refereeing. Recognised state or national bodies appoint or reward certification of umpires/referees. Their job is to conduct the games and sports in accordance with rules and regulations. Inspecting sports equipment, the ground, and enforcing compliance of schedules and rules is part of their job.

4. Professional players :

Professional players are selected from amongst those who show record performance in a number of tournaments played at various levels. Selections are conducted at the institutional level, district level, regional level and national level. Outstanding performers represent the country at the international level.

5. Sport and leisure club managers

6. Administrative and sports duties.

Office work, e.g., manage accounts, formulate plans, make timetables for schools, clubs and the general public and arrange for specialised coaches. Ensure that health and safety regulations are adhered to. Ensure that the premises, the swimming pool and equipment such as badminton nets, mats are in good condition. Sports for physical fitness and therapy: Sport and health are being recognised as related concepts. In India there is a growing interest in health and fitness, particularly among conscious adults.

7. Sports and business marketing :

The marketing of sports goods, research and development also need the involvement of sports persons.

8. Sports journalism :

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Columnists, feature writers, commentators, programme producers, directors and presenters are involved in preparing and presenting sports programmes for viewers.

9. Sports photojournalists :

Cover sports events for newspaper and magazines.

10. Sports administration :

The government sponsored sports institutions have officials to manage the work at various levels.

11. Physical Education Instructors :

- ✓ Conducting physical training classes, organising games and coaching students in games and athletics.
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Course outcome (COs)

S. No.	Course	Out come
1	Research Process in Physical Education & Sports Sciences (158301)	<ol style="list-style-type: none"> 1. To equip students with a basic concepts of research. 2. To enable the students to learn the sampling techniques. 3. To enable students to chose the most appropriate research method / design to address a particular research question. 4. To equip the students to prepare a research proposal for grants. 5. To enable the students to prepare a research thesis/report/article for a journal. 6. To enable the students to learn the basic concepts of statistics. 7. To acquire the skills of parametric and non parametric statistical methods and apply the appropriate technique for a research data analysis.
2	Physiology of Exercise. (0158302)	This course presents the study of develop basic understanding of the human anatomy, the human physiology and a deeper understanding of the human systems.
3	Managemnt in Physical Education (0158303)	Management in sport organizations provide sports development, general planning activities in the field of sports, organizes all relevant

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		resources, processes and functions, exercised a policy of human resources development, organized sports and business functions.
4	Sports Biomechanics & Kinesiology (0158304)	<ol style="list-style-type: none"> 1. Identify biomechanical, health, physiological, and psychological limitations to and interventions for improving physical performance. 2. Analyze and explain the mechanisms underlying biomechanical, physiological and psychological changes that occur during after acute and chronic exercise. 3. Develop physical conditioning programs based on scientific principles designed to develop physical fitness and improve athletic performance 4. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury. 5. Know effectiveness of human movement using mechanical principles.
5	Sports Engineering (0158305)	<ol style="list-style-type: none"> 1. Apply the knowledge of science, mathematics, and engineering principles for developing problem solving attitude 2. Identify, formulate and solve engineering problems in the domain of sports engineering field. 3. Use different software tools for Analysis and Design sports engineering domain.
6	Applied Statistics in Physical Education &	<ul style="list-style-type: none"> • Understand and apply the statistics in research. • Organize the samples and sampling techniques.

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	Sports Science (0258301)	<p>which is relevant to the study.</p> <ul style="list-style-type: none"> • Apply the statistics in research thesis for evaluation
7	Sports Psychology (0258302)	<ol style="list-style-type: none"> 1. To make the students familiarise with concept of psychology applied in sports performance. 2. To integrate personal relevance of the selected theories, techniques, and skills to one's own sport experiences 3. To develop an understanding of how psychological factors influence performance in sport and physical activity settings 4. To develop the ability to think critically about issues in sport and physical activity.
8	Tests, Measurement and Evaluation in Physical Education (0258303)	<ol style="list-style-type: none"> 1. Understand the Test, Measurement and Evaluation in physical education, Health and Fitness. 2. Know about the different types of test for different sports and games. 3. Apply the tests in minor research areas. 4. Analyse the performance and movements in the field of sports.
9	Sports Journalism and Mass Media (0258304)	<ol style="list-style-type: none"> 1. To understand the basics of reporting 2. To familiarize the students with different types of reporting. 3. To create understanding of specialized reporting. 4. To develop the general understanding of art culture and sports reporting.
10	Curriculum designs in Physical Education	<ol style="list-style-type: none"> 1. Introduce the teaching and curriculum objectives and course module design.

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	Education. (0258305)	2. Analyze the planning strategies, teaching, learning and assessment
11	Scientific Principles of Sports Training. (0358301)	<ol style="list-style-type: none"> 1. Understand training as performance based science 2. Explain different means and methods of various training 3. Prepare training schedule for various sports and games 4. Appraise types of periodization for performance development 5. Create various training facilities and plans for novice to advance performers
12	Sports Medicine (0358302)	<ol style="list-style-type: none"> 1. Understand the primary responsibilities the sports trainer has in preventing sports injuries and providing initial care for injured athletes. 2. Demonstrate the basics of sport first aid during and after game situation. 3. Recognise and appropriately treat common sports injuries and conditions from onset through rehabilitation
13	Health Education and Sports Nutrition (0358303)	<ol style="list-style-type: none"> 1. To understand the concept of optimal health in developing a personal view of health. 3. The history of national disease prevention and health promotion activities 2. Restate the role of nutrients and caloric requirements 3. Sketch the basic classification, functions and utilization of nutrients. 4. Point out diet for various competitions and nutrient supplements for

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		performance.
14	Yogic Sciences (0358304)	<ol style="list-style-type: none"> 1. Understand the basic Concepts of Yoga. 2. Apply the principles of Yoga to live healthy and active life style. 3. Promote the awareness of health through yoga
15	Physical Fitness and Wellness (0358305)	<ol style="list-style-type: none"> 1. Develop physical conditioning programs based on scientific principles designed to develop physical fitness and improve athletic performance 2. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.
16	Information & Communication Technology (ICT) in Physical Education (0458301)	<ol style="list-style-type: none"> 1. Understand concept of information and communication technology in physical education field 2. Analyse sporting data of various types via astute use of statistical packages. 3. Practice mathematics, statistics, information technology in sport technology related problems. 4. Offer Hands on Knowledge in information and communication Technology
17	Athletic Care and Rehabilitation. (0458302)	<ol style="list-style-type: none"> 1. Recognise and appropriately treat common sports injuries and conditions from onset through rehabilitation. 2. Identify and apply knowledge of anatomy to the design and execution of research studies.
18	Sports Sociology (0458303)	Analyze the social structure of education and society. Critically Evaluate the role of Science in the development of discipline of Education and Values in the Human Resources involved. Deep observation of education and social equity and facilities provided to disadvantage group.


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19	Dissertation (0458304)	This paper will be taught according to the syllabus of each students based on their dissertation topic which may have depth knowledge on various aspects of the study chosen.
20	Professional Preparation in Physical Education (0458305)	Professional preparation programs in Physical education are necessary to provide dynamic leadership in the field in order to help individuals and groups-the consumers-improve their own physical education.
21	Teaching Practices/ Internship/ Class Teaching/ Coaching Lesson (0158383, 0258382, 0258383, 0358382, 0358383, 0458382, 0458383)	Develop an understanding of Technicality of Teaching roles. Develop Pedagogical and Productive competencies to Pre service and In- service teachers of Elementary/ Secondary schools. Enrich administrative ability and entrepreneurship of M.P. Ed. interns. Develop observational skills of teaching profession. Develop a comprehensive and critical understanding on school plant and related activities. Develop the managerial skills required in schools. Understand pedagogical skills and how to apply these skills in real teaching situations.
22	Athletics (Track and Field) (0158380, 0258380, 0358380, 0458380)	1. To equip the students to learn fundamental skills and techniques of track and field events. 2. To familiarize with mechanical principles involved in skills and technique track and field events. 3. To understand and conduct the qualitative and quantitative analysis in track and field events.
23	Games and Sports (0158381, 0258381, 0358381, 0458381)	1. To enable the students to learn the basic skills and techniques of sports and games. 2. To learn and apply the mechanical principle on the technique of sports skill.

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		3. To understand the technique of qualitative and quantitative analysis.
24	Yoga (0158381)	<p>2. Know the fundamental Yoga Aasanas and other yogic activities.</p> <p>2. Understand the rules of Performing aasans, Shuddhi Kriyas, bandhs and other yogic activites.</p> <p>3. Preparing the students for the Yoga competition</p> <p>4. Classify the students accordingly for various yogic activities like aasans, bandhas, shuddhi kriyas, Pranayam etc.</p>


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Methodology to Evaluate Course & Program Outcomes

Direct Assessment (External + Internal)	70%
Indirect Assessment (AT +Assignment+ TA)	30%

Direct Assessment Benchmark

40%

Level 1	60%	60% Students secure more than 40% marks	Points	1
Level 2	70%	70% Students secure more than 40% marks	Points	2
Level 3	80%	80% Students secure more than 40% marks	Points	3

Indirect Assessment Benchmark

40%

Level 1	60%	60% Students secure more than 40% marks	Points	1
Level 2	70%	70% Students secure more than 40% marks	Points	2
Level 3	80%	80% Students secure more than 40% marks	Points	3

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Program Outcomes (POs) [For Engg. and Technical Courses]

PO 1 Subjective knowledge: Apply the knowledge of History, anatomy and physiology , kinesiology, biomechanics, statistics, methods, yoga, health and other physical education specialization to the solution of complex problems.

PO 2 Problem analysis: Identify, formulate, review research literature, and analyze complex subjective problems reaching substantiated conclusions using first principles of statistics, anatomy, biomechanics, kinesiology, and other subjects

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

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Physical Education and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional physical education practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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

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

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

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PO 11 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Outcomes (POs) [For Traditional Courses]

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

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

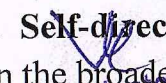
PO3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO4. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO5. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO6. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

PO7. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes


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CO & PO Mapping

(Three Levels: 3-Strongly Related, 2-Moderately Related, 1-Slightly Related)

Assessing Total Attainment for given Subject:

Direct Assessment (70%)

University Exams & Internal Exams

(70%): 70% of (1 or 2 or 3) eg. 70% of 3 is 2.1

Indirect Assessment (30%)

Attendance + Assignment/Presentation+ TA

(30%): 30% of (1 or 2 or 3) eg. 30% of 3 is 0.9

Therefore Total Attainment for Subject Name (Sub code :) is $(2.1+0.9) = 3.0$

Assessing PO attainment through CO's:

Formula for Computation: $\frac{\text{Total Attainment for Subject} \times \text{AVG of POi}}{3}$


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PROGRAMME OUTCOMES (POs) OF BAJMC

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
- PO6. Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- PO7. Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.


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119501: BASICS OF MASS COMMUNICATION & JOURNALISM

Course Outcome:

- CO-1. Students able to understand the psychology based course.
- CO-2. Students get familiar with different types of Communication and Journalism
- CO-3. Explain the need and importance of studying communication across life span
- CO-4 Course helps to Identifying the factors affecting Journalism.
- CO-5 Students learn basics of effective communication.
- CO-6 Students learn about the process of communication with various models of communication.
- CO-7 Student learn the various theories of communication and develop their critical thinking
- CO-8 Student learn the various types of journalism and understand the working process of media organization.

119502: GENERAL HINDI

Course Outcome:

- CO-1. Students learn about the basic of Hindi language
- CO-2. Students learn the basic of Hindi grammar, its help them for developing their communication
- CO-3 Students able to develop their vocabulary.
- CO-4 It helps to develop the student's oral communication and effective writing skills.
- CO-5 Students learn professional writing skills.
- CO-6 Students able to learn critical and analytical thinking.
- CO-7 Students able to become competent with use the of Hindi language for journalistic Approach.
- CO-8 Students learn writing narration and story writing.

119503: DIGITAL JOURNALISM

Course Outcome:

- CO-1. Students able to understanding the basics of Digital Journalism
- CO-2. Students able to understand various digital media platforms.
- CO-3. Student learn about the search engine and websites.
- CO-4. Students learn about the Electronic mail and E-commerce websites.
- CO-5. Student able to understand about the e-newspaper
- CO-6. Student able to learn about the future aspect of e-newspaper and its limitations also.
- CO-7 Student learn the comparison between print and online journalism and effectiveness.
- CO-8. Student able to understand the reporting, writing, and editing for digital media.


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119504 :Advertising & Public Relations

Course Outcomes:

- CO-1.Students able to understand the basics concept of Advertising with evolution, types and function.
- CO-2. Students get familiar with different types of Advertising Agencies and its Function.
- CO-3. Students learn the marketing research, theories of advertisement and advertising appeal
- CO-4 Course helps to Identifying the affecting factors consumer behavior.
- CO-5 Students learn about the basics of advertising research.
- CO-6 Students learn about the basic concept of PR.
- CO-7 Student learn the about various tools of PR.
- CO-8 Student learn the various ethics of PR and PRSI theories of PR.

219501: Reporting & Editing

Course Outcomes:

- CO-1. Students understand the basic concepts news.
- CO-2. Students learn the basics of reporting with types of news beats.
- CO-3. Students learn the types reporting.
- CO-4. Students able familiar with the functioning of editorial department or news room.
- CO-5. Students learn the basics concept of print editing.
- CO-6. Students learn the basics of proof reading.
- CO-7. Students learn about the importance of translation of government official announcement
- CO-8. Students learn about the structure of editorial department.

219502: General English

Course Outcome:

- CO-1.Students learn about the basic of English language
- CO-2.Students learn the basic of English Grammar, it help them to develop communication skills.
- CO-3 Students able to re-write and find out the error in the sentences.
- CO-4. It helps to develop the student's oral communication and effective writing skills, with enhancing their vocabulary. It help to develop their critical and analytical thinking.
- CO-5. Students learn one word substitution and homonyms.
- CO-6. Students able to learn the composition and mechanism of writing.
- CO-7. Students able to become competent with use the of English language for journalistic.
- CO-8. Students learn article writing, letter writing and story writing.


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219503: Mass Media Writing Skills

Course Outcomes:

- CO-1. Students learn about the skills of writing for various mass media.
- CO-2. Course helps to the students for developing their creative, narrative and interpretive writing skills.
- CO-3. Student learn the basics ingredients of professional feature writing.
- CO-4. Course helps to the students for writing Print, TV, Radio and Digital Media.
- CO-5. Course helps to the students for Edit page writing.
- CO-6. Students learn to develop PR content writing skills.
- CO-7. Students able to develop their corporate writing skills.
- CO-8. Course able to make the student self dependant as freelance writer.

219504: Photo Journalism

Course Outcomes:

- CO-1 Students learn about the origin of photography and its history.
- CO-2. Student learn about the modernization of photography.
- CO-3. Students learn about the tools of photography.
- CO-4. Student develop the sense of photography and use of light.
- CO-5. Course helps to develop the critical thinking of students in various professional field.
- CO-6. Students learn about the wild photography, advertising photography and photo features.
- CO-7. Students able to understand about the Photo Editing and software.
- CO-8. Course helps the students for their future in professional photography.

319501: Value Education

Course Outcome:

- CO-1. Course able to develop the Values of students
- CO-2. Course helps to the students for critical thinking for the society.
- CO-3. Course helps the students of their self development and analysis.
- CO-4. Students understand the social issues, human values and challenges and social concern.
- CO-5. Course helps to develop national values among the students.
- CO-6. Students learn the demographic system of country for the integrity of India.
- CO-7. Students able to understand the value of media for the society.
- CO-8. Students learn the role of media for the social awareness.


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319502: Corporate Communication

Course Outcome:

- CO-1. Students understand the basic concept of corporate communication.
- CO-2. Student learn the functioning of corporate communication.
- CO-3. Course helps the students to understand the social responsibility of corporate communication and management.
- CO-4. Students able to understand the campaign planning and crisis management.
- CO-5. Course helps the students to understand media management and planning.
- CO-6. Students learn about to organizing the media event and press briefing.
- CO-7. Students able to understand the concept of brand and process of branding.
- CO-8. Students able to understanding about the process of branding and brand image.

319503: Broadcast Journalism (Electronic Media-I)

Course Outcome:

- CO-1. Students understand the history and concept of Radio.
- CO-2. Student learn the functioning Radio and organizational structure of AIR .
- CO-3. Course helps the students to understand the Radio programming.
- CO-4. Students able to understand radio feature, radio play, Radio Bridge and radio commentary.
- CO-5. Course helps the students to understand the radio language for various programs.
- CO-6. Students learn about the importance of educational and community radio.
- CO-7. Students able to understand the basics requirement of radio program.
- CO-8. Students able to understanding about the process of radio program production.

319504: Indian Political System

Course Outcome:

- CO-1. Students familiar with the Indian Constitution.
- CO-2. Student learn the fundamental rights and duties and directive principle of state.
- CO-3. Students able to understand constitutional post and their power.
- CO-4. Students able to understand about the procedure of legislature.
- CO-5. Course helps the students to understand the center and state relation and state legislature.
- CO-6. Students learn about the Panchayati Paj, Local Government and Judicial System of India.
- CO-7. Students able to understand political system and its nature .
- CO-8. Students able to understanding about the voting behavior and pressure groups and political participation.


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419501: Media Law & Ethics

Course Outcome:

- CO-1. Students familiar with the concepts of Press Law.
- CO-2. Student learn the importance of speech and expression.
- CO-3. Students able to understand Parliamentary privileges and contempt court.
- CO-4. Students able to understand about the various media law.
- CO-5. Course helps the students to understand the meaning of defamation and copy right act and working journalist act.
- CO-6. Students learn about the IT related law.
- CO-7. Students able to understand the importance of RTI, cable TV regulation act.
- CO-8. Students able to understanding about the various media association and organization and their function.

419502: Media and Cultural Studies

Course Outcome:

- CO-1. Students learn about the concept of Culture.
- CO-2. Student learn the importance of Religion and tradition in cultural integration.
- CO-3. Students able to understand different kinds of Media Culture.
- CO-4. Students able to understand intellectual change and mass media.
- CO-5. Students learn about to understand media culture.
- CO-6. Students get knowledge about the Nation Class and caste issues in Media.
- CO-7. Students able to understand gratification approach in Indian media Culture
- CO-8. Students able to understanding about the digital Media Sub-Culture.

419503: Television Journalism (Electronic Media- II)

Course Outcome:

- CO-1. To make students aware about the nature and importance of Television.
- CO-2. Student learn the importance of TV then other mass media.
- CO-3. Students able to understand different TV program and their nature .
- CO-4. Students able to understand about the different types of television program.
- CO-5. Course helps the students to understand the elements and source of TV news.
- CO-6. Students learn about the TV news writing with various types .
- CO-7. Students able to understand the process of TV program production.
- CO-8. Students able to understanding about the qualities and skills of TV news Anchoring and importance of pronunciations.

419504: Indian Social System

Course Outcome:

- CO-1. Students learn about the Indian society.
- CO-2. Student learn about the types of society and its structure.
- CO-3. Students able to understand different family structure and culture of India .
- CO-4. Students able to understand about the different types of marriage in Indian Social System.
- CO-5. Course helps the students to understand the cast system of Indian Society.
- CO-6. Students learn about the culture and tradition of Indian society .
- CO-7. Students able to understand the social issues through the mass media .
- CO-8. Students able to understanding about the participation of media in society.


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519501: Communication Research

Course Outcome:

- CO-1. Course provide the basic knowledge of communication research.
- CO-2. Student learn the process and types and formulating the research.
- CO-3. Students able to understand various method and techniques .
- CO-4. Students able to understand about the methodology of research.
- CO-5. Course helps the students to understand the importance of data in research.
- CO-6. Students learn about the sampling and data analysis of research.
- CO-7. Students able to understand SPSS.
- CO-8. Students able to understanding about the scientific knowledge and techniques of communication research .

519502: New Media Technology


Course Outcome:

- CO-1. Student understand about the fundamental of multi media .
- CO-2. Student learn about the e-news paper.
- CO-3. Students able to understand about the Internet radio and TV.
- CO-4. Students able to understand about the cyber journalism.
- CO-5. Course helps the students to understand the types of websites and emails.
- CO-6. Students learn about the traditional and web journalism.
- CO-7. Students able to understand elements of web journalism.
- CO-8. Students able to understanding about the web journalism and law.

519503: Environment and Rural Communication

Course Outcome:

- CO-1. Student understand about the concept of Environment Communication.
- CO-2. Student learn about the need of international environment communication.
- CO-3. Students learn about the national and international environment polity.
- CO-4. Students able to understand about the various environment related national mission .
- CO-5. Course helps the students to understand the concept of rural communication .
- CO-6. Students learn about the role of Panchayati Raj, and rural journalism.
- CO-7. Students learn about the traditional media.
- CO-8. Students able to understanding about the role of media in rural communication .


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619501: Media Management

Course Outcome:

- CO-1. Student understand about the concept of Media Management.
- CO-2. Course helps the students to understand the formulation planning and control of media management .
- CO-3. Students learn about the various aspects of media management.
- CO-4. Students able to understand about the importance of budgeting, finance, advertising in media management.
- CO-5. Course helps the students to understand the planning and execution of media management.
- CO-6. Students learn about the function and role of Press Commission, Press Council, ABC INS, EGI PIB in media management.
- CO-7. Students learn about the maintaining the media record, media event management, and cost effective techniques.
- CO-8. Students able to understanding about the internal and external communication.

619502: Development Communication

Course Outcome:

- CO-1. Student understand about the concept of development.
- CO-2. Course helps to make aware about the characteristics of countries .
- CO-3. Students learn about the various theories of development of communication .
- CO-4. Students able to understand the role of NGO's in development .
- CO-5. Course helps the students to understand the development support communication.
- CO-6. Students learn about the development policies, strategies and action plan.
- CO-7. Students learn about the importance of agriculture in rural development.
- CO-8. Students able to understanding about problems of NGO's in development.


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PROGRAMME OUTCOMES (POs) OF MAJMC

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
- PO6. Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- PO7. Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.


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119601: Communication Concept & Process

Course Outcome:

- CO-1. Students able to understand the advanced concept, elements and process of communication .
- CO-2. Students get knowledge about the mass communication and its nature and function.
- CO-3. Course explain the model of communication for enhancing the critical thinking of students .
- CO-4 Students learn the ideology and theories of mass communication.
- CO-5 Students learn about the media convergence.

119602: Fundamental Of Computer

Course Outcome:

- CO-1. Students learn about the history and characteristics of computer.
- CO-2. Students learn about the components of computer.
- CO-3 Students learn about the operating system of computer.
- CO-4 Course helps to the under student the MS Excel and Power Point. .
- CO-5 Students learn about history of internet and search engine of internet.

119603: History of Press, Laws and Ethics

Course Outcome:

- CO-1. Students able to understanding the history of press.
- CO-2. Students able to understand the regional press of India.
- CO-3. Student learn about the eminent journalist of India.
- CO-4. Students learn about the media laws.
- CO-5. Student able to understand the media organizations and ethics.

119604: Indian Social and Political System Of India

Course Outcome:

- CO-1. Students learn about the Indian society.
- CO-2. Student learn about the types of society, culture and its structure.
- CO-3. Students able to understand the role of media in Indian society .
- CO-4. Students able to understand about the Indian constitution.
- CO-5. Course helps the students to learn about the Indian economy, GDP Budget, Stock Market and FDI .


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219601: Development & International Communication

Course Outcome:

- CO-1. Students learn about the concept definition theories and paradigms of development.
- CO-2. Student learn about the development communication and its role.
- CO-3. Students learn about the role of media in communication .
- CO-4. Students able to understand about the International communication and its importance.
- CO-5. Course helps the students to understand the international information flow .

219602: Iconic Personalities of Media: Post Independence

Course Outcome:

- CO-1. Course introduce to the student with the iconic personalities of Indian media .
- CO-2. Student learn about the changing role of media after independence.

219603: Electronic Media-I (Radio)

Course Outcome:

- CO-1. Students understand the history and concept of Radio.
- CO-2. Course helps the students to understand the nature and types of Radio program.
- CO-3. Students able to understand radio news and types.
- CO-4. Course helps the students to understand the qualities of announcer.
- CO-5. Students learn about the radio format and production.

219604: IT and Computer Application in Mass Media

Course Outcome:

- CO-1. Students learn about the Information technologies in mass media .
- CO-2. Course helps the students to understand about the DTP software .
- CO-3. Students able to understand data communication and computer network.
- CO-4. Course helps the students to understand about the interactive communication.
- CO-5. Students learn about the social networking sites.

319601: Print Journalism (Editing & Layout)

Course Outcome:

- CO-1. Students learn about the news and news related organization and role of editor of news paper.
- CO-2. Course helps the students to understand the types and scopes of reporting .
- CO-3. Students able to understand the copy editing.
- CO-4. Course helps the students to learn about the photo journalism .
- CO-5. Students learn about the page layout and design.


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319602: Electronic Media- II (Television)

Course Outcome:

- CO-1. To make students aware about the introduction and importance of Television.
- CO-2. Student learn about the nature and importance of TV program.
- CO-3. Students able to understand different TV news reporting and TV news script writing.
- CO-4. Students able to understanding about the qualities and skills of TV news Anchoring and presentation.
- CO-5. Students able to understand the process of TV program production.

319603 :Advertising & Public Relations

Course Outcomes:

- CO-1.Students able to understand the basics concept of Advertising and introduction
- CO-2. Students get familiar with the production techniques of Advertising.
- CO-3. Students learn about the concept and introduction of PR.
- CO-4 Student learn about the role of PR different sector.
- CO-5 Student learn about the media management.

Special Paper any one of the Following

319604 (A): Online Journalism

Course Outcomes:

- CO-1.Students able to understand about the internet journalism
- CO-2. Students learn about the introduction of on line journalism
- CO-3. Students understand about the writing for online media.
- CO-4 Student learn about the media convergence.
- CO-5 Student learn about the revenue ethics and law in online journalism

319604 (b): Environment Communication

Course Outcomes:

- CO-1. Student understand about the concept of Environment Communication.
- CO-2. Student learn about the protection of environment.
- CO-3. Students learn about the national and international issues of environment and policies.
- CO-4. Students able to understand about the various environment related national and international campaign .
- CO-5. Course helps the students to understand about the environmental moment in India


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419601: Communication Research

Course Outcome:

- CO-1. Course provide the introduction of communication research.
- CO-2. Student learn about the design and process communication research.
- CO-3. Students able to understand about the sampling and data collection techniques .
- CO-4. Students able to understand about the data analysis and report writing.
- CO-5. Course helps the students to understand about the ethics in communication research.


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COURSE OUTCOMES & PROGRAM OUTCOMES (COs & POs)



(Session: 2022-23)

SUBMITTED BY:

(DEPARTMENT OF FINE ARTS)

SHRI RAM COLLEGE, MUZAFFARNAGAR

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Course Outcomes:

S.No.	Programme	Course/Course Code	Code	Outcomes
1.	BFA 1 st year	History of Indian Art	BFA 101	<ul style="list-style-type: none"> ❖ It influence culture as well as religion such as Hinduism, Buddhism, Jainism, Sikhism & Islam, its connect student artists with ancient knowledge ❖ It reflect the sense of modern & traditional art forms
		Foundation Course: English	BFA 102	<ul style="list-style-type: none"> ❖ Develop their communication skill of Learning, writing, Speaking and writing. ❖ To help the students in developing their communication skills through effective use of English. ❖ To assist in developing their personality
		Drawing	BFA 103	<ul style="list-style-type: none"> ❖ Different themes of colours with nature art ❖ Miniatures on different of Indian arts
		Design 2D	BFA 104	<ul style="list-style-type: none"> ❖ Demonstrate their innovation designs ❖ Illusion, Pen work & Calligraphy with water colour & poster colours
		Design 3D	BFA 105	<ul style="list-style-type: none"> ❖ Demonstration and execution of structures ❖ Ability in drawing: perception, composition and expressions
2.	BFA 2 nd year	History of Western Art	BFA 201	<ul style="list-style-type: none"> ❖ To understand the evaluation & development in human being ❖ To get introduce about paintings in different caves.
		Western Aesthetics	BFA202	<ul style="list-style-type: none"> ❖ In western aesthetics we elaborate outer beauty of the body ❖ We learned about lots of western philosophers & his views on Aesthetics
		Advertising Theory	BFA 203	<ul style="list-style-type: none"> ❖ Indoor & outdoor advertising with photography ❖ Writing of news letter ❖ Study of different Brands
		Fashion Theory	BFA 205	<ul style="list-style-type: none"> ❖ Understand the attributes of different textile material ❖ Be able to understand the functioning of Apparel industry
		Press layout	BFA 208	<ul style="list-style-type: none"> ❖ Designing of product Adds of both manual & graphics

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		Poster Design	BFA 209	<ul style="list-style-type: none"> ❖ Designing of posters of different brands and their specific product
		Drawing & Illustration	BFA 210	<ul style="list-style-type: none"> ❖ Designing of themes representing their ideas of art
		Photography & Reproduction Technique	BFA 211	<ul style="list-style-type: none"> ❖ Understand both advanced digital and analogue camera operations with photographic exposure, shutter speed ❖ Types of lighting equipments and their necessity
		Pattern Making & draping	BFA 215	<ul style="list-style-type: none"> ❖ Making of layout ❖ Knowledge of drafting and paper pattern ❖ To understand the human anatomy and body fitting
		Fashion Model Drawing & sketching	BFA 216	<p>Practices of female and Kids illustrations</p> <ul style="list-style-type: none"> ❖ Knowledge of normal and fashion figures ❖ Knowledge of various silhouettes ❖ How to create designing with kids wear ❖ Sketching practices of Features- eyes, ears, nose, ears ❖ Sketching practice of Face sketch with different hairstyles of male and female
		Garment Construction	BFA 217	<ul style="list-style-type: none"> ❖ To guide the students about sewing machines ❖ Uses of different threads, needles and sewing methods according to the fabric. ❖ Stitching of Kids Garment
		Fashion Art	BFA 218	<ul style="list-style-type: none"> ❖ Be aware of new development in technology and process of fabric ornamentation ❖ Understanding the weaving techniques
3.	BFA 3 rd year	History of Far Eastern Art	BFA 301	<ul style="list-style-type: none"> ❖ Historically paralleled that in eastern painting ❖ African art, Islamic art, Chinese & Japanese art each had a significant impact on Eastern Art
		Indian Aesthetics	BFA 302	<ul style="list-style-type: none"> ❖ "What is beauty", in our surroundings ❖ Knowledge of Rasa, Alankar, emotions etc. We learn about different types of art in Aesthetics

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		Advertising Theory	BFA 303	<ul style="list-style-type: none"> ❖ Study of Different logos & symbols ❖ Logo designing ❖ Designing of packaging- manual & digital
		Fashion Theory	BFA 305	<ul style="list-style-type: none"> ❖ To understand evaluation changes & development in clothing with evaluation on human race ❖ That introduce to the world of costumes & life style in culture content of India fro the ancient times
		Press Layout	BFA 308	<ul style="list-style-type: none"> ❖ Designing of social adds of both manual & graphics
		Poster Design	BFA 309	<ul style="list-style-type: none"> ❖ Designing of posters of different brands and their specific product
		Drawing & Illustration	BFA 310	<ul style="list-style-type: none"> ❖ Designing of themes representing their ideas of art
		Photography & Reproduction Technique	BFA 311	<ul style="list-style-type: none"> ❖ Product photography- outdoor & indoor ❖ Food Photography of different brands & retailers
		Pattern Making & Draping	BFA 315	<ul style="list-style-type: none"> ❖ Understanding about darts required in garments ❖ To manage the fabric materials as per falls and body sizes ❖ Bodice Block & Patterns of Women, fits & sizes
		Fashion Model Drawing & sketching	BFA 316	<ul style="list-style-type: none"> ❖ Designing techniques of female wears ❖ Designing with different themes & trends
		Garment Construction	BFA 317	<ul style="list-style-type: none"> ❖ Be able design & construct garments for women's wear ❖ Be able to calculate fabric material required for construction of garment
		Fashion Art	BFA 318	<ul style="list-style-type: none"> ❖ Become aware of an understanding hand crafting techniques, materials & process ❖ Knowledge of different fabrics for innovative design development
4.	BFA 4 th Year	History of Modern Indian Art	BFA 401	<ul style="list-style-type: none"> ❖ It influence the western styles but it is inspired by Indian themes & image

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		History of Modern Western Art	BFA 402	<ul style="list-style-type: none"> ❖ Refer to artistic works performed over an extended period 1970's & reflects the style & philosophy of that era. ❖ It experimented new ways of artists & new ideas on the tendency of material & works of Art
		Advertising Theory	BFA 403	<ul style="list-style-type: none"> ❖ Product advertising ❖ Publicity of advertising & use of add in digital life
		Fashion Theory	BFA 405	<ul style="list-style-type: none"> ❖ Understand the growth of fashion industry of post world war 1st & 2nd ❖ Understand the traditional and global styles which influences over the modern Indian dressing in costumes
		Apparel Fabric Studies & Fundamental of Apparel Production	BFA 406	<ul style="list-style-type: none"> ❖ Production process of Apparel Industry ❖ Retailing, selling, Marketing of apparels ❖ Types of Merchandising & role of merchandiser in apparel industry
		Press Layout	BFA 408	<ul style="list-style-type: none"> ❖ Corel & Photoshop designing ❖ Digital designing on different themes
		Poster Design	BFA 409	<ul style="list-style-type: none"> ❖ Poster making with different colour mediums ❖ Represents the social concept through their innovation ideas
		Drawing & Illustration	BFA 410	<ul style="list-style-type: none"> ❖ Designing of Illustrations of adds ❖ Innovative social designing for awareness on different themes
		Pattern Making & Grading	BFA 416	<ul style="list-style-type: none"> ❖ To extend the Basic pattern into different sizes ❖ Knowledge of Sizes & to grade them as per required size.
		Fashion Model Drawing	BFA 417	<ul style="list-style-type: none"> ❖ Fabric Knowledge as per the season or trends ❖ Illustrate the male/female garments
		Fashion Art & Accessories	BFA 418	<ul style="list-style-type: none"> ❖ Developing of innovative designs in jewelleries of Gold, Diamond & clay ❖ Designing of jewelleries with some waste materials ❖ Designing of purses & Bag with innovative ideas

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(M.F.A)-Masters of Fine Arts
BRIEF SCHEDULE OF THE COURSE
SEMESTER- I

S.No.	Stream	Course No. Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-I MFA-1001	History of Indian Painting (Up to 1850 AD)	<ul style="list-style-type: none"> Detailing & understanding of Indian art & its concept Learning of Ancient Indian art techniques & art forms of different states
2	Applied Arts	Theory Course-I MFA- 1003	History of Print Making	<ul style="list-style-type: none"> Process & modes of communication Evolution of communication mediums
3	Fashion Designing	Theory Course-I MFA-1005	Entrepreneurship Management with Project	<ul style="list-style-type: none"> Inspire students for entrepreneur as career Detailing & types of an Entrepreneur To acquire financial management skills
4	Textile Designing	Theory Course-I MFA-1005		
5	Drawing & Painting	Theory Course-II MFA-1002	History of Graphic Designing	<ul style="list-style-type: none"> Inventions of graphic techniques Learn & develop various techniques of graphics art
6	Applied Arts	Theory Course-II MFA- 1004	Advertising Design	<ul style="list-style-type: none"> Importance of advertising Different aspects of advertising Role of advertising in different fields
7	Fashion Designing	Theory Course-II MFA- 1006	History of Indian Costumes	<ul style="list-style-type: none"> Beaware of rulers in political history of India Lifestyle of socio-cultural content of India from ancient times Design inspiration & past influencers over current fashion trends
8	Textile Designing	Theory Course-II MFA-1007	Social & Psychological Aspects of Clothing	<ul style="list-style-type: none"> Knowledge about the origin & history of clothing Understanding the relation between clothing & wearer, clothing society
9	Drawing & Painting	Practical Course-I MFA-5001	Portrait	<ul style="list-style-type: none"> Techniques of sketching, face features of humans Full figure study with the use of lights & shades
10	Applied Arts	Practical Course-I MFA- 5004	Graphic Design & Communication-I	<ul style="list-style-type: none"> Visual communication through design Use simple design elements in communication successfully
11	Fashion Designing	Practical Course-I MFA- 5007	Fashion Illustration-I	<ul style="list-style-type: none"> Detailing of Colours Use of textures Different Bodice Block

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12	Textile Designing	Practical Course-I MFA-5010	Textile Testing & Quality control	<ul style="list-style-type: none"> • Quality of fabric, yarn & fiber by using different types of testing • Different standards use in testing
13	Drawing & Painting	Practical Course-II MFA- 5002	Nature Study	<ul style="list-style-type: none"> • Different types of landscape • Using Different types of colours & textures
14	Applied Arts	Practical Course-II MFA- 5005	Typography-I	<ul style="list-style-type: none"> • Experiment & use of expressive styles of Type sets • Aesthetically explore the design concepts using typography
15	Fashion Designing	Practical Course-II MFA- 5008	Product Development	<ul style="list-style-type: none"> • Apply the knowledge of fashion design process in making collection
16	Textile Designing	Practical Course-II MFA-5011	Textile Chemistry	<ul style="list-style-type: none"> • Understand the chemical knowledge of different types of fiber • Be able to understand the study of polymer, chemistry of textile fibres • Different types of dyeing & printing • Be able to understand the chemistry of finishes
17	Drawing & Painting	Practical Course-III MFA- 5003	Graphic Designing	<ul style="list-style-type: none"> • Understand & developing of design • Basic techniques in print making
18	Applied Arts	Practical Course-III MFA- 5006	Photography	<ul style="list-style-type: none"> • Styles & medium of important artists & art movement • Content of a visual expression in traditional & non traditional art form
19	Fashion Designing	Practical Course-III MFA- 5009	Pattern Making & Grading	<ul style="list-style-type: none"> • Develop patterns for Indian wear • Be able to construct & finish garments for men & women
20	Textile Designing	Practical Course-III MFA-5012	Drafting & Pattern Making Technique	<ul style="list-style-type: none"> • Making of standard patterns blocks • Drafting of different sleeves & collars

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SEMESTER-II

S.No.	Stream	Course No. Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-III MFA-2001	Philosophy of Art (western & Indian)	<ul style="list-style-type: none"> Principles of aesthetics of various periods in Indian & western
2	Applied Arts	Theory Course-III MFA- 2003	History of Graphic Design-II	<ul style="list-style-type: none"> Importance of symbols & signage Principles of layout design & theory of typography
3	Fashion Designing	Theory Course-III MFA- 2005	Environmental Concerns & Sustainability in Garment & Textile Industry	<ul style="list-style-type: none"> Understanding various types of pollution, its causes & control measures Sensitize the students to environmental concerns & social responsibility Create awareness of various ecoparameters & environmental issues relate the textile & apparel industry
4	Textile Designing	Theory Course-III MFA- 2005		
5	Drawing & Painting	Theory Course-IV MFA-2002	Indian Sculpture	<ul style="list-style-type: none"> Brief description of Indus Valley, Maurya period & many other
6	Applied Arts	Theory Course-IV MFA- 2004	Advertising: Visual Communication & Media	<ul style="list-style-type: none"> Design in the age of electronic media Historical evolution in designing
7	Fashion Designing	Theory Course-IV MFA- 2006	Fashion Merchandising & Management & Retail	<ul style="list-style-type: none"> Business aspects of the fashion industry Role & Scopes of fashion merchandiser Visual merchandising effective in retailing Basics of fashion promotion
8	Textile Designing	Theory Course-IV MFA- 2007	Design Ethics & Intellectual Property Rights in fashion Textile	<ul style="list-style-type: none"> Understand ethics in business, apparel industry Understand the procedure of registration of designs under Intellectual property Rights (IPR) Sensitize young designers towards ethics in design & awareness of ethical fashion & issues
9	Drawing & Painting	Practical Course-IV MFA- 6001	Traditional Composition	<ul style="list-style-type: none"> Exploring of miniatures with aesthetic principles

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10	Applied Arts	Practical Course-IV MFA- 6004	Graphic Design & Communication-II	<ul style="list-style-type: none"> • District folk art work done by students • Importance of symbols & visual elements and use them in effective way • Interaction with people to know what they are looking for in their visual literacy level
11	Fashion Designing	Practical Course-IV MFA- 6007	Fashion Illustration	<ul style="list-style-type: none"> • To enable students to draw fashion figures & model figure drawing
12	Textile Designing	Practical Course-IV MFA- 6010	Woven Fabric Structures & Fabric Analysis	<ul style="list-style-type: none"> • To acquire knowledge of the different types of fabric structure, weave patterns, colour & weave effects • Knowledge of different yarns, numbering system, weaving calculations & weaving mechanism.
13	Drawing & Painting	Practical Course-V MFA- 6002	Screen & fabric Paintings	<ul style="list-style-type: none"> • Fabric painting techniques • Experiment in different printing techniques on different types of clothes
14	Applied Arts	Practical Course-V MFA- 6005	Typography-II	<ul style="list-style-type: none"> • Design & apply advanced type forms in context based layouts • Different design concepts, visibility of the style shape & content
15	Fashion Designing	Practical Course-V MFA- 6008	Pattern Development & Draping	<ul style="list-style-type: none"> • Draping aspects of pattern making • To apply knowledge of draping in developing pattern & designs by draping
16	Textile Designing	Practical Course-V MFA- 6011	Textile CAD	<ul style="list-style-type: none"> • Training of students to develop design from fabric from computer with various colour combinations, changes in material, yarn count, Reed & pick are to be made on the buyers need • Computerized application uses

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17	Drawing & Painting	Practical Course-VI MFA- 6003	Mix Media of Mural	<ul style="list-style-type: none"> How to create creative composition in mix media Learn about basic aesthetics principles to develop a distinct styles or creation
18	Applied Arts	Practical Course-VI MFA- 6006	Digital Illustration Techniques	<ul style="list-style-type: none"> Basic tools & techniques in photoshop Does image research, usage, manipulation
19	Fashion Designing	Practical Course-VI MFA- 6009	Computer Aided Fashion Designing/ CAD Project	<ul style="list-style-type: none"> Enable students to learn the application of pattern making software
20	Textile Designing	Practical Course-VI MFA- 6012	Chemical Process & Finishing	<ul style="list-style-type: none"> Knowledge of preparatory process of fabric & coloration of textiles Understand different types of finishes used for textiles & current issues in processing also.

SEMESTER-III

S.No.	Stream	Course No. Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-V MFA-3001	History of Western Art	<ul style="list-style-type: none"> Knowledge of western art & various movements Western artist life & their work of techniques
2	Applied Arts	Theory Course-V MFA- 3003	History of Indian Art	<ul style="list-style-type: none"> Knowledge of different paintings, Mughal Architecture, Pahari painting of various schools, also early modern painters
3	Fashion Designing	Theory Course-V MFA- 3004	History of Global Costume	<ul style="list-style-type: none"> To acquaint the students with the history & evolution of Indian Costumes
4	Textile Designing	Theory Course-V MFA- 3006	History of Indian Textile Industry	<ul style="list-style-type: none"> Understanding the structure of Indian textile industry & current position of textile in India Supply chain of textile & Apparel in textile industry
5	Drawing & Painting	Theory Course-VI MFA- 3002	Brief study of Modern Art (Indian & Western)	<ul style="list-style-type: none"> Be able to learn about movements in paintings from mid 19th Century to the present day in Indian

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6	Applied Arts	Theory Course-VI MFA- 3002	Brief study of Modern Art (Indian & Western)	<ul style="list-style-type: none"> • & western • Knowledge of modern & contemporary art they will walk through their latest trend in art
7	Fashion Designing	Theory Course-VI MFA- 3005	Brief study of Contemporary Art	<ul style="list-style-type: none"> • Influence of Political, social & economic situations of a country on art practices in a specific time period • Technical development & modernization influenced artistic & their art work from time to time
8	Textile Designing	Theory Course-VI MFA- 3005	Brief study of Contemporary Art	
9	Drawing & Painting	Practical Course-VII MFA-7001	Exhibition with catalogue CAD	<ul style="list-style-type: none"> • Display of student art work with catalogue
10	Applied Arts	Practical Course-VII MFA- 7004	Digital Media	<ul style="list-style-type: none"> • Create effective typography designs • Animate background layouts & characters using 2D animation principles
11	Fashion Designing	Practical Course-VII MFA- 7007	Advance Draping	<ul style="list-style-type: none"> • Be able to convert flat fabrics into garment • Be able to express design ideas through draping and dress designing
12	Textile Designing	Practical Course-VII MFA- 7010	Textile Study	<ul style="list-style-type: none"> • Knitting technology & how to control quality of knitted garments • Laundering & care of textiles
13	Drawing & Painting	Practical Course-VIII MFA- 7002	Creative Painting	<ul style="list-style-type: none"> • Student learn about abstract or creative form with the use of different mediums & textures • It will enhance students creativity regarding contemporary art forms, abstract mediums & creative compositions
14	Applied Arts	Practical Course-VIII MFA- 7005	Packaging Design & Print Technology	<ul style="list-style-type: none"> • Know about packaging design & industry • Understanding screen printing techniques • Understand the digital printing technology
15	Fashion Designing	Practical Course-VIII MFA- 7008	Computer Aided Fashion Designing	<ul style="list-style-type: none"> • To develop art portfolio through CAD
16	Textile Designing	Practical Course-VIII MFA- 7011	Textile Project	<ul style="list-style-type: none"> • Understanding of types of knitting • Laundering & care of textile

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17.	Drawing & Painting	Practical Course-IX MFA- 7003	Sculpture Making	<ul style="list-style-type: none"> • Form of sculpture with 2D & 3D forms • Use of different materials in formation of sculptures
18	Applied Arts	Practical Course-IX MFA- 7006	Drawing for Designers	<ul style="list-style-type: none"> • Understand the visual elements & use them in their design • Demonstrate strong visual skills
19	Fashion Designing	Practical Course-IX MFA- 7009	Surface Ornamentation	<ul style="list-style-type: none"> • To acquaint the students with various ornamentation techniques on the fabrics
20	Textile Designing	Practical Course-IX MFA- 7012	Fabric Manufacturing	<ul style="list-style-type: none"> • Knowledge of different kinds of fabric & their terminologies, useful in manufacturing of fabric • Different kinds of looms & motions useful in looms

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SEMESTER-IV

Stream	Code	Subject	Outcomes
Drawing & Painting	Theory Course-VII MFA-4001	Research Methodology its Application in Fine Arts Or Research Methodology its Application in Fine Arts Or Research Methodology its Application in Fine Arts Or Research Methodology its Application in Fine Arts	<ul style="list-style-type: none"> To get a knowledge of Research Grants & how to write Key learning: Article writing, Essay, Marketing Research, Thesis: Dissertation etc
Applied Arts	Theory Course-VII MFA- 4001		
Fashion Designing	Theory Course-VII MFA- 4001		
Textile Designing	Theory Course-VII MFA- 4001		
Drawing & Painting	Practical Course-X MFA- 8001	Dissertation & viva voice Or Dissertation & viva voice Or Dissertation & viva voice Or Dissertation & viva voice	<ul style="list-style-type: none"> To explore & revive the rich traditions in Art & Craft To seek the training under professional Artist Thesis/Dissertation /Survey/ Report/ Field work
Applied Arts	Practical Course-X MFA- 8001		
Fashion Designing	Practical Course-X MFA- 8001		
Textile Designing	Practical Course-X MFA-8001		
Drawing & Painting	Practical Course-XI MFA-8002	Series Composition theme based or Copy of Master Artist Paintings Or	<ul style="list-style-type: none"> Creative composition, explore with mixed media Copy of famous artists of Indian & Western Master Artists Review of all semester & display of work Catalogue of min 5 pages of her resume & art work by computer designing- 5 catalogues are compulsory
Applied Arts	Practical Course-XI MFA- 8003	Exhibition /Display Or	
Fashion Designing	Practical Course-XI MFA- 8005	Exhibition/ Fashion Show/Display Or Exhibition/Fashion Show/ Display	
Textile Designing	Practical Course-XI MFA- 8005		

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Drawing & Painting	Practical Course-XII MFA-8004	Seminar or Workshop	<ul style="list-style-type: none"> • Seminar/ workshop on their paper presentation • 10 min to each student to present their ppt & 3000 written words
Applied Arts	Practical Course-XII MFA-8004	Seminar or Workshop	
Fashion Designing	Practical Course-XII MFA-8004	Seminar or Workshop	
Textile Designing	Practical Course-XII MFA-8004	Seminar or Workshop	
Drawing & Painting	Practical Course-XIII MFA- 8006	Installation Art Or	<ul style="list-style-type: none"> • It is an artistic genre of three dimensional works • Student will make installation art either solo or in group in dept.
Applied Arts	Practical Course-XIII MFA- 8006	Installation Art	
Fashion Designing	Practical Course-XIII MFA- 8006	Or Installation Art Or	
Textile Designing	Practical Course-XIII MFA- 8006	Installation Art	

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Department of Fine Arts (BFA)

Program Outcomes (POs)

POs 1: Artistic Knowledge:

Apply knowledge of artistic principles, theories, and techniques to create and evaluate artworks across various mediums.

POs 2: Critical Analysis:

Identify, analyze, and interpret visual and contextual elements in art to develop well-informed critiques and artistic perspectives.

POs 3: Creative Practice and Innovation:

Design and develop original artworks that reflect creativity, innovation, and personal expression while considering aesthetic, cultural, and social contexts.

POs 4: Research and Inquiry:

Conduct research in art history, theory, and contemporary practices using appropriate methodologies to inform artistic creation and scholarship.

POs 5: Mastery of Tools and Techniques:

Utilize traditional and modern tools, technologies, and techniques in the creation, presentation, and preservation of artworks.

POs 6: Art and Society:

Examine the role of art in society, understanding its power to influence culture, raise awareness of social issues, and contribute to community and identity.

POs 7: Environmental Awareness and Sustainability:

Recognize the environmental impact of artistic materials and processes, advocating for sustainable practices in the creation and display of art.

POs 8: Ethics and Professionalism:

Adhere to ethical standards and professional practices in the creation, presentation, and dissemination of art.

POs 9: Collaboration and Teamwork:

Work effectively as an individual and in collaborative settings, engaging with diverse perspectives to enhance artistic outcomes.

POs 10: Communication:

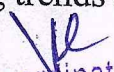
Articulate artistic concepts and processes clearly through verbal, written, and visual communication, including effective presentation and critique of artworks.

POs 11: Project Management:

Demonstrate the ability to plan, execute, and manage artistic projects, exhibitions, and events, considering budgeting, time management, and resource allocation.

POs 12: Lifelong Learning:

Commit to continuous personal and professional development, staying current with emerging trends and technologies in the arts.


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Department of Fine Arts (MFA)

Program Outcomes (POs)

POs 1: Artistic Knowledge and Historical Understanding

demonstrate a comprehensive understanding of the history of Indian and Western art, modern and contemporary art movements, and their impact on artistic practice.

POs 2: Visual and Critical Analysis

Analyze and interpret artworks, design elements, and cultural aesthetics through a critical and conceptual lens to enhance artistic expression.

POs 3: Creative Expression and Innovation

Develop original artworks and designs that integrate creativity, innovation, and experimentation across various mediums, including digital, graphic, and traditional arts.

POs 4: Technical Mastery and Craftsmanship

Apply advanced techniques in painting, sculpture, textile design, graphic design, fashion illustration, and digital media to achieve professional excellence.

POs 5: Research and Inquiry in Art and Design

Conduct research in fine arts, graphic design, textiles, and fashion, exploring traditional and contemporary artistic practices and their societal significance.

POs 6: Design Thinking and Problem-Solving


Utilize design thinking principles to create functional, aesthetic, and sustainable solutions in graphic design, packaging, fashion, and textile industries.

POs 7: Ethical and Professional Practices

Uphold ethical standards and intellectual property rights in artistic creation, fashion, textile design, and graphic communication industries.

POs 8: Sustainable and Environmental Awareness

Demonstrate knowledge of sustainable practices in art, fashion, and textiles, addressing environmental concerns and responsible material usage.


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POs 9: Digital and Technological Proficiency

Employ modern digital tools and software such as CAD, digital illustration, photography, and media techniques for professional artistic production.

POs 10: Communication and Presentation Skills

effectively communicate artistic concepts, design ideas, and project outcomes through visual storytelling, exhibitions, catalogs, and professional presentations.

POs 11: Entrepreneurship and Industry Readiness

Develop business acumen and management skills for careers in art, graphic design, textile production, fashion merchandising, and creative entrepreneurship.

POs 12: Collaboration and Interdisciplinary Approach

Engage in teamwork and interdisciplinary projects, integrating art with technology, media, marketing, and sustainable practices.


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SHRI RAM COLLEGE, MUZAFFARNAGAR
DEPARTMENT OF BIOSCIENCE
PROGRAM OUTCOMES AND COURSE OUTCOMES
SESSION 2022-23

B.Sc. MICROBIOLOGY

Program Outcomes

PO-1 Students will develop a comprehensive understanding of microbial diversity, including the classification, morphology, and physiology of bacteria, fungi, viruses, and protozoa, and their significance in various ecosystems.

PO-2 Students will acquire hands-on skills in microbiological laboratory techniques such as culturing, staining, microscopy, and microbial identification, as well as understanding laboratory safety protocols.

PO-3 Students will gain an understanding of the mechanisms of microbial infections, including the study of pathogens, host-pathogen interactions, and the immune response, as well as the principles of disease prevention and treatment.

PO-4 Students will understand the applications of microbiology in various fields such as biotechnology, food, pharmaceuticals, agriculture, and environmental microbiology, with a focus on using microbes for industrial processes, waste treatment, and environmental sustainability.

PO-5 Students will develop the ability to critically analyse microbiological data, design experiments, and troubleshoot issues in microbiological research, fostering a scientific approach to problem-solving.

PO-6 Students will stay informed about the latest advancements in microbiology, including emerging diseases, antimicrobial resistance, bioremediation, and innovations in genetic engineering, fostering a mindset of continuous learning and adaptation to new scientific developments.

PO-7 Students will develop effective communication skills, enabling them to present scientific data clearly and concisely through written reports, oral presentations, and collaborative discussions within research and professional settings.

Program Specific Outcomes (PSOs):

PSOs-1 Students will be able to describe diversity of microorganisms, bacterial cell structure and function, microbial growth and metabolism, and the ways to control their growth by physical and chemical means.

PSOs-2 Students will explain the role of microorganisms in food production and preservation, their ability to cause food-borne infections and demonstrate practical skills in fundamental microbiological techniques.


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PSOs-3 Students will demonstrate engagement in the Microbiology discipline through involvement in their post-graduation period, research or internship activities, and outreach their goals specific to microbiology.

PSOs-4 Students will gain in-depth knowledge of the biochemical and physiological processes that occur in microorganisms, including microbial growth, energy production, nutrient utilization, and metabolic pathways in bacteria, fungi, and viruses.

PSOs-5 Students will acquire specialized knowledge in medical microbiology, focusing on the identification, diagnosis, and treatment of infectious diseases caused by bacteria, viruses, fungi, and parasites, along with an understanding of antimicrobial resistance.

PSOs-6 Students will be equipped with the knowledge to apply microbiological principles in various industrial applications such as fermentation technology, pharmaceutical production, food safety, and the development of genetically modified organisms (GMOs) for agricultural and industrial purposes.

PSOs-6 Students will learn about the biotechnological applications of microbiology, including fermentation technology, the production of antibiotics, enzymes, and biofuels, and their role in various industries such as food, pharmaceuticals, and agriculture.


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B.Sc. Microbiology I Year

Course: 128801 - Fundamentals of Microbiology

- CO1-** Demonstrate knowledge of the diversity of microorganisms, their structure, classification, and functions.
- CO2-** Explain the physiological processes of microbial growth, metabolism, and environmental factors affecting microbial activity.
- CO3-** Develop practical skills in culturing, isolating, and identifying microorganisms using microbiological techniques.
- CO4-** Analyse the role of microorganisms in the environment, biotechnology, and industrial applications.

Course: 128802 - Bacteriology


- CO-1.** The basis of classification of bacteria and to enumerate the order, family, genus and species.
- CO-2.** The morphology, cultural, biochemical and other biological properties and characteristics of medically important bacteria.
- CO-3.** The mechanism of virulence and pathogenesis and pathology.
- CO-4.** The disease caused by them, epidemiology, treatment, prevention and control.


Course: 128803 - Virology

- CO-1.** The process of entry into the cells, control of gene transcription and where relevant translation and gene product stability, control of and mechanism of genome replication, virion assembly and release from the cell.
- CO-2.** Define the growth behaviour differences between normal cells and cells transformed by oncogenic DNA and RNA Viruses.
- CO-3.** Define the process of virus latency and describe in molecular terms control of the process and activation of viral genomes during reactivation.
- CO-4.** Describe the processes involved in the anti-tumour effects of "anti-tumour" viruses.

Course: 128804 - Mycology, Phycology & Protozoology

- CO-1** Understand the classification, diversity, and structural organization of fungi, algae, and protozoa.
- CO-2** Explain the morphological and physiological characteristics of fungi, algae, and protozoa and their adaptations to various environments.


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CO-3 Evaluate the economic and industrial importance of fungi, algae, and protozoa in areas such as agriculture, biotechnology, pharmaceuticals, and food production.

CO-4 Explore the use of fungi and algae in sustainable practices, such as bioremediation, biofuels, and wastewater treatment.

Course: 128805 - Biochemistry

CO-1 Explain the structure, properties, and functions of biomolecules (proteins, lipids, carbohydrates, and nucleic acids) and their role in biological systems.

CO-2 Illustrate and interpret key metabolic pathways and their interconnections, as well as their significance in energy production and cellular processes.

CO-3 Utilize fundamental biochemical laboratory techniques and tools to analyze biomolecules and investigate enzymatic activities.

CO-4 Relate biochemical principles to physiological processes, clinical conditions, and the development of therapeutic interventions.

Course: 128806 – Biophysics

CO-1 Demonstrate an understanding of how physical laws and concepts govern biological processes at molecular, cellular, and organismal levels.

CO-2 Interpret and model biological phenomena such as molecular interactions, energy transfer, and membrane transport using biophysical approaches.

CO-3 Apply biophysical tools and methods, such as spectroscopy and imaging techniques, to study the structure and function of biomolecules.

CO-4 Relate biophysical principles to advancements in biotechnology, medical diagnostics, and therapeutic applications.


Course: 128807 - Instrumentation and Cultural Techniques

CO-1 Effectively operate and maintain instruments such as spectrophotometers, centrifuges, and chromatography systems for biological and chemical analysis.

CO-2 Perform microbial isolation, culturing, and identification using aseptic techniques and appropriate growth media.

CO-3 Interpret data obtained from various laboratory instruments and experiments to draw meaningful conclusions about biological and chemical systems.

CO-4 Implement sterilization methods and adhere to biosafety standards in laboratory settings to ensure the integrity of experiments and safety of personnel.


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Course: 128808 - Analytical Techniques

CO-1 Demonstrate the ability to perform and analyse experiments using various chromatography and electrophoresis techniques for the separation and identification of biomolecules.

CO-2 Accurately interpret the results from chromatographic, electrophoretic, and radioactive techniques, and use them to draw conclusions about the molecular composition and structure of samples.

CO-3 Safely utilize radioisotopes and radiometric techniques in biological and chemical analyses, ensuring proper safety protocols and accurate result interpretation.

CO-4 Carry out karyotyping procedures to analyse chromosomes for genetic studies, identify chromosomal abnormalities, and understand the implications for health and disease.

Course: 128809 - Biology Paper S-1

CO-1 Students will develop a comprehensive understanding of the diversity of animal life, including classification, physiology, anatomy, and evolutionary relationships among various species.

CO-2 Students will be able to analyze ecological interactions and the role of animals in ecosystems, understanding their significance in maintaining biodiversity and environmental health.

CO-3 Students will gain hands-on experience with laboratory techniques used in the study of zoology, including dissection, microscopy, and genetic analysis, enhancing their research and analytical skills.

CO-4 Students will be able to understand and critically assess conservation strategies and wildlife management practices, and recognize the importance of preserving endangered species and habitats.

Course: 128810 - Biology Paper S-2

CO-1 Students will gain an understanding of the basic principles of plant classification, including the major plant groups (bryophytes, pteridophytes, gymnosperms, and angiosperms) and their distinguishing features.

CO-2 Students will develop an understanding of the basic structure of plants, including the anatomy of roots, stems, leaves, and flowers, and how these structures support the plant's functions such as nutrient absorption, photosynthesis, and reproduction.

CO-3 Students will understand the key processes involved in plant growth, such as germination, photosynthesis, respiration, and flowering, and how environmental factors influence these processes.

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CO-4 Students will learn about the role of plants in ecosystems, their interactions with the environment, and their importance in maintaining ecological balance and supporting biodiversity.

B.Sc. Microbiology II Year

Course: 228801 - Ultra structure of Cell Biology

CO-1 Students will gain a detailed understanding of the ultrastructure of cells, including the organization and function of cellular organelles such as the nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, and ribosomes, as observed under electron microscopy.

CO-2 Students will learn about the structural components of biological membranes, such as phospholipid bilayers, membrane proteins, and their roles in transport, signal transduction, and maintaining cellular integrity.

CO-3 Students will understand the molecular mechanisms of cellular processes like protein synthesis, cellular respiration, and intracellular transport, with a focus on the role of different organelles and structures in these processes.

CO-4 Students will develop skills in using advanced microscopy techniques, including light microscopy, transmission electron microscopy (TEM), and scanning electron microscopy (SEM), to study and analyze the ultrastructure of cells and tissues.

Course: 228802 - Cell Reproduction and Differentiation

CO-1 Students will gain a comprehensive understanding of the stages of the cell cycle (G1, S, G2, and M phases), and the molecular mechanisms that regulate cell division, including checkpoints, cyclins, and cyclin-dependent kinases (CDKs).


CO-2 Students will understand the processes of mitosis and meiosis, including the stages of cell division, chromosomal behaviour, and the differences between somatic and gametic cell division, as well as their roles in growth, development, and reproduction.

CO-3 Students will learn about the molecular and genetic mechanisms that drive cellular differentiation, including the role of transcription factors, signalling pathways, and epigenetic modifications in the formation of specialized cell types from pluripotent stem cells.

CO-4 Students will understand how cell reproduction and differentiation contribute to organismal development, tissue regeneration, and the maintenance of homeostasis, with insights into abnormal differentiation processes that lead to diseases such as cancer and developmental disorders.

Course: 228803 - Microbial Physiology

CO-1 Students will understand the metabolic pathways in microorganisms, including glycolysis, the Krebs cycle, fermentation, and their role in energy production.


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CO-2 They will gain knowledge of microbial growth kinetics, nutrient uptake mechanisms, and factors affecting microbial growth under various environmental conditions.

CO-3 Students will learn about the physiological adaptations of microorganisms to extreme environments, such as high temperature, salinity, and pH.

CO-4 They will develop an understanding of microbial transport systems, enzyme activity, and the regulation of biochemical processes in microbial cells.

Course: 228804 - Microbial Metabolism

CO-1 Students will be able to describe and analyse the key metabolic pathways in microorganisms, including glycolysis, the TCA cycle, and fermentation, and explain their significance in energy production and biosynthesis.

CO-2 Students will understand the role of enzymes in microbial metabolism, including their mechanisms, regulation, and importance in controlling metabolic processes.

CO-3 Students will be able to compare and contrast the metabolic strategies employed by different types of microorganisms, such as autotrophs, heterotrophs, and extremophiles, and their adaptation to various environments.

CO-4 Students will demonstrate the ability to apply knowledge of microbial metabolism in biotechnological processes, such as bioenergy production, bioremediation, and industrial fermentation.

Course: 228805 - Molecular Biology

CO-1 Students will gain a comprehensive understanding of the molecular mechanisms of DNA replication, transcription, translation, and regulation of gene expression in prokaryotic and eukaryotic systems.

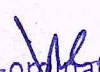
CO-2 Students will acquire practical knowledge of molecular biology techniques, such as PCR, gel electrophoresis, cloning, and sequencing, and their applications in research and biotechnology.

CO-3 Students will be able to analyse the processes of gene regulation, understand the impact of genetic mutations, and predict their consequences on protein structure and function.

CO-4 Students will demonstrate the ability to apply molecular biology principles to solve real-world problems in fields such as medicine, agriculture, and biotechnology, including genetic engineering and genome editing.

Course: 228806 - Microbial Genetics

CO-1 Students will be able to explain the fundamental mechanisms of genetic inheritance in microorganisms, including recombination, replication, and mutation.


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CO-2 Students will demonstrate knowledge of horizontal gene transfer mechanisms such as transformation, transduction, and conjugation, and their significance in microbial evolution and antibiotic resistance.

CO-3 Students will analyse the regulatory mechanisms controlling gene expression in microorganisms, including operons like the lac and trp operons, and their relevance to microbial physiology.

CO-4 Students will develop skills in using microbial genetics tools, such as plasmids, transposons, and understand their applications in biotechnology, medicine, and research.

Course: 228807 - Biomathematics

CO-1 Students will apply advanced mathematical techniques, such as calculus, linear algebra, and differential equations, to solve biological problems.

CO-2 Students will evaluate biological data using mathematical approaches, interpreting results to provide meaningful biological insights.

CO-3 Students will develop and analyse mathematical models to describe biological systems, including population dynamics, growth rates, and ecological interactions.

CO-4 Students will integrate mathematical principles with computational tools to analyse genetic and proteomic data.

Course: 228808 - Computer and Biostatistics

CO-1 Students will acquire knowledge of computer architecture, operating systems, and fundamental programming concepts.

CO-2 Students will demonstrate the ability to use computational tools and software for modelling, visualization, and statistical analysis in life sciences.


CO-3 Students will apply advanced statistical techniques such as regression, ANOVA, and multivariate analysis to biological research data.

CO-4 Students will comprehend and apply probability distributions, hypothesis testing, and inferential statistics to biological problems.

Course: 228809 - Biology Paper S-3

CO-1 Students will gain a comprehensive understanding of physiological processes in animals, including digestion, respiration, circulation, and excretion, and their adaptations to various environments.

CO-2 Students will explore the diversity of animal life, identifying key characteristics and evolutionary relationships among major phyla, with a focus on morphology and taxonomy.


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CO-3 Students will analyse animal behaviour and ecological interactions, understanding their roles in ecosystems, such as predator-prey dynamics, symbiosis, and habitat utilization.

CO-4 Students will investigate reproductive systems and strategies in animals, including sexual and asexual reproduction, developmental stages, and reproductive adaptations in different taxa.

Course: 228810 - Biology Paper S-4

CO-1 Students will gain a detailed understanding of the structural organization of plants, including tissue types, organ systems, and their functional adaptations to diverse environments.

CO-2 Students will analyse key physiological processes in plants, such as photosynthesis, respiration, water and nutrient transport, and their biochemical pathways.

CO-3 Students will explore the reproductive strategies of plants, including sexual and asexual reproduction, embryogenesis, and the development of seeds, fruits, and flowers.

CO-4 Students will evaluate the ecological roles of plants in ecosystems, studying their interactions with other organisms, adaptations to environmental stresses, and contributions to biodiversity.

B.Sc. Microbiology III Year

Course: 328801 - Immunology

CO-1 Students will gain a comprehensive understanding of the components of the immune system, including the roles of white blood cells, antibodies, cytokines, and major histocompatibility complex (MHC) molecules in immune responses.

CO-2 Students will analyse the mechanisms of innate and adaptive immunity, including antigen recognition, immune cell activation, and the processes of immune memory and tolerance.

CO-3 Students will develop proficiency in common immunological techniques such as ELISA, flow cytometry, and Western blotting, and understand their applications in diagnostics, vaccine development, and research.

CO-4 Students will explore immunological disorders, including autoimmune diseases, hypersensitivity reactions, immunodeficiencies, and the role of the immune system in cancer, and discuss therapeutic approaches to manage these conditions.

Course: 328802 - Medical Microbiology

CO-1 Students will develop the ability to identify and classify microorganisms, including bacteria, viruses, fungi, and parasites, using various laboratory techniques such as staining, culture, and molecular diagnostics.


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CO-2 Students will explore the mechanisms through which microorganisms cause disease, including factors that influence virulence, host-pathogen interactions, and the immune response.

CO-3 Students will analyse the principles of antimicrobial therapy, including the action of antibiotics, antifungals, antivirals, and the emerging issue of antimicrobial resistance and strategies to combat it.

CO-4 Students will study the principles of epidemiology, including the spread of infectious diseases, modes of transmission, and the development of infection control measures in healthcare settings.

Course: 328803 - Food and Dairy Microbiology

CO-1 Students will gain knowledge of the various types of microorganisms, including beneficial and spoilage microorganisms, that affect food and dairy products, and understand their roles in fermentation, preservation, and spoilage.

CO-2 Students will study the principles and applications of fermentation in the production of dairy products like cheese, yogurt, and fermented beverages, including the role of starter cultures and microorganisms in fermentation processes.

CO-3 Students will learn about common foodborne pathogens, their transmission, and the mechanisms by which they cause illness. Students will also explore food safety practices, methods of detection, and strategies for preventing contamination in the food industry.

CO-4 Students will develop an understanding of the microbiological quality control processes used in food and dairy industries, including testing methods, regulatory standards, and strategies to ensure product safety and consistency.

Course: 328804 - Agricultural Microbiology

CO-1 Students will gain an understanding of the diverse microbial communities in agricultural environments, including their roles in soil health, plant growth promotion, and nutrient cycling.

CO-2 Students will analyse the role of soil microorganisms in nutrient mobilization, organic matter decomposition, and enhancing soil fertility, and understand how these processes contribute to sustainable agricultural practices.

CO-3 Students will explore the use of microbial inoculants in agriculture, such as nitrogen-fixing bacteria and bio fungicides, and evaluate their applications in improving crop yield and controlling plant diseases.

CO-4 Students will study the role of plant pathogenic microorganisms, including bacteria, fungi, and viruses, in causing crop diseases and examine integrated pest management strategies to mitigate their impact on agriculture.


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Course: 328805 - Recombinant DNA Technology

CO-1 Students will gain a thorough understanding of the techniques involved in recombinant DNA technology, including DNA isolation, restriction enzyme digestion, ligation, and transformation, and their applications in gene cloning and manipulation.

CO-2 Students will learn about various expression systems (such as bacterial, yeast, and mammalian systems) used for the production of recombinant proteins, including the principles of promoter selection, plasmid vectors, and protein purification methods.

CO-3 Students will explore the applications of recombinant DNA technology in biotechnology, including its use in genetic engineering, gene therapy, vaccine development, and the production of pharmaceuticals.

CO-4 Students will analyse the ethical, safety, and regulatory considerations related to recombinant DNA technology, focusing on gene editing, GMOs (Genetically Modified Organisms), and the environmental and health implications of biotechnological innovations.

Course: 328806 - Industrial Microbiology

CO-1 Students will develop an understanding of microbial fermentation processes used in industrial applications, including the production of alcohols, organic acids, antibiotics, and enzymes, focusing on the optimization and scale-up of these processes.

CO-2 Students will explore the role of microorganisms in various biotechnological applications, such as the production of biofuels, bioplastics, and pharmaceuticals, and will understand the principles behind selecting and engineering microbial strains for industrial use.


CO-3 Students will gain expertise in the principles of quality control in industrial microbiology, including microbial monitoring, sterility testing, and process optimization techniques to ensure the consistency and safety of microbial products.

CO-4 Students will learn about the use of microbial enzymes and other biocatalysts in industrial processes, such as bioremediation, waste treatment, and food processing, and will evaluate the environmental benefits and economic viability of these processes.

Course: 328807 - Microbial Ecology

CO-1 Students will gain an understanding of the structure and function of microbial communities in various ecosystems, including soil, water, and extreme environments, and their roles in nutrient cycling, biodegradation, and symbiosis.

CO-2 Students will explore the different types of microbial interactions, such as mutualism, commensalism, and competition, and analyse their ecological impacts in both natural environments and human-associated ecosystems.


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CO-3 Students will study how microorganisms adapt to various environmental stresses, such as temperature, salinity, and pH, and their ability to survive in extreme habitats like hot springs, deep-sea vents, and polar regions.

CO-4 Students will explore the practical applications of microbial ecology in areas such as waste treatment, bioremediation, biofuel production, and environmental monitoring, focusing on the potential of microorganisms in solving environmental challenges.

Course: 328808 - Microbes in Environment Biotechnology

CO-1 Students will understand the role of microorganisms in bioremediation processes, including their use in the degradation of pollutants like oil spills, heavy metals, and pesticides, and explore the biotechnological applications for cleaning up contaminated environments.

CO-2 Students will explore the biochemical pathways involved in microbial biodegradation of organic waste, focusing on the use of microbes in waste treatment processes such as composting, wastewater treatment, and solid waste management.

CO-3 Students will learn how microbes are used in environmental monitoring, including their role in bioindicators and biosensors for detecting pollution levels, and the application of genetic and molecular tools in studying microbial communities in environmental samples.

CO-4 Students will investigate the potential of microorganisms in the production of biofuels, including ethanol, methane, and biodiesel, and explore the advancements in using microbes for sustainable energy solutions and the challenges involved in scaling up these processes.

Course: 328809 - Fundamentals of Information Technology

CO-1 Students will learn the fundamental concepts of Information Technology, including hardware, software, networks, and databases.

CO-2 Students will learn how demonstrate the ability to use operating systems, file management, and basic troubleshooting techniques.

CO-3 Students will explore the principles of computer networks, internet technologies, cybersecurity, and data communication.

CO-4 Students will apply IT tools and software for productivity, such as word processing, spreadsheets, presentations, and cloud computing services.

Course: 328810 - Genomics, Proteomics and Bioinformatics

CO-1 Students will learn the principles of genomics, including genome structure, sequencing technologies, and functional genomics.

CO-2 Students will explore the techniques used in proteomics, such as protein separation, mass spectrometry, and protein-protein interactions.

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CO-3 Students will learn how to utilize bioinformatics tools and databases for genome and protein analysis, including sequence alignment, molecular modelling, and phylogenetic analysis.

CO-4 Students will learn how to analyse and interpret large-scale genomic and proteomic data to understand biological processes and disease mechanisms.


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M.Sc. MICROBIOLOGY

Program Outcomes

After successful completion of M.Sc. Applied Microbiology program, the students would be able.

PO1: To get opportunities in higher education. They are also developed on the professional front. It also provides opportunities for career advancement in teaching, research, and industries.

PO2: To integrate interdisciplinary thinking and practice.

PO3: To analyse a problem, identify and define the specific requirements with respect to the specific organism, appropriate to its management, and plan strategies for their solution.

PO4: To design, implement and evaluate information systems, processes, components, or programs and source cost-benefit efficient alternatives to meet desired needs, goals, and constraints.

PO5: To deploy and use effective skills, tools, and techniques required for an industry/organization or institute

PO6: To live a life inculcated with higher values which enable them to withstand the challenges of life.

Program Specific Outcomes

PSO1. After successful completion of M.Sc. Applied Microbiology, students will gather substantive knowledge to pursue his/her career in areas of Biochemistry, Medical Microbiology, Environmental and Food Sciences, Molecular Biology and Biotechnology.


PSO2. Develop an exploratory mind-set along with problem-solving and analytical skills, to enable a smooth progress into the area of research and teaching.

PSO3. Accumulate skills such as critical scientific thinking needed for data analysis. The comprehensive curriculum grooms the students into industrially efficient scientific manpower.

PSO4. It makes them able to take up challenges and contribute into the development of the world.

PSO5. It makes them equipped with knowledge to clear lectureship and fellowship exams like UGC/ CSIR – NET, SET/ ISRO/DRDO and other competitive exams.

PSO6. It provides students the insight of planning and conducts complex research projects, such as improving sterilization procedures or developing new drugs to combat infectious diseases.


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M.Sc. Microbiology I Semester

Course: 129101 - Instrumentation and Microbial Techniques

After completion of this course, the student will be able to

- CO1.** Learn the concept of sterile techniques for isolation of microbes in pure culture, and understand the principles of optical microscopy including generation of contrast.
- CO2.** Gain knowledge about the instrumentation, working principle and applications of varied forms of spectroscopy needed to study biomolecules and crystal structures.
- CO3.** Understand chromatographic techniques for separation of biomolecules.
- CO4.** Understand the working principle behind electrophoresis, and study of antigen-antibody interactions, including applications for the identification of microbes.
- CO5.** Learn centrifugation techniques, and forms of electron microscopy for the purification and characterization of microorganisms.

Course: 129102 - Microbial Diversity-Prokaryotes and Viruses

- CO1.** Know about bacterial and archaeal diversity in a morphological and phylogenetic context.
- CO2.** Understand the modern methodology and principles of classification of bacteria and archaea.
- CO3.** Learn the process of genetic recombination in bacteria (transformation, conjugation and transduction).
- CO4.** Know how to classify and compare the morphological and genomic characteristics of viruses.
- CO5.** Understand the working principle of cultivation and purification of viruses.

Course: 129103 - Microbial Diversity-Eukaryotes

- CO1.** Learn the diversity of fungi and algae along with their comparative structure and classification.
- CO2.** Learn the detail structure of eukaryotic cell.
- CO3.** Learn about the pathogenic aspects of the various groups of microorganisms, their disease cycles and control measures.
- CO4.** Understand the modern methodology and principles of classification of fungi.
- CO5.** Understand the characteristics of pathogenic nematode and protozoa.

Course: 129104 - Biostatistics, Computer Applications and Bioinformatics

- CO1.** Demonstration the ability to choose methods appropriate to research aims and objectives. Understand the limitations of particular research methods. Develop skills in


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qualitative and quantitative data analysis and presentation. Develop advanced critical thinking skills.

CO2. Restate the principal concepts about biostatistics, collect data relating to variable/variables which will be examined and calculate descriptive statistics.

CO3. Existing software effectively to extract information from large databases and to use this information in computer modelling.

CO4. Knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics.

CO5. Ability to understand the software concepts and their applications.

M.Sc. Microbiology II Semester

Course: 229101 - Microbial Physiology and Biochemistry

CO1. Understand the structure of macromolecules and their basic building blocks.

CO2. Know the mechanisms of ATP generation by microbes, and importance of heterotrophic metabolism, fermentation and chemolithotrophy.

CO3. Learn the generation of ATP in a light driven process and pathways of CO₂ fixation by phototrophic microorganisms.

CO4. Understand how enzymes, the biological catalysts, work and factors affecting their catalytic function.

CO5. Know about nucleic acids and their building blocks, enzyme specificity, energy rich compounds and biological nitrogen fixation

Course: 229102 - Microbial Genetics, Molecular Biology and Genetic Engineering

CO1. Understand the regulation of transcription through the various operons, and the mechanics of translation in bacteria.

CO2. Know about enzymes, vectors and cloning strategies in genetic manipulation.


CO3. Learn about recombinant DNA technology and methods of DNA sequencing.

CO4. Understand the protocol for cloning of a DNA fragment in a plasmid vector, transformation of bacterial cells and screening of cDNA libraries to identify a clone of interest.

CO5. Learn techniques in molecular biology such as PCR, RFLP and DNA microarray that are useful in diagnosis.

Course: 229103 - Agricultural Microbiology

CO1. To learn the various habitats of soil microorganisms and parameters of Soil.


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- CO2.** To understand the sign, symptoms and etiological agents of various plant diseases.
- CO3.** To learn the principle, mechanism and production of biopesticides.
- CO4.** To learn the principle, mechanism and production of biofertilizers.
- CO5.** To learn the principle and mechanism of biodeterioration, agriculture waste management.

Course: 229104 - Microbial Environmental Technology

- CO1.** Understand biomes, ecosystems, ecological pyramids and trophic levels in food chains and food webs.
- CO2.** Learn about the diversity of microbes in aquatic environments, factors affecting their growth, and water-borne diseases caused by infectious microbes.
- CO3.** Understand the concept of oxygen demanding wastes through BOD and COD, water pollution and its remediation, and waste management.
- CO4.** Define remarkable role of microbes in cycling of nutrients, and study species interactions and associations in soil affecting physiology and growth of plants.
- CO5.** Learn about microbes thriving in harsh environments, microbial blooms and their adverse effects, and methods of sampling air borne microbes.

M.Sc. Microbiology III Semester

Course: 329101 - Medical Microbiology

- CO1.** Provides learning opportunities in the basic's principles of medical microbiology and infectious disease.
- CO2.** Covers mechanisms of infectious disease transmission, principles of aseptic practices and the role of the human body normal micro flora.
- CO3.** Provides the conceptual basis for understanding pathogenic microorganism and the mechanisms by which they cause disease in the human body.
- CO4.** Provides opportunities to develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases.
- CO5.** Understand the importance of pathogenic bacteria in human disease with respect to infections of the respiratory tract, gastrointestinal tract, urinary tract, skin and soft tissue.

Course: 329102 - Molecular and Clinical Immunology

- CO1.** Understand pathogenesis and the role of toxins, enzymes and host factors in infection and disease.


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CO2. Know about diseases caused by diverse microorganisms with emphasis on emerging diseases and pandemics.

CO3. Learn about the oncogenic viruses and cell transformation, and understand the importance of antimicrobial agents and drug resistance.

CO4. Get an overview of immunology with a detailed account of molecular and cellular interactions that control innate and adaptive immunity.

CO5. Understand the concept of autoimmunity, hypersensitive and allergic responses of the host and to learn methods of inducing immunity against the pathogen in the host.

Course: 329103 - Food and Dairy Microbiology

CO1. Understand the significance and activities of microorganisms in food.

CO2. Know the characteristics of food borne, water borne and spoilage microorganism and methods for their isolation, detection and identification.

CO3. Learn the use of standard methods and procedures for the microbiological analysis of food.

CO4. To understand the types and methods of microbial food production.

CO5. To learn the importance of microbes and microbial enzymes applications in industry.

Course: 329104 - Industrial Microbiology

CO1. Understand industrial fermentation, manipulation of microbial strains, and techniques for producing optimal product.

CO2. Learn about diseases caused by contaminated food stuffs and the lab tests for detecting the causal microorganisms.

CO3. Learn of the valuable products obtained from industrially important microbes.


CO4. Know about the ubiquitous presence of microbes, hence contamination of food items and food spoilage, and factors affecting their growth.

CO5. Know the physical and chemical techniques utilized worldwide in food preservation.

M.Sc. Microbiology IV Semester

Course: 0429101 - Medical Microbiology

CO1. Provides learning opportunities in the basic's principles of medical microbiology and infectious disease.


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CO2. Covers mechanisms of infectious disease transmission, principles of aseptic practices and the role of the human body normal micro flora.

CO3. Provides the conceptual basis for understanding pathogenic microorganism and the mechanisms by which they cause disease in the human body.

CO4. Provides opportunities to develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases.

CO5. Understand the importance of pathogenic bacteria in human disease with respect to infections of the respiratory tract, gastrointestinal tract, urinary tract, skin and soft tissue.

Course: 0429102 - Industrial Microbiology

CO1. Understand industrial fermentation, manipulation of microbial strains, and techniques for producing optimal product.

CO2. Learn about diseases caused by contaminated food stuffs and the lab tests for detecting the causal microorganisms.

CO3. Learn of the valuable products obtained from industrially important microbes.

CO4. Know about the ubiquitous presence of microbes, hence contamination of food items and food spoilage, and factors affecting their growth.

CO5. Know the physical and chemical techniques utilized worldwide in food preservation.

Course: 0429103 - Agricultural Microbiology

CO1. To learn the various habitats of soil microorganisms and parameters of Soil.

CO2. To understand the sign, symptoms and etiological agents of various plant diseases.

CO3. To learn the principle, mechanism and production of biopesticides.

CO4. To learn the principle, mechanism and production of biofertilizers.

CO5. To learn the principle and mechanism of biodeterioration, agriculture waste management.


Course: 0429103 - Environmental Microbiology


CO1. Understand biomes, ecosystems, ecological pyramids and trophic levels in food chains and food webs.

CO2. Learn about the diversity of microbes in aquatic environments, factors affecting their growth, and water-borne diseases caused by infectious microbes.

CO3. Understand the concept of oxygen demanding wastes through BOD and COD, water pollution and its remediation, and waste management.

CO4. Define remarkable role of microbes in cycling of nutrients, and study species interactions and associations in soil affecting physiology and growth of plants.



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CO5. Learn about microbes thriving in harsh environments, microbial blooms and their adverse effects, and methods of sampling air borne microbes.

Course: 0429165 - Thesis Viva Voce

Students will carry out six months dissertation training at various reputed institutes of India. The project/dissertation works will enable students to learn the basic working of microbiological laboratories, and provide intensive hands-on training to learn new horizons of microbiology and related life sciences field and to shape their career towards industries and research organization. This project/ dissertation make the students more industrially competent.


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SHRI RAM COLLEGE, MUZAFFARNAGAR
DEPARTMENT OF BIOSCIENCE
PROGRAMME AND COURSE OUTCOMES
Session 2022-23
B. Sc. BIOTECHNOLOGY

Programme outcomes

- PO1: Students develop global competencies in the area of basic and applied biological sciences.
- PO2: Enhancing the subject knowledge of students by using traditional and modern ICT based teaching methods and learning by doing.
- PO3: To enrich students' knowledge and train them in various branches of Biotechnology such as genetics, molecular biology, biochemistry, immunology, fermentation technology, environmental biotechnology and tissue culture techniques.
- PO4: To groom the students to meet futuristic challenges and national interests
- PO5: Identify, formulate, and solve complex problems in biotechnology using innovative approaches and interdisciplinary knowledge.
- PO6: Design, conduct, and interpret experiments related to molecular biology, microbiology, bioinformatics, and bioprocessing to address real-world challenges.
- PO7: Develop and apply biotechnological solutions for healthcare, agriculture, environment, and industrial processes, addressing societal and global needs.

Programme Specific Outcomes

- PSO1: To bestow the students with all the research skills required to work independently
- PSO2: To develop scientific temperament and social responsibilities in the students.
- PSO3: To inculcate nature care by imparting knowledge of advance modern techniques
- PSO4: As Biotechnology is an interdisciplinary course, empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology.
- PSO5: Acquire knowledge in students of biotechnology enabling their applications in industry and research.


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Course Outcomes

Year 1

Course -128701- Biochemistry

CO1: As Biochemistry is the branch of science concerned with the chemical and physico chemical processes and substances that occur within living organisms, therefore students will be able to understand how bio-molecules relate to a particular process (metabolism) within a living cell.

CO2: Students will be acquainted with the knowledge of structures, functions, and interactions of proteins, nucleic acids, carbohydrates and lipids.

CO3: The course will help the students to understand the abnormalities in the metabolism their relationship to various diseases. In addition to, it will help to understand the mechanism underlying correct disorders with dietary modifications or genetic modifications.

CO4: Students will learn about enzyme kinetics and types of inhibition as enzymes are important in catalyzing various reactions in the body

Course-128702—Biophysics

CO1: Students will develop a conceptual understanding of connections between physics and biology.


CO2: Students will be able to explain the behavior and interactions between, matter and energy at both the atomic and molecular levels by different atomic models.

CO3: Students will gain an understanding of interpreting spectra and will be able to explain how spectroscopic methods are used for quantitative analysis of biomolecules.

CO4: Students will comprehend the molecular components which constitutes the cell membrane and give its different electrical and physicochemical properties. They will understand the importance of transport in the cells.

Course: 128703—Cell Biology

CO1: This course introduces the students to the basics of cell and its components. This will help them to comprehend detail knowledge about cell and its different types.


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CO2: This gives them a strong foundation on the basic unit of life. It will help them understand about various proposed cell theory and origin of cell.

CO3: Students will acquire the knowledge of structure and functions of various cell organelles and their interaction within cell to promote cell growth, division and development.

CO4: The Students will gain in depth knowledge about cellular architecture and cytoskeletal organization.

CO5: At the end of the course, the student has a strong foundation about cellular theories functions of diverse organelles and the significance of cellular diversity.

Course: 128704-Microbiology

CO1: Student understands microorganism as a model system in life science studies and its importance in biotechnology.

CO2: Students gets knowledge of Eubacteria and Archaeobacteria and differences in structure and composition of respective cell

CO3: Student learn different types of microorganisms, their applications in different sector.

CO4: Student gets knowledge about interaction between microorganisms and plant and animal that helps them to think about its use in Agriculture, Medical and health, Environment field.

Course: 128705- Genetics

Upon successful completion of this subject student should be able to acquire a deep knowledge in:

CO1: Students are able to understand the basic concept of transmission of genetics.


CO2: Students enrich with the knowledge of Mendelian and Non-Mendelian genetics.

CO3: Understanding the concepts of gene interactions and its applications in knowing genetic disorders.

CO4: They learn about chromosomal aberrations and structure of chromosomes.

Course: 128706- Instrumentation and Bioanalytical Techniques

Upon successful completion of this subject student should be able to acquire a deep knowledge in:


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CO1: Students will be able to handle various equipment's used in biochemical analysis and troubleshoot them.

CO2: Students will be able develop competence in handling various chromatographic techniques and apply them in isolating and characterizing different biological molecules.

CO3: Understanding the applications of centrifugation and chromatography in biological investigations.

CO4: Students will be able to understand the working principle and working of different instruments.

CO5: Through hands on training, students are able solve the problems by understanding the principle of pH meter, centrifuge, microscopes, thermometers and their application in analyzing different biological samples.

Course- 128707- Bio Mathematics & Bio Statistics

CO1: Students should be able to solve and interpret the practical real life problem.

CO2: Problem solving skills, creative talent to convert the verbal information into mathematical form are enhanced.

CO3: Interdisciplinary approach is developed.

CO4: Theoretical concepts are strengthened by solving maximum no. of problems.

CO5: To enhance abstract thinking of students.

Course: 128708—Chemistry

After successfully completing this course, the students will be able to:

CO1: Students will learn different fundamentals of basic chemistry of different chemistry branches like organic chemistry, Inorganic, Physical etc.

CO2: Studies includes chemical bonding i.e. formation of different molecules types of bonds, hybridization, in thermodynamic studies free energy required for chemical and biochemical reactions and chemical kinetics rates of chemical reaction.

CO3: In stereo chemistry how different molecules/ bio-molecules are presented by different methods along with their stereo aspects like chirality, etc.

CO4: They will also learn electrochemical aspects during their course.

CO5: They will also perform experimental verification of some parts of theory.


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Course: 128709- Biodiversity

CO1: On successful completion of this course the students will be able to illustrate the importance of biodiversity for upcoming science and economy.

CO2: The main objective of this course is to provide the students with possibilities of acquiring information on biodiversity, its main principles to know measurement of biodiversity richness and abundance.

CO3: Students will develop an understanding of biodiversity with respect to biome (terrestrial) and aquatic ecosystem.

CO4: Students will learn how to study biotic and abiotic part of environment in specific way. International trade responsible for threat to biodiversity

Year 2**Course: 0228701- Fundamental of Computers and Bioinformatics**

CO1: Students will get basic knowledge (handling devices, role of operating system etc.) of computers. They will also familiar with how data gets stored through Database Management System.

CO2: They will capable to create documentation, budgets and mathematical calculations and also make attractive presentations using ms word, excel and Power point respectively They can easily do surfing on internet.


CO3: Introduction to bioinformatics and its role in biotechnology. Students will learn different biological databases present in bioinformatics


CO4: Students will learn how to generate data, tools for generation of data, classify data, and manipulate data, quality analysis. Students will learn metadata concept

CO5: Students will learn how to search, visualize protein using different visualization tool.

Course: 0228702—Bioenergetics and Bio-membranes

CO-1: To familiarize the students with the fundamental concepts of cellular membranes, their structures and the chemical composition that are responsible for the unique functions of biomembranes with emphasis on membrane transport


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CO-2: To help the students understand the concept of chemical thermodynamics and how they apply within cells

CO-3: To make the students understand the various energy transductions that occurs within the cell.

Course: 0228703—Molecular Biology

Upon successful completion of this subject student should be able to acquire a deep knowledge in:

CO1: This course introduces the students to the basics of central dogma of molecular biology and significance of its study. Students understand the chemical and molecular processes that occur in and between the cells.

CO2: This gives them a strong foundation on the basics structure and functions of nucleic acids proteins and their interaction within cell to promote cell growth, division and development.

CO3: Understanding the regulation of gene expression in prokaryotes using operon concept and Eukaryotes.

CO4: The student will demonstrate proficiency in understanding the concept of genetic code its features.

CO5: At the end of the course, the student has a strong foundation about replication of genetic material in prokaryotes and eukaryotes.

Course: 0228704- Molecular Genetics and Cytogenetics

CO1: Understand the molecular bases of genetic information. Learn in detail the chemical nature of nucleic acids and the relationship between structure and function.

CO2: Gain a command of the mechanisms of perpetuation and variation in inherited material and its implications.

CO3: Assimilate the molecular principles on which inheritance is based, to gain an understanding of genetic transmission. Use some of the latest, most representative molecular genetics techniques.

CO4: Describe the structure and functioning of living organisms at the molecular and cellular level, as well as the regulation and integration of the functions of living organisms at these levels.


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CO5: Know how to separate and combine isolated substances from living cells to determine their structure, properties and chemical and functional interactions.

Course: 0228705- Immunology and Immunotechnology

CO1: Upon completion of this course's students will be able to understand and demonstrate the basic knowledge of immunological processes at a cellular and molecular level.

CO2: The students will be able to demonstrate a capacity for problem-solving about immune responsiveness.

CO3: Students will be able to apply basic techniques for identifying antigen-antibody interactions.

CO3: The students will be able to identify the cellular and molecular basis of immune responsiveness.

CO4: Students will be able to elucidate the reasons for immunization and aware of different vaccination.

CO5: The students will be able to describe the roles of the immune system in both maintaining health and contributing to disease.

Course: 0228706- Recombinant DNA Technology

CO1: Explain the fundamental principles and concepts of recombinant DNA technology, including its history, scope, and applications in biotechnology.

CO2: Demonstrate knowledge of molecular tools such as restriction enzymes, DNA ligases, cloning vectors, and host organisms used in genetic engineering.

CO3: Perform DNA isolation, modification, and cloning techniques, and analyze their role in creating recombinant DNA molecules.

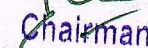
CO4: Apply advanced techniques such as PCR, gel electrophoresis, Southern blotting, and DNA sequencing for gene analysis and manipulation.

CO5: Explore the applications of recombinant DNA technology in areas such as pharmaceuticals, agriculture, diagnostics, and environmental biotechnology.

Course: 0228707- Animal Physiology

CO-1: Students learn about the mechanism of circulation and composition of blood.


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CO-2: Students learn about the functions of physiological systems like the digestive, respiratory, renal, reproductive, nervous, and muscular systems.

CO-3: Students learn about the endocrine system and its interactions with other systems.

CO-4: Students learn about the menstrual cycle and the role of contraceptives in population control.

CO-5: Students learn about the functioning of various organs and their interrelationship.

Course: 0228708- Plant Physiology

CO-1: Students explain the different mechanisms in plants used for water transport. They explain the different mechanisms in plants used for water transport.

CO-2: Students explain the importance of photosynthesis for plants. They explain the light and dark reactions of photosynthesis.

CO-3: Students explain assimilation of different mineral nutrients in plants. They explain the forms of nitrogen in biogeochemical cycle. They explain the biological nitrogen fixation. They explain phosphate, cation and oxygen assimilation.

CO-4: They explain the photochemical and biochemical characteristics of phytochrome.

CO-5: Students explain the plant hormones and their roles in plant development.

Course: 0228709- Enzyme and Enzyme Technology

CO1: Students will be able to proceed towards various concepts in biotechnology, the knowledge on enzyme and enzyme reactions.

CO2: Enzyme kinetics will provide the importance and utility of enzyme kinetics in research.

CO3: Students will learn critical analysis of scientific phenomena involving enzymes and will be able to competently work with enzyme systems in both academia and industry.

CO4: Students will get an understanding of procedures involved in purification of enzymes, enzymes assays and quantitative evaluation of the influencing parameters such as concentrations of substrate / enzyme, pH, temperature and effects of inhibitors on enzyme activity.

CO5: Deploy the properties and functions of coenzymes and cofactors. Analyze the biological importance of immobilized enzymes and biosensors.


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Year 3

Course: 0328701- Plant Biotechnology

CO1: Students learn about the molecular and physiological processes that occur during plant growth and development.

CO2: Students learn how to use basic biotechnological techniques to explore plant molecular biology.

CO3: Students learn about the processes involved in planning, conducting, and executing plant biotechnology experiments.

CO4: Students learn about plant genetic transformation and its application in industries.

CO5: Students learn about different methods for improving plants, such as taste, texture, fruit ripening, and sweetness.

Course: 0328702- Animal Biotechnology

CO1: Provide a sound knowledge in development of biological therapeutic agents through stem cells, recombinant technology and monoclonal antibody production etc.

CO2: To promote knowledge about the Animal biotechnology including cell culture, gene transfer technology, use of stem cell in therapies and guidelines to conduct experiment on animals.

CO3: Describe the biotechnologies available for application in industries or disciplines that involve animals


CO4: Explain the potential applications of current or developing biotechnologies to these animal related fields

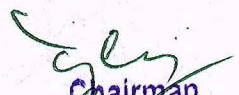
Course: 0328703- Molecular Virology

CO1: Describe the steps of viral replication, including attachment, entry, uncoating, replication, assembly, and release.

CO2: Explain the structural organization of viruses, including capsids, envelopes, and genetic material. Classify viruses based on genome type, replication strategy, and host range.

CO3: Demonstrate proficiency in methods such as cell culture, plaque assays, and PCR for studying viruses.


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CO4: Analyze the molecular basis of viral diseases and their symptoms. Understand the role of viral factors in disease progression and host immune responses.

Course: 0328704- Nanobiotechnology

CO1: Explain the principles of nanotechnology and its integration with biological systems.

CO2: Understand the interaction of nanomaterials with biomolecules, cells, and tissues. Identify various nanomaterials, such as nanoparticles, nanotubes, quantum dots, and their synthesis techniques.

CO3: Examine the use of nanotechnology in drug delivery, diagnostics, and imaging.

CO4: Describe the working principles of nanobiosensors for detecting biomolecules and pathogens.

CO5: Understand the role of nanotechnology in targeted therapy, including cancer treatment and gene therapy.

Course: 0328705- Environmental Biotechnology

CO1: Student will be able to discuss the role of microorganisms and biotechnological processes in environmental management.

CO2: Student will understand the mechanisms of bioremediation, including microbial degradation of pollutants.

CO3: Apply biotechnological methods for solid waste management, composting, and recycling.

CO4: Explain the principles of biofuel production, including bioethanol, biodiesel, and biogas. Assess the potential of algae and other renewable resources for sustainable energy generation.

CO5: Analyze how genetically modified organisms (GMOs) can be used for pollutant degradation and enhanced bio-productivity.

Course: 0328706- Industrial Biotechnology

CO1: Demonstrate a comprehensive understanding of biological systems, biochemical processes, and their applications in industrial biotechnology.

CO2: Apply bioprocess engineering principles to design, optimize, and scale up industrial biotechnological processes.


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CO3: Operate and analyze the performance of bioreactors, including their use in fermentation, product recovery, and purification.

CO4: Utilize molecular biology techniques for the production of industrial enzymes, biofuels, bioplastics, and other biotechnological products.

Course: 0328707- Genomics and Proteomics

CO1: Demonstrate an in-depth understanding of the structure, organization, and function of genomes and proteomes across different organisms.

CO2: Apply advanced techniques such as sequencing, gene editing, protein profiling, and mass spectrometry to analyze genetic and proteomic data.

CO3: Utilize bioinformatics tools and databases for genome annotation, comparative genomics, proteome analysis, and data interpretation.

CO4: Analyze gene and protein expression patterns to understand biological functions, pathways, and interactions in health and disease.

CO5: Explore the applications of genomics and proteomics in precision medicine, drug discovery, diagnostics, and personalized healthcare.

Course: 0328708- Biosafety, Intellectual Property Rights and Entrepreneurship Development

CO1: Understand the principles of biosafety and bioethics, including handling hazardous materials, laboratory safety, and risk assessment in biotechnology.

CO2: Demonstrate knowledge of national and international biosafety regulations, policies, and guidelines, including the Cartagena Protocol on Biosafety.

CO3: Acquire a comprehensive understanding of intellectual property rights, including patents, copyrights, trademarks, and trade secrets, and their applications in biotechnology.

CO4: Recognize ethical issues related to genetic resources, biopiracy, and the use of traditional knowledge in biotechnological innovations.

CO5: Develop the skills needed to identify opportunities, write business proposals, secure funding, and manage startups in the biotechnology industry.


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Course: 0328709- Recent Trends in Biotechnology

CO1: Awareness of emerging technologies to understand the latest advancements in biotechnology.

CO2: Explore developments in genomics, transcriptomics, proteomics, and metabolomics and their applications in health, agriculture, and industry

CO3: Analyze the application of recent trends in industrial biotechnology, including biofuels, bioplastics, and green technologies.

CO4: Apply multidisciplinary approaches by integrating principles of biology, chemistry, physics, and engineering to understand modern biotechnological innovations.


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M.Sc. BIOTECHNOLOGY

PROGRAMME OUTCOMES (PO's)

PO1: Demonstrate knowledge for in-depth analytical and critical thinking to identify, formulate and solve the issues related to Biotechnology Industry, Pharma industry, Medical or hospital related organizations, Regulatory Agencies, & Academia.

PO2: Develop an ability to solve, analyze and interpret data generated from experiments done in project work or practical courses.

PO3: Demonstrate skills to use modern analytical tools/ software/ equipments and analyze and solve problems in various courses of biotechnology.

PO4: Appreciate and execute their professional roles in society as biotechnology professionals, employers and employees in various industries, regulators, researchers, educators and managers.

PO5: Adopt code of ethics in professional and social context and demonstrate exemplary professional, ethical and legal behaviors in decision making.

PO6: Apply written and oral communication skills to communicate effectively in healthcare, industry, academia and research.

PO7: Apply responsibilities to promote societal health and safety, upholding the trust given to the profession by the society. Develop skills, attitude and values required for self-directed, lifelong learning and professional development

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Postgraduate students will be able to demonstrate and apply their knowledge of cell biology, biochemistry, microbiology and molecular biology to solve the problems related to the field of biotechnology.

PSO2: Postgraduate students will be able to demonstrate and apply the principles of bioprocess engineering in the design, analysis, optimization and simulation of bioprocess operations.

PSO3: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications.

PSO4: Students will be equipped to understand three fundamental aspects in biological phenomenon: a) what to seek; b) how to seek; c) why to seek?


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PSO5: Student will be able to (a) Describe fundamental molecular principles of genetics; (b) Understand relationship between phenotype and genotype in human genetic traits; (c) Describe the basics of genetic mapping; (d) Understand how gene expression is regulated.

PSO6: Students will be able to (a) To elaborate concepts of biochemistry with easy to run experiments; (b) To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry.

PSO7: Students will be able to gain hands on experience in gene cloning, protein expression and purification. This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.

Course Outcomes

Year 1 (I SEM)

Course: 0129001- Fundamentals of Genetics

CO-1: The students will be able to understand the classical and modern concepts of genetics.

CO-2: Students are able to understand the basic principles of inheritance biology.

CO-3: Students will be able to understand the sex linked inherited characters and diseases.

CO-4: They will get in-depth knowledge about gene interaction, penetrance and expressivity.

CO-5: The student will demonstrate proficiency in understanding the basic structure of atom and interpret the inheritance of characters by using linkage and crossing over.

Course: 0129002- Cytogenetics and Molecular Genetics

CO-1: Explain the concepts of DNA replication, DNA damage and repair, and gene expression in eukaryotic and prokaryotic organisms.

CO-2: Be able to take a family history and construct and interpret a pedigree.

CO-3: Be aware of the different laboratory techniques to investigate genetic material and their advantages and limitations.

CO-4: Be able to interpret a standard cytogenetic and molecular genetics.

CO-5: Be able to understand Duplication and deficiencies, Translocation, Inversion, Trisomic and Tetrasomic, Monosomic and Nullisomic.


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Course: 0129003- Statistical Methods and Bioinformatics in Biology

CO -1: Students will acquire independent ability to carry out statistical analysis of data and interpretation of results.

CO -2: Students will be able to statistically analyze the phenotypic data of plant traits.

CO - 3: The students will recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions.

CO -4: Students will demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems.

CO -5: Student will be able to demonstrate the ability to analyse data and draw appropriate statistical conclusions.

CO -6: Students will be well equipped to handle field level data for analysis and modeling purposes. They will learn how to draw a good sample from a population in order to draw valid inference.

CO -7: Students will be able to develop strategies for experimental designs.

CO - 8: Students will understand computational basis of genetic analysis that use genome data sets in system biology.

CO - 9: Students will be able to explain about the methods to characterize and manage the different types of biological data.

CO -10: Student will know about various biological databases that provides information about nucleic acids and protein.

CO -11: Student will understand the basics of sequence alignment and analysis.

CO -12: Students will be able to design and execute the programmes related to structural and functional aspects of genes and proteins.

Course: 0129004- Tools & Techniques in Biotechnology


CO-1: Enable the student to get sufficient knowledge in principles and applications of bio instruments.

CO-2: The properties of biomolecules that are used for their analysis

CO-3: The principle concepts in using analytical and preparatory techniques

CO-4: How to quantify and assay for a biomolecules.

CO-5: On successful completion of the course the students will be aware of microscopic techniques, electro physiological methods, biomolecules structure determination using spectroscopy, centrifugation and radiolabelling techniques.


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Year 1 (II SEM)

Course: 0229001- Fundamentals of Biochemistry

CO -1: This course presents the chemical reactions or metabolic functions in the living system and their regulations.

CO -2: To make the student to understand the concept of biochemical regulations

CO -3: On successful completion of the subject the student should have understood: basic biomolecules, viz protein fats, enzymes and their relevance to biological molecular stabilization.

Course: 0229002- Plant Genetic Resources: - Conservation and Their Sustainable Use

CO-1: Students will have knowledge on the conservation of biodiversity.

CO-2: They will acquire knowledge on various organizations involved in conservation and their policies.

CO-3: The students will have knowledge on plant quarantine regulations.

CO-4: The students will be able to promote human capacity to appreciate, maintain, and promote utilization of plant genetic resources.

CO-5: Students will understand different forms of IPRs and legislations related with IPRs. They will be well aware of Farmers' and Plant Breeders' rights.

Course: 0229003- Biotechnology in Crop Improvement

CO-1: Ability to apply the concepts and principles of plant tissue culture techniques on research problems pertinent to crop improvement.

CO-2: Dissemination of skills on usage of the acquired knowledge on practical biotechnology tools to augment agricultural research.

CO-3: The knowledge required to execute, analyze and apply molecular marker systems for crop improvement.

CO-4: Students will know about different mapping populations.

CO-5: Establish different types of plant cultures.

CO-6: Apply the technical skills learnt to establish nurseries for horticultural and agricultural crops.

CO-7: Compare the pros and cons of transgenic plants on environment.

CO-8: Explain the concepts of intellectual property management and handling of GMOs.

Course: 0229004- Recombinant DNA Technology and Genetic Engineering

CO-1: Explain the basic principles and, the tools and techniques of Genetic engineering.

CO-2: Describe the applications of genetic engineering in various fields.


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CO-3: Debate on ethical issues concerned with Genetic engineering.

Year 2 (III SEM)

Course: 0329001- Microbial, Industrial and Environmental Biotechnology

CO-1: The objectives of this course are to introduce students to developments/ advances made in field of microbial technology for use in human welfare and solving problems of the society. On completion of this course, students would develop deeper understanding of the microbiology and its applications.

CO-2: Explain the principle and application of various types of Microscopy.

CO-3: Describe the structure and Classification, staining, culturing, physiology, of microorganism.

Course: 0329002- Concepts of Nanotechnology

CO-1: Basic knowledge of nanoscience and its advancement in present time, future aspects of nanoscience

CO-2: Introduction, Properties and Characterization of nanomaterials, use of quantum dots in biology

CO-3: Study of Protein and Peptide based Nanostructures, DNA based Nanostructures, DNA based devices, nanosensors

CO-4: Self assembling nanostructures, Synthesis and Assembly using Bio-Derived Templates.

CO-5: Use of Pharmaceutically important nanomaterials for controlled drug delivery

CO-6: Nanomaterials and Toxicity Evaluation at cellular level.

Course: 0329003- Animal biotechnology and Immunology

CO-1: Explain the concepts of innate and adaptive immune response and techniques for clinical diagnosis.

CO-2: Illustrate the methodology to establish animal cell culture.

CO-3: Describe the importance of engineering animal cells for the production of therapeutic proteins.

Course: 0329004- Genomics and Proteomics


CO-1: Learning about genome, the types and significance of repeats in the genome.

CO-2: Learn strategies for Whole Genome Sequencing.

CO-3: Perform procedures for the De novo and reference based assembly, Genome finishing and annotation.

CO-4: Perform ORF, ab initio and homology based Gene prediction.

CO-5: Assessing genomic variations- using DNA marker systems.


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CO - 6: Knowledge on DNA chips and their use in transcriptome analysis.

CO - 7: Learn about the role of mutants and RNAi in functional genomics.

CO - 8: Acquire skills in the techniques of Site directed mutagenesis; Transposon tagging and targeted genome editing technologies.

CO - 9: Perform protein 3D structure modelling and proteome analysis.

CO-10: Understand protein - protein interaction by FRET, yeast two hybrid and co - immunoprecipitation.

Year 2 (IV SEM)

Course: 0429065- Thesis Work

CO -1: The purpose of this course is to help students organize ideas, material and objectives for their dissertation and to begin development of communication skills and to prepare the students to present their topic of research and explain its importance to their fellow classmates and teachers.

CO -2: Students should be able to formulate a scientific question

CO -3: Students should be able to present scientific approach to solve the problem

CO -4: Students should be able to interpret, discuss and communicate scientific results in written form.

CO -5: Students should be able to gain experience in writing a scientific proposal.

CO -6: Students should be able to learn how to present and explain their research findings to the audience effectively.


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DEPARTMENT OF BASIC SCIENCE

U.G. PROGRAM OUTCOMES

PROGRAMME – BACHELOR OF SCIENCE


The objectives of B.Sc. programme include the development of the knowledge about the science in day-to-day life, development of the knowledge by experiments and strengthen the students with employable qualities.

Program Outcomes: B.Sc. PCM

This course offers theoretical as well as practical knowledge about different subject areas—Physics, Chemistry & Mathematics. . It helps to develop scientific temper and thus can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace.

Program Specific Outcomes: B.Sc. PCM

1. Understand the interrelations between the different subjects and develop the ability to identify the links between them.
2. Develop skills necessary to plan, design and conduct experiments to test, demonstrate, verify and extend theoretical knowledge reliably and safely.
3. Develop ability to logically analyze data and solve problems systematically and objectively analyze open ended problems.
4. Use existing knowledge to synthesize new ideas and approaches to unfamiliar situations.
5. Acquire ability to face competitive exams for higher study in a chosen subject and procedural knowledge required for professional engagement in industry, teaching, research or other service.
6. This course also offers opportunities for serving in Indian Army, Indian Navy and Indian Air Force as officers.
7. Apart from the research jobs, students can also work or get jobs in Marketing, Business & Other technical fields.
8. Science graduates also recruited in the bank sector to work as customer service executives. Students can also find employment in government sectors.


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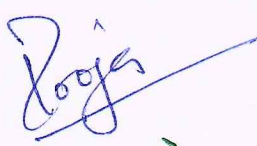
Program Outcomes: B.Sc. CBZ

This course offers theoretical as well as practical knowledge about different subject areas—Botany, Zoology & Chemistry. . It helps to develop scientific temper and thus can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace.

Program Specific Outcomes: B.Sc. CBZ

1. Students will be able to define and explain major concepts in the biological sciences.
2. They are able to correctly use biological instrumentation and proper laboratory techniques.
3. After the completion of this course students have the option to go for higher studies i.e. M. Sc and then do some research for the welfare of mankind.
4. After higher studies students can join as scientist and can even look for professional job oriented courses.
5. This course also offers opportunities for serving in Indian Army, Indian Navy, Indian Air Force as medical officers.
6. Students after this course have the option to join Indian Civil Services as IAS, IFS etc..
7. Science graduates can go to serve in industries or may opt for establishing their own industrial unit.
8. Apart from the research jobs, students can also work or get jobs in Marketing, Business & Other technical fields.
9. Science graduates also recruited in the bank sector to work as customer service executives. Students can also find employment in government sectors.


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DEPARTMENT OF BASIC SCIENCE

U.G. COURSE OUTCOMES

COURSE OUTCOMES: BOTANY

Course	Outcomes
Diversity of Virus, Bacteria and Fungi B-101	<ol style="list-style-type: none"> 1. To understand the history of microbiology, classification of Viruses, Bacteria, Fungi. 2. To study Prokaryotic & Eukaryotic cell, 3. To understand the symptoms and transmission of viral infections in plants, electron microscopy, economic importance of virus. 4. To understand nutrition type of bacteria, nitrogen cycle, bacterial genome and plasmids, genetic recombination, technique of sterilization, bacterial culture, etc. 5. To understand the life cycle of different fungi .e.g. Albugo, Pythium, Yeast, Aspergillus, Ustilago etc.
Diversity of Algae, Lichens & Bryophyte B-102	<ol style="list-style-type: none"> 1. To understand the students about general characters, range of Thallus organization, classification, ultra structure of algal cell and their economic importance. 2. To understand the students about life cycle, structure, classification, thallus organization, reproduction & economic importance of Lichens. 3. To understand the students about the life cycle of Bryophytes.
Diversity of Pteridophytes, Gymnosperms & Elementary Palaeobotany B-103	<ol style="list-style-type: none"> 1. To understand the students about general features, classification, stellar system, evolution, anatomy and life cycle of Pteridophytes. 2. To understand the students about general features, classification, anatomy and life cycle of Gymnosperms. 3. To understand the students about elementary palaeobotany, general account, types of fossils, methods of fossilization and geological time scale.
Diversity of Angiosperms, Systematics,	<ol style="list-style-type: none"> 1. To understand the principle of classification, binomial nomenclature, herbarium techniques and important botanical gardens. 2. To study different monocots and dicots families and their


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Development, Reproduction B-201	<p>economic importance.</p> <ol style="list-style-type: none"> 3. To study about external morphology, vegetative & floral parts and modification. 4. To teach students about tissue system and anatomy of root, stem and leaves. 5. To teach students about structure and development of structure and development of male and female gametophytes, embryo sac types, double fertilization & development of embryo, endosperms development, apomixes and polyembryony.
Cytology, Genetics, Evolution and Ecology B-202	<ol style="list-style-type: none"> 1. To understand the students about plant cell structure, cell organelles, chromosome structure, nucleosome model, different types of chromosome. 2. To understand the students about genetics, law of inheritance, gene interaction, cytoplasmic inheritance, sex determination. 3. To study about mutation type, molecular mechanism, and evolutionary significance, Polyploidy, kinds and role in evolution and theories of evolution. 4. To understand types and component of ecosystem, interaction between ecosystem and organism, energy pyramid, energy flow, food chain, food web, anatomy of hydrophytes and xerophytes.
Plant Physiology & Biochemistry B-203	<ol style="list-style-type: none"> 1. To study about plant and water relationship, properties of water, water conduction, transpiration, mechanism and regulation. 2. To understand macro and micro nutrients, their role, deficiency and symptoms. 3. To study about photosynthesis and chemosynthesis, pigments, O_2 evolution, photophosphorylation, C_3, C_4, CAM Plants, Respiration process, Glycolysis Pathway, Krebs's cycle, ETS, lipid's biosynthesis. 4. To study about the process of nitrogen metabolism, nitrogen, fixation and nitrogen cycle, Phytohormones: action and application, plant growth moment. 5. To understand about biomolecules, classification, properties and rules. 6. To understand the characteristics of Enzymes and cofactors & regulation of enzymatic activity.
	<ol style="list-style-type: none"> 1. To understand the students about centre of diversity of plants, origin of plants, basic concept of plant breeding and


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Plant Resources, Utilization, Pathology, Palyonology & Biostatistics B-301	<p>hybridization, heterosis, Concept of sustainable development</p> <ol style="list-style-type: none"> To study about oil yielding plants, spice, beverages, fiber, medicinal and petroplants of UP. To study about viral bacterial, fungal, and insect pest disease, Integrated pest management. To study about Palyonology, morphology and germination of pollens. To understand different statistical techniques .e.g. mean, mode, median, etc.
Molecular Biology & Biotechnology B-302	<ol style="list-style-type: none"> To understand the students about structure and properties of biomolecules .e.g. amino acids, vitamins, hormones, enzymes active sites, enzyme kinetics aspects, law of thermodynamics. To study about nucleic acid, properties of genetic code and protein synthesis mechanism. To understand the process of DNA replication in prokaryote and Eukaryotes, gene expression and hormonal control. To understand basic rule of biotechnology, plant tissue culture, transgenic plants.
Environmental Botany B-303	<ol style="list-style-type: none"> To study about mineral resources and their conservation. To understand sustainable management of energy resources in India, forest-global wealth & deforestation. To understand the cause, effects and controls of various types of pollution. To understand the concept of biodiversity & phytogeography, conceptsof population dynamics and geographical distribution of plants. To learn different techniques of conservation of resources of agriculture and forestry, different types of conservation e.g. Insitu and Exsitu conservation: botanical gardens.

COURSE OUTCOMES: ZOOLOGY

Course	Outcomes
Invertebrate Biology B-120,121	<ol style="list-style-type: none"> To understand the basic concept characters and classification of different phylum of invertebrates. To understand the various physiological processes- nutrition, locomotion, digestion, excretion, reproduction, life cycle in invertebrates.

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Plant Resources, Utilization, Pathology, Palyonology & Biostatistics B-301	<p>hybridization, heterosis, Concept of sustainable development</p> <ol style="list-style-type: none"> To study about oil yielding plants, spice, beverages, fiber, medicinal and petroplants of UP. To study about viral bacterial, fungal, and insect pest disease, Integrated pest management. To study about Palyonology; morphology and germination of pollens. To understand different statistical techniques .e.g. mean, mode, median, etc.
Molecular Biology & Biotechnology B-302	<ol style="list-style-type: none"> To understand the students about structure and properties of biomolecules .e.g. amino acids, vitamins, hormones, enzymes active sites, enzyme kinetics aspects, law of thermodynamics. To study about nucleic acid, properties of genetic code and protein synthesis mechanism. To understand the process of DNA replication in prokaryote and Eukaryotes, gene expression and hormonal control. To understand basic rule of biotechnology, plant tissue culture, transgenic plants.
Environmental Botany B-303	<ol style="list-style-type: none"> To study about mineral resources and their conservation. To understand sustainable management of energy resources in India, forest-global wealth & deforestation. To understand the cause, effects and controls of various types of pollution. To understand the concept of biodiversity & phytogeography, concepts of population dynamics and geographical distribution of plants. To learn different techniques of conservation of resources of agriculture and forestry, different types of conservation e.g. Insitu and Exsitu conservation: botanical gardens.

COURSE OUTCOMES: ZOOLOGY

Course	Outcomes
Invertebrate Biology B-120,121	<ol style="list-style-type: none"> To understand the basic concept characters and classification of different phylum of invertebrates. To understand the various physiological processes- nutrition, locomotion, digestion, excretion, reproduction, life cycle in invertebrates.

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Cell biology & Genetics B-122	<ol style="list-style-type: none"> 1. To understand the basic unit of life (Cell). 2. To understand the various types of cell organelles present in cell. 3. To understand the basic concepts of Genetics.- DNA, RNA, Mendel's law, Linkage, Crossing over, Multiple alleles, Blood group inheritance, genetic diseases etc.
Vertebrate Biology B-220	<ol style="list-style-type: none"> 1. To understand the basic concept characters and classification of vertebrates. 2. To understand the various physiological processes- digestive system, blood vascular system, respiratory system, reproduction etc. in vertebrates.
Animal distribution, Evolution and Developmental Biology B-221	<ol style="list-style-type: none"> 1. To understand the process of geographical time scale 2. To understand the process of origin of species, adaptive radiation, Darwin's law, Lamarck's law, natural selection, evolution of man and horse 3. To understand the basic concept of developmental biology, gametogenesis, fertilization, cleavage, blastulation, gastrulation and fate maps. 4. To understand the process of development of chickembryo, extra embryonic membranes. 5. To understand the process of placentation in mammals.
Physiology and Biochemistry B-222	<ol style="list-style-type: none"> 1. To understand the basic concepts about the digestive system, respiratory system, circulatory system, excretory, nervous and muscular system. 2. To understand the process of osmoregulation and thermoregulation, endocrinology. 3. To understand the process of carbohydrate, protein, lipid, enzymes.
Applied and Economic Zoology B-320	<ol style="list-style-type: none"> 1. To understand the life history, pathogenesis, mode of transmission of parasite- Trypanosoma, Giardia, Wachureria. 2. To understand the life cycle, pathogenecity, mode of transmission of sugarcane pest, ghundi bug, rodents, termites and mosquitoes. 3. To understand the processes of different cultures- pisciculture, apiculture, aquaculture, sericulture, lac culture etc. 4. To understand the wild life management, national parks, sanctuaries.

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Biotechnology Immunology, Tools & techniques and Biostatistics B-321	<ol style="list-style-type: none"> 1. To understand the basic concepts of biotechnology, RDTA, applications of genetic engineering. 2. To understand the basic concept of immune system, antigen antibodies reaction, humoral and cell mediated immunity, hybridoma technology. 3. To understand the various types of tools- microscopes, electrophoresis, centrifuge, spectrophotometer, chromatographic chamber and their techniques. 4. To understand the various aspects of biostatistics- mean, median, mode, standard deviation, central tendency, correlation etc.
Ecology, Microbiology, Animal behavior, Pollution & Toxicology B-322	<ol style="list-style-type: none"> 1. To understand the basic concepts of ecosystem, food chain, food web, trophic level, population ecology. 2. To understand the students about the morphology & physiology of bacteria and viruses and different human diseases. 3. To understand the students about natural and acquired behavior, migration in fishes and birds. 4. To understand the students about different types of pollution, acute and chronic toxic agents and response, doses compensation etc. 5. To understand the basic concepts of ecosystem, food chain, food web, trophic level, population ecology. 6. To understand the students about the morphology & physiology of bacteria and viruses and different human diseases
Ecology, Microbiology, Animal behavior, Pollution & Toxicology B-322	<ol style="list-style-type: none"> 1. To understand the students about natural and acquired behavior, migration in fishes and birds. 2. To understand the students about different types of pollution, acute and chronic toxic agents and response, doses compensation etc.

COURSE OUTCOMES: CHEMISTRY

Course	Outcome
Inorganic	1. Through this course, student will be able to explain

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Chemistry B-106	<p>atomic structure base on quantum mechanics.</p> <ol style="list-style-type: none"> 2. To explain periodic properties of the atom. 3. To explain the structure and bonding in molecules/ions and to predict the structure of molecules.
Organic Chemistry B-107	<ol style="list-style-type: none"> 1. Students will have a firm foundation in the fundamental and application of alkanes, alkenes, alkynes in organic chemistry. 2. Students will be able to explain the hybridization and geometry of molecule and 3D structure of organic molecule. 3. To explain nucleophile, electrophiles, nucleophilicity, inductive effect and resonance etc. 4. To explain the mechanism of general organic reaction e.g. electrophilic substitution & addition, nucleophilic substitution & addition etc.
Physical Chemistry B- 108	<ol style="list-style-type: none"> 1. Students will be able to explain chemical change based on experimental data. 2. To identify the order of reaction for a chemical change. 3. To understand the concept of mechanism using Rate's law data predict whether or not a proposed mechanism is viable or not. 4. Through this course, to explain fundamental properties of atom and molecules and their various state of matter. 5. The fundamental of acid-base chemistry, including pH value, Buffer behavior and acid base titration.
Inorganic Chemistry B-206	<ol style="list-style-type: none"> 1. After completing this course, students will be able To explain the properties of coordination compounds. 2. To explain Valence Bond Theory, effective atomic number. 3. To explain d & f-block elements and their specific properties e.g. ionization potential, lattice energy, electron affinity, nuclear charge, screening effect, electro negativity etc.
Organic Chemistry B-207	<ol style="list-style-type: none"> 1. Through this course students will be able to explain the reactivity and stability of alcohol, amines, ethers, esters and also they will get knowledge about reagent and their impact on conversion from alcohol to ketone, alcohol to acids, alcohol to ethers, ethers to alcohol etc.. 2. Students also will be able how to synthesize of organic molecule and to understand rearrangement reactions. 3. Students will be able to explain the stereochemistry

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	aspects of organic compounds & spectroscopic knowledge about UV & IR.
Physical Chemistry B-208	<ol style="list-style-type: none"> 1. To impart knowledge to the students about relation between heat, work and energy and impart them knowledge about the laws of thermodynamics. 2. To impart knowledge to the students about various laws of electro chemistry like Faraday's, Ostwald's etc and give insight to the students about electroplating, corrosion process etc.
Inorganic Chemistry B-306	<ol style="list-style-type: none"> 1. To impart knowledge to the students about crystal field theory, thermodynamic stability. 2. Students will be able to get knowledge about the colour for a coordination complex using crystal field theory. 3. Students will be able to explain metal-ligand interaction, magnetic properties, structure, stability and reactivity of complexes. 4. Students acquire knowledge of L-S coupling, d-d forbidden transition, d-d allowed transition, absorption spectra & Bioinorganic chemistry etc.
Organic Chemistry B-307	<ol style="list-style-type: none"> 1. The course aims at giving a fundamental, theoretical understanding of heterocyclic chemistry, including alternative general methods for ring synthesis and application of such methods for the preparation of specific group of heterocyclic compounds. 2. Students will be able to interpret and explain relevant terms of UV-Visible, NMR spectroscopy. 3. Students will be able to understand a sample preparation procedure in NMR spectroscopy and to explain working principle, taking spectrum and outline of NMR spectroscopy
Physical Chemistry B-308	<ol style="list-style-type: none"> 1. To make students aware about various phenomenon of photochemistry like Florescence, Phosphoresce, Photosensitization etc and also give them knowledge about reaction rates, 2. To impart knowledge to the students about Stereo-chemical aspects of inorganic compounds and inorganic preparations. In spectroscopy knowledge is imparted to students about UV, IR, Raman, Molecular and Atomic Spectroscopy and how they help in structure elucidation of chemical compounds 3. This course gives idea about synthesis, characterization,

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	electrical, optical properties of Nanosystems in polymer Chemistry Knowledge is imparted about synthesis and properties of various polymers.
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COURSE OUTCOMES: PHYSICS

Course	Outcomes
Mechanics & Wave Motion B-116	<ol style="list-style-type: none"> 1. To understand the concept of Newtonian mechanics and its implementations. They are able to understand the various type of motion e.g. Rectilinear, rotational, planetary & periodic motion. 2. To build new types of device to measure many physical quantities. They know the simultaneous interaction of two or more particle, force of gravitation & dissipation, 3. They can understand twisting and oscillating behavior, elastic tendency of any body. 4. They also gain knowledge about transverse & longitudinal waves.
Kinetic Theory & Thermodynamics B-117	<ol style="list-style-type: none"> 1. To study the construction of matter, and effect of temperature on the structure of matter. 2. To study about the motion of molecules and parameters of the heat flow. 3. To learn how to liquefy any gas and the criterion of liquefaction of any gas.
Circuit Fundamental & Basic Electronics B-118	<ol style="list-style-type: none"> 1. To gain knowledge about the circuit and their active or passive components. 2. To acquire knowledge about the techniques of simplification of various types of complicated circuit. 3. To study different principles and laws on which the AC & DC circuits components perform. 4. To determine the unknown parameters of any circuit. 5. To understand the fundamental of electronics.
Physical Optics & Lasers B-217	<ol style="list-style-type: none"> 1. To develop an understanding of the principles of optics. 2. To build connections between mathematical development and conceptual understanding. 3. To understand the basic concepts of wave optics and an

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	<p>ability to compute basic quantities in optics.</p> <ol style="list-style-type: none"> To learn to use methods for solving differential equations. To experience the diverse applications of the wave equation.
Electromagnetics B-217	<ol style="list-style-type: none"> To know the vocabulary and concepts of physics as it applies to: Principles of Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Direct Current Circuits, Magnetic Fields, Sources of Magnetic Fields, Faraday's Law, Inductance, Alternating Current Circuits, and Electromagnetic Waves. To understand the relationship between electrical charge, electrical field, electrical potential, and magnetism. To be able to use electromagnetic theory and principles in a wide range of applications. To learn a variety of advanced mathematical methods and computer techniques. To develop skill to solve numerical problems on it.
Elements of Quantum Mechanics & Atomic-Molecular Spectra B-218	<ol style="list-style-type: none"> To learn the mathematical tools needed to solve quantum mechanics problems. This will include complex functions and Hilbert spaces, and the theory of operator algebra. To solve ordinary and partial differential equations that arises in quantum mechanics. To develop problem solving methods that will include mathematical as well as numerical computations and solutions. To build connections between mathematical development and conceptual understanding. To develop the concepts of quantum physics: basic knowledge of special theory of relativity and general theory of relativity, elementary quantum mechanics, nuclear physics, and particle physics. To understand the relationship between observation and theory and their use in building the basic concepts of quantum physics. To understand how major concepts developed and changed over time. To become capable of analyzing and solving problems using oral and written reasoning skills based on the concepts of quantum physics. To apply the mathematical tools developed to various

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	<p>quantum mechanics problems.</p> <p>10.To develop problem solving methods that will include mathematical as well as numerical computations and solutions.</p> <p>11.To build connections between mathematical development and conceptual understanding.</p>
Relativity & Statistical Physics B-316	<ol style="list-style-type: none"> 1. To gain basic knowledge of special theory of relativity and general theory of relativity. 2. To understand how statistics of the microscopic world can be used to explain the thermal features of the macroscopic world. 3. To be able to use thermal and statistical principles in a wide range of applications. 4. To learn a variety of mathematical and computer techniques.
Solid State & Nuclear Physics B-317	<ol style="list-style-type: none"> 1. To understand basic concepts and mathematical methods of solid state physics. 2. To practice problem solving by using selected problems in solid state physics. 3. To explore important connections between theory, experiment, and current applications. 4. To develop a basis for future learning and work experience. 5. To acquire knowledge in the content areas of nuclear and particle physics, focusing on concepts that are commonly used in this area. 6. To develop and communicate analytical skills in subatomic physics. 7. To develop familiarity with the vast areas of nuclear and particle physics as well as develop an interest in these subjects.
Solid State Electronics B-318	<ol style="list-style-type: none"> 1. To give knowledge of some basic electronic components and circuits. 2. To introduce basics of diode and transistor circuits . 3. To understand working of some I C based circuits. 4. To study logic gates and their usage in digital circuit. 5. To expose the students to working of some power electronic dev ices, transducers and application of transducers 6. To give knowledge of some basic electronic components


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	<p>and circuits.</p> <ol style="list-style-type: none"> 7. To introduce basics of diode and transistor circuits . 8. To understand working of some I C based circuits. 9. To study logic gates and their usage in digital circuit. 10.To expose the students to working of some power electronic dev ices, transducers and application of transducers 11.To introduce basic aspect of electronic communication systems. 12.To comply and verify parameters after exciting devices by any stated method. 13.To Implement circuit and test the performance. 14.To analyze small signal model of FET and MOSFET. 15.To explain behavior of FET at low frequency. <ol style="list-style-type: none"> 1. To design an adjustable voltage regulator circuits.
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COURSE OUTCOMES: MATHEMATICS

Course	Outcomes
Algebra and trigonometry B-126	<ol style="list-style-type: none"> 1. To apply the skill of understanding various such subjects. 2. To understand the value of abstraction and many examples of group, abelian group, ring, field and integral domain. 3. Trigonometry skills allow students to work out angles, dimension, height and distance. 4. Algebra and trigonometry are widely used in architecture, engineering and in various stream of science.
Calculus B-127	<ol style="list-style-type: none"> 1. Calculus can dramatically increase productivity, reduce waste time due to manual process and IT resources. 2. It can make decision quicker so it can help for business scale for future growth. 3. Calculus can tell us all about the motion as astronomical bodies, weather patterns, electrical circuits system and movement of sound and light.
Geometry and Vector	<ol style="list-style-type: none"> 1. To acquire knowledge of dealing with the shapes, size and position of 2D and 3D dimensional objects.

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B-128	<ol style="list-style-type: none"> 2. It is used in construction of monument, architecture, nature and spacecraft. 3. Vectors are useful because they can visually represent position, displacement, velocity and acceleration when driving vector.
Linear Algebra & Matrices B-226	<ol style="list-style-type: none"> 1. Study of Error-Correcting Codes used in almost all forms of digital storage and communication, from DVD players to satellite communication. 2. The theory and practice of constructing good error-correcting codes rely heavily on the abstract notions of finite fields and vector spaces, and more recently on even deeper and more abstract algebraic concepts like function, fields and algebraic curves.
Differential Equation B-227	<ol style="list-style-type: none"> 1. To acquire knowledge about the solution of various types of differential equations. 2. More or less every phenomenon either it is physical, chemical or biological can be represented in terms of differential equations. 3. Students study the behavior of waves, flow of fluids and chemical reaction. 4. Almost each problem can be represented in terms of differential equations.
Mechanics B- 228	<ol style="list-style-type: none"> 1. Mechanics is usually defined as the study of statics and dynamics or "engineering mechanics". 2. Strength of materials is sometimes also included as a part of the study of mechanics. 3. To study analytical geometry, coordinate systems, positions, and displacements.
Real analysis B-326	<ol style="list-style-type: none"> 1. Real-analysis is necessary for probability theory, which is the foundation for all of statistics, operations research, queuing theory, and mathematical finance (e.g. Black Scholes Theory). 2. To prepare the basis of measure theory, axiomatic probability, this follows to stochastic processes. 3. To understand the use of stochastic processes in finance, trading, computer and network simulations, modeling, manufacturing, quality control, etc.
Numerical	<ol style="list-style-type: none"> 1. Students understand the basic methods of solving engineering problems that lead to equations and cannot be

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Analysis B-327	<p>solved analytically with simple formulas.</p> <ol style="list-style-type: none"> 2. Numerical analysis may contain any one or a combination of the following three fundamental disciplines in a traditional civil engineering venture, structural mechanics, geo-mechanics, and fluid mechanics. 3. To study about the existence of the issues that can be categorized as one of interaction soil-structure, interaction fluid-structure or soil-fluid interaction.
Linear programming B-328	<ol style="list-style-type: none"> 1. In Linear programming, students learn how to solve sub-problems in various integers and nonlinear programming algorithms. 2. Linear programming provides the techniques of solving industrial applications that uses algorithms implicitly. 3. To understand crew scheduling and fleet assignment, vehicle routing, pooling problems in oil industry and optimizing radiation therapy treatment.

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MASTER OF COMMERCE
COURSE OUTCOMES AND PROGRAM OUTCOMES
2021-2023

S.No	M.Com	
1	Program Outcome	<p>1: The commerce and finance focused curriculum offer a number of specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business.</p> <p>2: The all-inclusive outlook of the course offers a number of values based and job-oriented courses ensures that students are trained into up-to-date. In advanced accounting courses beyond the introductory level, affective development will also progress to the valuing and organization levels.</p>
2	Program Specific Outcomes	<p>1: Students will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help them to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.</p> <p>2: Students will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, CMA and other courses.</p> <p>3: Students will acquire the skills like effective communication, decision making, problem solving in day-to-day business affairs</p> <p>4: Students will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.</p> <p>5: Students can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.</p> <p>6: Students will be able to do higher education and advance research in the field of commerce and finance.</p>
S.No	Course	Course Outcomes
CO-01	M.Com- Management Concepts and Organizational Behavior-I-1001	<p>Student understands:</p> <p>1. The importance of management and various management principles and thoughts.</p> <p>2. The functional areas of business management including planning, decision making, organizing, staffing, direction, communication, direction, coordination and control.</p>

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CO-02	M.Com-Direct Tax-Law and Practice-I-1002	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Various concepts related to Income Tax. 2. How to calculate the taxable income under various Heads of income. 3. Various slabs of income tax and how to use the slabs to calculate the tax liability. 4. Various tax authorities in India
CO-03	M.Com- Statistical Analysis-I-1003	<p>Student understands:</p> <ol style="list-style-type: none"> 1. How to do comparative study of two or more observations and understand relation between them. 2. The advanced concepts of statistics and its use in business.
CO-04	M.Com-Financial Management-I-1004	<p>Student understands:</p> <ol style="list-style-type: none"> 1. The concepts, nature and structure of business finance. 2. The importance of corporate securities and sources of long-term finance. 3. How to use short term finance and working capital in organization.
CO-05	M.Com-Direct Tax-Law and Practice-I-2001	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Various concepts related to Income Tax. 2. How to calculate the taxable income under various Heads of income. 3. Various slabs of income tax and how to use the slabs to calculate the tax liability. 4. Various tax authorities in India
CO-06	M.Com-Corporate Financial Accounting-I-2002	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards. 2. The conceptual aspect of corporate accounting. 3. Various skills about Computerized Accounting and Accounting Standards. 4. Various concepts related to companies i.e. liquidation, amalgamation, absorption, re-construction and holding company.
CO-07	M.Com- Corporate Law and Governance-I-2003	<p>Student understands:</p> <ol style="list-style-type: none"> 1. The knowledge of fundamentals of Company Law. 2. The provisions and the changes of the Companies Act of 2013. 3. New concepts involving in company law regime. 4. The duties and responsibilities of Key Managerial Personnel.
CO-08	M.Com- Operation Research-I-3001	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Know the applicability and use of Operation Research. 2. Need for Operation Research in making effective decisions


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CO-09	M.Com-Research Methodology-I-3002	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Various areas of Business Research Activities. 2. How to conduct the research in the field of business and social sciences. 3. How to develop the most appropriate methodology for their research studies. 4. The art of using different research methods and techniques
CO-10	M.Com-Strategic Management-I-3003	<p>Student understands:</p> <ol style="list-style-type: none"> 1. How to formulate, analyze and implement the strategy in organization. 2. Strategic Planning and how to make it effective. 3. How to formulate various functional strategies. 4. How to identify and assess a company's strengths and weaknesses, and match them with its opportunities and threats to suggest four alternative strategies.
CO-11	M.Com-Project Base Viva-Voce-I-3004	<p>Student understands:</p> <ol style="list-style-type: none"> 1. To acquire knowledge and skills to face the interview panel. 2. To Equip the students with analytical and evaluation abilities to respond to impromptu questions by the panel members. 3. To make the students to face the expert panel and present the knowledge, skills and problems in the most efferent way.
CO-12	M.Com-Managerial Economics-I-4001	<p>Student understands:</p> <ol style="list-style-type: none"> 1. The conceptual foundations of managerial economics. 2. How to analyze the behavior of consumers in terms of the demand for products. 3. How to evaluate the factors affecting firm behavior, such as production and costs. 4. How to analyze the performance of firms under different market structures.
CO-13	M.Com- Security Analysis and Portfolio Management-I-4002	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Various aspects of foreign exchange market and financing of foreign trade. 2. The Exchange rate mechanism and factors affecting exchange rates. 3. Development in foreign exchange market.
CO-14	M.Com-Securities Law & Capital market-I-4003	<p>Student Understands:</p> <ol style="list-style-type: none"> 1. To Make the learners aware of the prevailing securities laws. 2. To have an understanding of Indian capital Market
CO-15	M.Com- Marketing Management-I-4004	<p>Student understands:</p> <ol style="list-style-type: none"> 1. How to perform a market segmentation analysis, determine the organization's target market and define the consumer behavior of each segment. 2. How to develop an integrated advertising and

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		<p>Marketing communications plan and persuasively present and defend it.</p> <p>3. How to evaluate the effectiveness of integrated advertising and marketing communications initiatives.</p> <p>4. How to develop creative solutions to address advertising and marketing communications challenges.</p>
CO-16	M.Com-International Marketing-I-4005	<p>Student Understands:</p> <p>1. To make the students understand the conceptual framework of international business.</p> <p>2. To familiarize the students with trends and developments in the international areas.</p>
CO-17	M.Com- Human Resource Management-I-4006	<p>Student Understands:</p> <p>1. To provide expert knowledge of principles and practices of Human resource management required for management of business organizations.</p>
CO-18	M.Com-Industrial Relations and Labor Laws-I-4007	<p>Student Understands:</p> <p>1. The basic concepts of Industrial Finance.</p> <p>2. The major issues, growth & present position of IT Industries in India.</p> <p>3. The labor policy reforms and its impact on industries.</p> <p>4. Major environmental issues in the process of industrialization.</p> <p>5. How to effects New Economic Policy on Indian industry.</p>

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BACHELOR OF COMMERCE
COURSE OUTCOMES AND PROGRAM OUTCOMES

2020-2023

S.No	B. Com	
1	Program Outcome	After completing three years for Bachelors in Commerce (B. Com) program, students would gain a thorough grounding in the fundamentals of Commerce and Finance.
2	Program Specific Outcomes	<p>1: Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals. Students will be able to demonstrate knowledge in setting up a computerized set of accounting books</p> <p>2: Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.</p> <p>3: Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.</p> <p>4: Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.</p> <p>5: Students will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.</p>
S.No	Course	Course Outcomes
CO-1	B. Com- BUSINESS COMMUNICATION C-101	<p>Student understands:</p> <p>1 To develop improve various skills like communication, reading, listing, note making, persuasive speaking, body language gestures.</p> <p>2. To understand the process of e-mail communication minutes of meeting.</p> <p>3. To make aware about barriers to communication with ethical context.</p> <p>4. To make effective and impressive communication.</p> <p>5. Better presentation and communication using proper body language.</p>
CO-2	B. Com- BUSINESS STATISTICS- C-102	<p>Student understands:</p> <p>1. How to do comparative study of two or more observations and understand relation between them.</p> <p>2. The basic concepts of statistics and its use in business.</p>

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CO-3	B. Com- FINANCIAL ACCOUNTING- C-103	<p>Student understands:</p> <ol style="list-style-type: none"> 1.To understand the various terms used in accounting system. 2. To give an insight into the basics of Accounting Concepts and Principles to Prepare to Students to have the foot hold in Accounts. 3. Preparing accounting information for planning and control and for the evaluation of finance. 3. Prepare ledger accounts using double entry bookkeeping and record journal entries accordingly. 4. Interpreting the business implications of financial statement information
CO-4	B. Com- BUSINESS REGULATORY FRAMEWORK C-104	<p>Student understands:</p> <ol style="list-style-type: none"> 1.Make the students understand about business and corporate law. 2. Develop knowledge on contract and various types of contracts. 3.To help the students to understand the concept of sale of goods. 4. Make the students understand about companies and its types 5. To equip the students with proper knowledge about foreign exchange. 6.To help the students to understand the basic laws related with business and corporate.
CO-5	B. Com- BUSINESS ECONOMICS C-105	<p>Student understands:Students will demonstrate their knowledge of the fundamental and technical concepts of economics.</p> <ol style="list-style-type: none"> 1.Students will apply the basic theories of economics in critical thinking and problem solving. 2.Students will be able to identify and use economics terminologies in oral and written communications. 3. Understand how households (demand) and businesses (supply) interact in various market structures to determine price and quantity of a good produced. 4. Represent demand, in graphical form, including the downward slope of the demand curve and what shifts the demand curve.
CO-6	B. Com- BUSINESS ENVIRONMENT -C-106	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Student will get an overview of Business Environment. 2. Description about Economic trends: National Income, sector wise analysis 3.Different Problems of Growth: Unemployment; Poverty; Regional Imbalances; Social injustice; Inflation; parallel economy 4.About the Role of Government in making Policies in India

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
		commerce.
CO-16	B. Com- ECONOMIC LAWS C-304	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Investigate the complexities of the natural environment and our relationship with it. 2. Explore the problems we face in understanding our natural environment and in living sustainability. 3. Develop scientific, interpretive and creative thinking skills. 4. Learn to apply quantitative analysis and field research techniques. 4. Use computer-based geographical information systems to study environmental change.
CO-17	B. Com- E-COMMERCE C-305	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Understand the leadership role of Management Information Systems in achieving business competitive advantage through informed decision making. 2. Analyze and synthesize business information and systems to facilitate evaluation of strategic alternatives. 3. Effectively communicate strategic alternatives to facilitate decision making.
CO-18	B. Com- MANAGEMENT ACCOUNTING C-306	<p>Student understands:</p> <ol style="list-style-type: none"> 1. Investigate the complexities of the natural environment and our relationship with it. 2. Explore the problems we face in understanding our natural environment and in living sustainability. 3. Develop scientific, interpretive and creative thinking skills. 4. Learn to apply quantitative analysis and field research techniques. 5. Use computer-based geographical information systems to study environmental change.

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Department of Business Administration
Program Outcomes (POs)

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
- PO6. Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- PO7. Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.


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Department of Business Administration
Course Outcomes

Semester	Course Code : Course Name	Course Outcome
1	168001: Fundamentals of Management	<p>CO-1 Assume the roles and responsibilities associated with managerial functions.</p> <p>CO-2 Identify the key contributors and their contributions in the development of management thought.</p> <p>CO-3 Compare various approaches in management for problem solving.</p> <p>CO-4 Identify common organizational structures and the advantages and disadvantages of each.</p> <p>CO-5 Understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities</p>
1	168002 : Organisation Behaviour	<p>CO-1 Analyze the behavior of individuals and groups in organizations in terms of the key factors that influence organization behavior.</p> <p>CO-2 Critically evaluate the potential effects of important developments in the external environment on organizational behavior.</p> <p>CO-3 Analyze organizational behavioral issues in the context of organizational behavior theories, models, and concepts.</p> <p>CO-4 Manage conflict in organizational context and deal with stress.</p> <p>CO-5 Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.</p>
1	168003 : Managerial Economics	<p>CO-1 Analyze economic problems and can correlate scarcity with the requirements.</p> <p>CO-2 Evaluate demand and can analyse cost in order to optimise cost-production combination.</p> <p>CO-3 Recognize the existing market and can take appropriate decisions.</p> <p>CO-4 Understand theories and principles in microeconomics and to apply these principles to analyze economic issues</p> <p>CO-5 Acquire quantitative skills used in economic analyses</p>
1	168004 : Accounting & Financial Analysis	<p>CO-1 Understand and apply the essential numerical skills required for bookkeeping and accounting.</p> <p>CO-2 Understand and explain the relationship between the accounting equation and double-entry bookkeeping.</p> <p>CO-3 Record transactions in the appropriate ledger accounts using the double entry bookkeeping system.</p> <p>CO-4 Prepare a trial balance, balance sheet and a profit and loss account.</p> <p>CO-5 Apply critical thinking skills by identifying and analyzing accounting issues using relevant accounting frameworks</p>
1	168005 : Business Laws	<p>CO-1 Analyze contract and define the business transactions as valid contracts.</p> <p>CO-2 understand the nuance of Law of Indemnity & Guarantee, Contract of</p>

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		<p>Bailment, Contract of Pledge and Contract of Agency</p> <p>CO-3 Develop the idea of sale, distinguish sale and agreement to sell and can explain conditions and warranties.</p> <p>CO-4 Identify critical issues of partnership business and can recognize rights and duties of partners.</p> <p>CO-5 Rules related to Bills of Exchange, Promissory Note and Cheque. Legal process on Dishonour of Cheque and Penalties.</p>
1	168006 : Business Organisation and Ethics	<p>CO-1 Provides with the logic and working of organizations and outlines the major function of business organisation.</p> <p>CO-2 Enables students to acquire and exhibit knowledge skill and abilities needed to successfully manage the organization with different environmental situations.</p> <p>CO-3 Understand the concept of CSR in business organization</p> <p>CO-4 Understand Ethical issues in employer – employee relation</p> <p>CO-5 Analyze the Role of ethics for managers</p>
2	268001 : Quantitative Techniques for Business	<p>CO-1 Understand the Quantitative Approaches to decision making and general method of solving quantitative models.</p> <p>CO-2 Classification and tabulation of data. Different types of data. Diagrammatical and graphical representation of data. Measures of central tendency, Dispersion, Skewness and Kurtosis and Moments.</p> <p>CO-3 Concept of correlation, correlation coefficients - Karl Pearson's correlation coefficient, Spearman's rank correlation coefficient, multiple and partial correlation coefficients, Intraclass correlation. Concept of Regression, Principle of least squares, Linear and curvilinear regression.</p> <p>CO-4 Understand the basic components of sampling and have the knowledge on exact sampling distributions which are essential for estimating and testing hypothetical statements.</p> <p>CO-5 Concept of probability, different approaches to the theory of probability. Concept of events, mutually exclusive independent and exhaustive events. Sample space and its properties. Use the basic probability rules including addition and multiplicative laws, conditional probability and Bayes theorem.</p>
2	268002 : Business Communication	<p>CO-1 Relate to the various concepts and processes of managerial communication.</p> <p>CO-2 Identify the gap between current level of communication skills and the expected industry standards.</p> <p>CO-3 Develop essential communication skills required for managing a business.</p> <p>CO-4 Students develop the awareness about the various media of communication.</p> <p>CO-5 Students will learn different usage the business correspondence serve for effective communication.</p>
2	268003 : Human Resource Management	<p>CO-1 Demonstrate the understanding of theoretical concepts and framework required for effective Human Resource Management.</p> <p>CO-2 Develop an overview on various functions and processes of human resource management.</p>

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		<p>CO-3 Identify the human resource needs of an organization and plan accordingly.</p> <p>CO-4 Students will gain information on different situations & issues regarding various aspects that are related to H.R.M.</p> <p>CO-5 Case studies help students to understand proper solutions to run an organization successfully.</p>
2	238004 : Marketing Management	<p>CO-1 Explain the core concepts of marketing and the goals of the Marketing function</p> <p>CO-2 Analyze the environment and recommend appropriate Segmentation, Targeting and Positioning Strategy for a product and analyze the buying behavior of a given target market segment</p> <p>CO-3 Recommend suitable product, pricing, distribution and Marketing Communication strategies for a brand to achieve the Marketing objective</p> <p>CO-4 Students will demonstrate effective understanding of evolution and development of marketing over time.</p> <p>CO-5 Students will demonstrate effective understanding of relevant functional areas and tools of marketing and its applications.</p>
2	268005 : Business Environment	<p>CO-1 Know and analysis different business environment.</p> <p>CO-2 Evaluate the major factors which affect the business.</p> <p>CO-3 Understand and analyze various political, technological and economic environment in the business.</p> <p>CO-4 Students would describe and discuss Corporate Social Responsibility, Corporate Governance and Social Audit.</p> <p>CO-5 Students would be acquainted with various strategies of Global Trade. They would also discuss Foreign Trade in India, Foreign Direct Investments and its implications on Indian Industries.</p>
2	268006 : Fundamentals of Computer	<p>CO-1 Understand basic concepts and terminology of information technology.</p> <p>CO-2 Have a basic understanding of personal computer and acquire knowledge about generation of computers and types of computers.</p> <p>CO-3 Identify uses of spreadsheets in Managerial application.</p> <p>CO-4 Understand an operating system and its working, and solve common problems related to operating systems.</p> <p>CO-5 Learn basic word processing, Spreadsheet and Presentation Graphics Software skills.</p>
3	368001 : Advertising Management	<p>CO-1 Describe different types of advertisement and to identify key players in advertising industry</p> <p>CO-2 Identify and make decisions regarding the most feasible advertising appeal and media mix.</p> <p>CO-3 Conduct pre-testing, post testing and concurrent testing of ads to determine their effectiveness.</p> <p>CO-4 Devise effective advertising and brand strategies for consumer and business goods and services.</p> <p>CO-5 Describe the purpose and methods of effectively managing brands including how to build brand equity and establish brand identity.</p>
3	368002 : Team Building and Leadership	<p>CO-1 recognise the difference between groups and teams and understand when each is more appropriate</p>

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		<p>CO-2 understand issues in team constitution (team roles)</p> <p>CO-3 identify the different stages of team development and how a manager can support the team at each stage</p> <p>CO-4 understand and identify team processes (inputs, throughputs and outputs) and the manager's role</p> <p>CO-5 understand and manage conflict.</p>
3	368003 : Indian Economy	<p>CO-1 To understand the condition of Indian economy.</p> <p>CO-2 The role of planning process and how it has changed over the years.</p> <p>CO-3 Sectoral composition of GDP and role that different sectors have played in India's growth process.</p> <p>CO-4 List out the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.</p> <p>CO-5 Not only be aware of the economy as a whole, but also be able to understand the role of financial institutions in helping the unfunded and the role of small scale industries in promoting entrepreneurship in the country.</p>
3	368004 : Customer Relationship Management	<p>CO-1 Able to understand and explain Introduction to customer relationship management</p> <p>CO-2 Understand relationships and identify organizational and customer relationship management issues, plan and implement customer relationship management projects, and develop, manage and use customer related databases.</p> <p>CO-3 Apply the concept of CRM, the benefits delivered by CRM, the contexts in which it is used, the technologies that are deployed and how it can be implemented.</p> <p>CO-4 Implement various technological tools for data mining and also successful implementation of CRM in the Organizations.</p> <p>CO-5 Design customer relationship management strategies by understanding customers' preferences for the long-term sustainability of the Organizations.</p>
3	368005 : Management Information System	<p>CO-1 To describe the role of information technology and decision support systems in business.</p> <p>CO-2 To provide the theoretical models used in database management systems to answer business questions.</p> <p>CO-3 Understand the concept Methods and Procedures of MIS in Decision making.</p> <p>CO-4 Develop and implement MIS, in organization, and analyze the factors of success and failure of MIS in Organizations.</p> <p>CO-5 Explain the role of Decision Support System, Artificial intelligence (AI) System and Knowledge based expert system (KBES) in Integrated MIS.</p>

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3	368006 : Income Tax	<p>CO-1 Introduces students to the basic concepts of Income Tax like Assessment year, previous year, cannons of taxation and Gross Total Income</p> <p>CO-2 Briefs on computation of income from salary, Income from house property, profits and gains from business and profession and computation of total income and various deductions and exemptions.</p> <p>CO-3 Assess the total income of an individual, HUF and Firm.</p> <p>CO-4 Know the procedure, types and penalties etc of Filing of Return along with Tax Planning.</p> <p>CO-5 Calculate incomes under the various head of Incomes under Income Tax Act, 1961.</p>
4	468001 : Consumer Behaviour	<p>CO-1 Identify the major influences in consumer behaviour.</p> <p>CO-2 Distinguish between different consumer behaviour influences and their relationships.</p> <p>CO-3 Establish the relevance of consumer behaviour theories and concepts to marketing decisions.</p> <p>CO-4 Differentiate between consumer buying behaviour and industrial buying behaviour.</p> <p>CO-5 Comprehend different dimensions of consumer decision making as well as its' impact on consumer decision making.</p>
4	468002 : Financial Management	<p>CO-1 Able to explain accounting statements and can analyse the financial statement with the help of ratio analysis</p> <p>CO-2 Apply the concept of time value of money for any investment decision.</p> <p>CO-3 Assess the capital structure of a firm and state its impact on firm's profitability.</p> <p>CO-4 Discuss the concepts of Management of Working Capital.</p> <p>CO-5 Explain the various Dividend Models and Dividend Policy.</p>
4	468003 : Production Management	<p>CO-1 Decide the purchase procedure and analyse and execute store management functions.</p> <p>CO-2 Design suitable strategy of inventory control by applying concepts of EOQ and ROP, Value analysis etc.</p> <p>CO-3 Develop and forecast production and sales and make facility layout decisions.</p> <p>CO-4 Describe the concept of inventory control and quality control etc.</p> <p>CO-5 Diffrentiate between different type of manufacturing systems.</p>
4	468004 : Sales and Distribution Management	<p>CO-1 Identify the dealer oriented promotion techniques, customer oriented promotion techniques and the salesmen oriented promotion techniques.</p> <p>CO-2 Describe different types of sales persons</p> <p>CO-3 Explain the steps involved in sales force management.</p> <p>CO-4 Illustrate the fundamentals of Distribution channels, Logistics and Supply Chain Management.</p> <p>CO-5 Differentiate between different type of sales executives.</p>
4	468005 : Research Methodology	<p>CO-1 Describe the research process and list the characteristics of various types of research.</p> <p>CO-2 Formulate Research Problem, Research Objectives and Hypothesis from a given research problem.</p>

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		<p>CO-3 Describe various research designs and methods of data collection.</p> <p>CO-4 Acquire problem solving techniques and to be able to use appropriate statistical methods and test and prepare report.</p> <p>CO-5 Prepare graph, charts on the basis of given data and prepare a research report.</p>
4	468006 : Entrepreneurship & Small Business Management	<p>CO-1 Understand the importance of entrepreneurs in growth and development of the economy.</p> <p>CO-2 Analyze the importance of small-scale industries in growth and development of the country.</p> <p>CO-3 Create a business plan that articulate and apply financial, operational, organizational and sales knowledge.</p> <p>CO-4 Illustrate various aspects of Project design, appraisal and types of plant layout.</p> <p>CO-5 Describe the steps to be followed for setting up a Small Scale Industry in India and the schemes available to SSIs by the Government of India.</p>
5	568001 : Arithmetic Aptitude	<p>CO-1 The main aim of introducing "Quantitative Aptitude" for mathematics students is to develop skill to meet the competitive examinations for better job opportunity.</p> <p>CO-2 Effort has been made to accommodate fundamental, mathematical aspects to instill confidence among students.</p> <p>CO-3 Enrich their knowledge and to develop their logical reasoning thinking ability.</p> <p>CO-4 Solve the problems easily by using Short-cut method with time management which will be helpful to them to clear the competitive exams for better job opportunity.</p> <p>CO-5 Analyze the Problems logically and approach the problems in a different manner.</p>
5	568002 : Aptitude Reasoning	<p>CO-1 Understand the basic concepts of quantitative ability</p> <p>CO-2 Understand the basic concepts of logical reasoning Skills</p> <p>CO-3 Acquire satisfactory competency in use of reasoning</p> <p>CO-4 Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning Ability</p> <p>CO-5 Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.</p>
5	568003 : General Business Awareness	<p>CO-1 Graduates will demonstrate knowledge of the legal and ethical environment impacting business organizations and exhibit an understanding and appreciation of the ethical implications of decisions.</p> <p>CO-2 Graduates will demonstrate the ability to communicate effectively both orally and in writing.</p> <p>CO-3 Graduates will demonstrate an understanding of and appreciation for the importance of the impact of globalization and diversity in modern organizations.</p> <p>CO-4 Graduates will demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems.</p>

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		CO-5 Graduates will demonstrate an ability to work effectively with others.
5	568004 : General English	<p>CO-1 Students should enhance their language skills especially in the areas of grammar and pronunciation.</p> <p>CO-2 Students can read and understand any text in English listening to the inputs given by the teacher in the classroom.</p> <p>CO-3 Students imbibe the rules of language unconsciously and tune to deduce language structure and usage.</p> <p>CO-4 Students write paragraphs, essays, and letters.</p> <p>CO-5 Students decipher the mechanism of language and use it for success in competitive examinations and job related speaking and writing tasks.</p>
5	568005 : Rural Marketing	<p>CO-1 Explore the various aspects of rural marketing and develop an insight into rural marketing regarding different concepts and basic practices in this area.</p> <p>CO-2 Identify the challenges and opportunities in the field of rural marketing for the budding managers and also expose the students to the rural market environment and the emerging challenges in the globalization of the economies.</p> <p>CO-3 Acquaint the students with the appropriate concepts and techniques in the area of rural marketing.</p> <p>CO-4 Apply adaptations to the rural marketing mix to meet the needs of rural consumers.</p> <p>CO-5 Understand the concept and methodology for conducting the research in rural market.</p>
5	568006 : Corporate Taxes – Direct and Indirect Tax	<p>CO-1 Computation of tax liability of individual.</p> <p>CO-2 Understand the powers and functions of income tax authorities and procedures of assessment of income tax.</p> <p>CO-3 Understand basic concepts of GST and its implication on individuals and business with regard to taxation.</p> <p>CO-4 Analyse the rate of GST, payment and refund of tax.</p> <p>CO-5 Apply the provisions of GST laws for supply of goods intrastate and interstate</p>
5	568007 : Service Marketing	<p>CO-1 Implement the best practices of the Services Marketing</p> <p>CO-2 Apply knowledge of Customer Relationship techniques in the corporate world</p> <p>CO-3 Analyze, interpret and solve problems in service Recovery.</p> <p>CO-4 Perform lifelong learning and professional development to enrich the services marketing strategies.</p> <p>CO-5 Visualise future changes in the Services Industry</p>
5	568008 : Financial Institutions and Investment Management	<p>CO-1 To familiarize with the Indian financial system through knowing the types of various financial institutions, instruments and financial markets.</p> <p>CO-2 To understand the various constituents of capital markets, functioning of capital markets and regulatory mechanisms associated with capital markets.</p> <p>CO-3 To understand the various types of Financial Services and to appreciate the role of financial services in economic development.</p> <p>CO-4 To understand the various types of Non-Banking Financial Companies (NBFCs) and to appreciate the role of financial services in economic development.</p> <p>CO-5 To know various legislations relating with financial sector and the</p>

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		recommendations of various committees suggesting financial reforms.
6	668001 : Strategic Management & Business Policy	<p>CO-1 Analyze strategy implementation alternatives for effective decision making.</p> <p>CO-2 Understand the strategic requirements and correlation between business plans with strategic plans.</p> <p>CO-3 Identify and evaluate different alternative strategies for effective decision making.</p> <p>CO-4 Describe how business strategy is formulated and evaluated along with the fundamental aspects of synergy.</p> <p>CO-5 Differentiate between Corporate Planning, Corporate Strategy and Business Policy.</p>
6	668002 : Operation Research	<p>CO-1 Resolve the equations related to Linear programming.</p> <p>CO-2 Identify the specially structured programming of transportation and assignment</p> <p>CO-3 Analyze the decision making problems under uncertainty and competitive situations</p> <p>CO-4 Understand and identify the resources required for project and generate a plan and work schedule.</p> <p>CO-5 Formulate and solve mathematical models for a physical situation like production, distribution of goods etc. that will provide quantitative solutions for the situations.</p>
6	668003 : Fundamental of E-Commerce	<p>CO-1 Examine the features , functions and common practices of e-Commerce</p> <p>CO-2 Debate on the advantages and disadvantages of various e-Commerce models along with the infrastructure requirements</p> <p>CO-3 Identify areas of application along with contemporary issues arising in the field</p> <p>CO-4 Know about Electronic Payment Systems and networking infrastructure of EDI</p> <p>CO-5 Differentiate between internet, Intranet and extranet.</p>
6	668004 : Economic & Industrial Law	<p>CO-1 Understand establishing & maintaining a sound relationship between the worker & the employer.</p> <p>CO-2 Identify and rectify the simmering issues which might take the form of a dispute in the workplace.</p> <p>CO-3 Clarify the use & importance of various Acts & their uses in Industrial Relations.</p> <p>CO-4 Show evidence of the ability to analyze, manage and problem solving to deal with the challenges and complexities of the practice of laws</p> <p>CO-5 Demonstrate knowledge of practical application of penalty imposed on employer due to Legislation</p>
6	668005: Retail Management	<p>CO-1 To give a perspective of the Indian retail scenario.</p> <p>CO-2 To identify the paradigm shifts in retailing business with increasing scope of technology and e-business.</p> <p>CO-3 Students will exhibit a good understanding of Indian retail scenario.</p> <p>CO-4 Students will demonstrate strong conceptual knowledge of all the functional areas of retailing.</p> <p>CO-5 Students will develop insights into the scope of technology and e-business in retailing.</p>

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6	668006 : Cost and Management Accounting	<p>CO-1 Apply costing methods and costing techniques appropriately as per the nature of business and the requirement of the firm</p> <p>CO-2 Treat direct and indirect costs as per the costing techniques and from control purposes</p> <p>CO-3 Prepare cost sheet for the firm and develop insights on the use of budgets for cost control.</p> <p>CO-4 Understand methods & techniques of costing & installation of costing system.</p> <p>CO-5 Analyze and evaluate informations for cost ascertainment.</p>
6	668007 : Digital Marketing	<p>CO-1 Understand the concept of digital marketing and its real-world iterations</p> <p>CO-2 Articulate innovative insights of digital marketing enabling a competitive edge</p> <p>CO-3 Understand how to create and run digital media based campaigns</p> <p>CO-4 Identify and utilise various tools such as social media etc.</p> <p>CO-5 Understand behaviour of online consumers.</p>
6	668008 : Company Accounts	<p>CO-1 Account for the various adjustments related to share capital</p> <p>CO-2 Prepare the final accounts of Joint Stock companies</p> <p>CO-3 Prepare the accounts of companies undergoing amalgamation and external reconstruction</p> <p>CO-4 Fundamentally & Technically maintain Company Accounts.</p> <p>CO-5 Compute managerial remuneration.</p>


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Session 2022-23



**DEPARTMENT OF AGRICULTURE
SHRI RAM COLLEGE, MUZAFFARNAGAR**

Affiliated to CCS University, Meerut (NAAC Accredited)

**B.Sc (Agriculture)
(CCSU225)**

Program Outcomes

Program Specific Outcomes

Course Outcomes


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B. Sc. (Agriculture)

PROGRAMME OUTCOMES (POs)

Students graduating with the B.Sc. Agriculture Science degree should be able to acquire any opportunity in the field of agriculture as well as they can apply for the post graduation. The Bachelor of Science degree (B.Sc. degree) is an undergraduate academic degree offered by universities and colleges worldwide. The Bachelor of Science (B.Sc.) degree is mainly awarded to students in the areas of Natural Sciences, Business & Management, Engineering Sciences, Mathematics, and Informatics.

PROGRAM SPECIFIC OUTCOMES


Bachelor of Science (B.Sc. Agriculture), agriculture courses are highly interdisciplinary, requiring students to have a good grasp of both natural sciences, social sciences and drawing on areas such as biology, environmental sciences, chemistry, economics and business and management. This programme will also help students to enhance their employability for jobs in different sectors.

COURSE OUTCOMES

Students enhance the knowledge in many subject related to agriculture during studies in Bachelor of Science Degree.

CO.1. D-191: Principles of Agronomy. Studies on modern terminology however the word has come to mean and denote a branch of science dealing with all aspects of crop cultivation and production. Knowledge about Indian Agriculture and importance, present status, scope and future prospect.

CO.2. D-192: Fundamentals of Soil Science. Studies on Soil formation, classification, physical, chemical properties and micronutrients available in soil their analysis.


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CO.3. D-193: Elements of Genetics. The student will be able to explain the significance and historical development in genetics, Mendel's Law's of heredity, Chromosomal theory of inheritance, meiosis and mitosis and Linkage and crossing over-types.

CO.4. D-194: Elementary Statics and applied mathematics elements of Statistics. To demonstrate the ability to collection and analyze data and draw appropriate statistical conclusions. To demonstrate the ability to communicate effectively both orally and in writing.

CO.5. D-195: Agricultural Meteorology. Studies on different meteorological variables related to agriculture. Enhance knowledge about cause of Rainfall-Hydrologic cycle and its components, Run-off, atmosphere and Humidity.

CO.6. D-196: Rural Sociology and Educational Psychology. To demonstrate an ability to survey and data collection in village and interact to farmer. Moderate and develop to agriculture farming through technologies transfer.

CO.7. D-197: Fundamentals of Horticulture. Demonstrate knowledge and understanding in horticulture section: The breadth and depth of the profession of horticulture. Basic horticulture biology: taxonomy, anatomy, morphology, and physiology. The characteristics of the environment and their influence on plant growth and development. Current applications of horticultural principles and practices: propagation, pest management, production, maintenance, and business practices. Comprehensive knowledge of horticultural production.

CO.8. D-198: Physical Education. To develop skill and confidence, maintain physical fitness, learn about personal health and wellness, and demonstrate positive social skills.

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CO.9. D-199: Structural & Spoken English. To develop the communication skill and pronunciation in different language. Students can differentiate the action, interaction and transaction models of communication. They can define the process of both perception and listening .Students can recall the importance of listening effectively and can identify strategies for communicating the cultural awareness.

CO.10. D- 008: Environmental Studies. Studies refer to an extensive and systematic study of nature/environment and of its physical, biological, social, and cultural factors, and the nature and characteristics of relationship between human and environment.

CO.11. D-009: Bhartiya Sanskrit evam Rashtra Gaurav. Studies on Indian culture and its future aspects.

CO.12. D-291: Irrigation and Water Management. Studies on artificial application of water to the soil through various systems of tubes, pumps, and sprays and it is normally used in areas where rainfall is inconsistent or dry conditions or drought is expected.

CO.13. D-292: Fundamentals of Extension Education and Rural development. To develop the knowledge about Extension Education is which deals with the creation, transmission & application of knowledge designed to bring about planned changes in the behavior-complex of people, with a view to help them live better by learning the ways of improving their vocations, enterprises & institutions.

CO.14. D-293: Elementary Crop Physiology. Understand of the ways in which plant physiological processes are integrated to cause whole plant responses in communities. The subject matter of crop physiology includes the ways in which the knowledge of plant physiology is applied for better management of crops.


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CO.15. D-294: Introductory Entomology. Identifying the harmful insect for crop production and their treatment. To be able to identify morphological characteristics, feeding habit and habitat of agriculturally important insect-pest. To be able to understand about different families and orders of class Insecta which cause economic losses for human beings.

CO.16. D-295: Introductory Plant Pathology. To develop the knowledge about diseases in plants caused by pathogens (infectious organisms) and environmental conditions (physiological factors) and their control. Student will acquaint about concepts of plant pathogens, major disease causing organisms and their etiology

CO.17. D-296: Elementary plant Bio-Chemistry and Chemistry of Plant products. student will be able to understand about role of cell organelles and their functions, functions of biomolecular and their utility in cell, identify the deficiency symptoms of biomolecules, synthesis pathways of biomolecules and regulations and identification of biomolecules in given sample.

CO.18. D-297: Introduction to Agriculture and Natural Resources Economics and Farm Management Economics. Concepts of natural resources, Food resources, mineral resources, Concept of non Conventional energy resources, types and various applications of renewable resources and current potentials of energy resources.

CO.19. D-391: Cereals Millets, and pulses crops (field Kharif crop). In the course study the students will be able to know about origin, geographical distribution, and economic importance of Kharif crops. In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Kharif crops. Production technology of kharif cereals and millets fulfill the need of human consumption and milch cattle. Constraints in production of oilseeds and pulses maybe identified through course

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content. Analysis of comparative benefits of the different kharif crops.

CO.20. D-392: Principal of plant breeding. Establish the commercial plant breeding company to developed new superior crops varieties. Develop the insect and disease resistant varieties for environment friendly management of disease and insect. Increase the farm yield to get higher income on farm by developing higher yield crop varieties.

CO.21. D-393: Form power and Machinery; farm Structures, Power and Machinery. Various sources of farm power and their uses. About working of IC Engines and their uses in modern equipments. The various implements used in agriculture farm for various purposes

CO.22. D-394: Environmental Science Agro Ecology. Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. Interdisciplinary branches of environment and their scopes. Types of biodiversity, their values, depletion and conservation methods. Basic Structure of atmosphere and their functions Current problems related issues context in solving environmental issues such as environmental health, food and agriculture, energy, waste and pollution, climate change, management, Basic knowledge about water recourses, current problems related issues, water born diseases, technologies of water treatment.

CO.23. D-395: Agriculture marketing, export and cooperation. Explain the broad feature of Indian financial institutions with instruments to control credit in the country. Identify the existence and development of non- banking financial institutions, know the important role of mutual fund.LIC investment companies etc. Utilize and effectively participate in the development process.


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CO.24. D-396: Vegetable Production. Students will understand practical knowledge on specialized production techniques of vegetables and spices. Students understand will Importance of vegetables & spices in human nutrition improved and national economy. Students will knowledge about quality requirement and production and techniques.


CO.25. D-397: Elementary Microbiology and Soil microbiology. Student will understand the basic microbial structure, function and study the comparative characteristics of prokaryotes and eukaryotes. To know the various Physical and Chemical growth requirements of bacteria. Understand about yeast, mould, virus and bacteria according to their structure.

CO.26. D-491: Oil seeds commercials crops fields crops- II Rabi crops. To know the Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of rabi crops . :It will be helpful to know about basic morphological characteristics of rabi crops.

CO.27. D-492: Breeding of field crops. Breeding problems, systematic description and economic importance. Breeding methods adopted and achievements with reference to following crops as Cereals (Wheat, rice and maize) Millets (Sorghum and pennisetum) Pulses (Gram, Pea and arhar) Oil-seeds (Mustard, groundnut and sunflower) Others (cotton and potato).

CO.28. D-493: Principles of soil physics and conservation. Soil survey/land planning and remote sensing. Physical properties of soil and their determination. Definition and importance of soil conservation in agriculture. History and soil conservation in India. Soil survey, definition Land use capability classification different types of soil in India. Soil erosion, definition types, mechanics and causes of eerosion. Factors affecting soil erosion.


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CO.29. D-494: Livestock production and management. Knowledge of animal science about type of animal, breed, uses, milk production technique, feed & fodder, water & shelter. Understand the animal disease & insect and their treatment.

CO.30. D-495: Economic Entomology, Economic entomology including crops. Economic importance of insects, nature and extent of damage, life history and management of the major insect pests. Elementary knowledge of agriculture and lac culture.

CO.31. D-496: Fruit production fruit production including plantation crops. To know importance of different fruit crops and plantation crops. Students will understand package of practices for the major crops like mango, banana, guava, lemon, pineapple, coffee, coconut and rubber. To understanding the concept of high density planting in different fruit crops.

CO.32. D-591: Introduction to plant biotechnology. Studies on Application of plant tissue and culture in crop improvement. Understand the method of plant propagation and breeding. Knowledge develops in biotechnologies their impact on crop production.

CO.33. D-592: Milk and milk processing. Knowledge about milk and its secretion, composition of colostrums and milk of different species. Physical properties of colostrum, cow and buffalo milk. Factors affecting the quantity and quality of milk produced. Clean milk production, microorganism of milk and their functions. Agencies engaged in handling and transportation of milk pricing of milk. Processing the milk. Filtration, Clarification, bacteriostatic pasteurization, ultra high temperature treatment, homogenization, sterilization, cooling and chilling of milk. Membrane filtration and reverse osmosis processes. Common adulterants and preservatives used in milk and their detection.

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CO.34. D-593: Preservation of fruits and vegetables post harvest management of fruits and vegetables. Knowledge about importance and scope of post harvest management of fruits and vegetables post, harvest deterioration of fruits and vegetables Techniques of prolonging the life of fruits and vegetables; handling grading and packing of fruits and vegetables. Fruits Preservation Causes of Spoilage of Fruits and Vegetables principles and methods of fruits and vegetables preservation canning of pea, Dehydration of fruits and vegetables, tomato products, jam, jelly and squash, preserve of Aonla and Bael, pickles of mango citurs, chillies and mixed vegetables.

CO.35. D-594: Crop pests and integrated pest management crops pests and management. Students knowledgeable about the effects of biotic and abiotic factors on insect development, population growth, species interactions, physiological requirements and insect behaviour. Students are skilled in determining pest levels and impact on plant and animal hosts and the management of these pests by Integrated Pest Management approach. To Understands about different classes of insecticides, their formulation, toxicity, poisoning, first aid and antidotes and their effect on plants, animals and environment.

CO.36. D-595: Weed management. Students will be acquainted about why to undertake environmental weed control. They will be acquainted about different approaches of weed management. Aware about harmful and beneficial effects of weeds in Agriculture.

CO.37. D-596: Crop disease and their management plant pathology. Student will know importance of sign and symptoms for detection of pathogens and disease. Student acquire the knowledge of Integrated methods of disease management. Gain the knowledge about IDM modules of wheat, rice, groundnut, mustard potato, cumin, citrus and chickpea diseases.

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CO.38. D-597: Soil fertility, fertilize and integrated nutrient management. Knowledge of different manure and fertilizers used in different crops according to soil condition. To understand essentiality of plant nutrients and mechanism of nutrient transport to plant and factor affecting nutrient availability. To be able about procedure of soil testing and establish soil testing laboratory in future as a entrepreneur.

CO.39. D-691: Principles of seed technology oil seed and commercial corps. Start a seed production program for fill full the requirement of quality seed in market and increase the income. Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions. Production of hybrid seed of different crops to increase the farm income. To increase the farm income by producing high yielding disease free quality seed and decrease the cost of cultivation also.

CO.40. D-692: Dairy products technology. Knowledge about composition and method of manufacture of cream, butter, dahi, khoa, Chhena, Ice cream, condensed milk powder, cheddar and cottage cheese, common adulterants of Ghee and khoa and their detection, cleaning and sanitization of dairy equipments. Understand the nutritive value to milk and milk products.

CO.41. D-693: Post Harvest Engineering. Understand the post harvest technology of horticultural crops. Study the various certification and accreditation i.e. FPO, ISO and other leveling. Understand the value addition of horticulture crops.

CO.42. D-694: Farming system and sustainable agriculture crop planning farm manage and sustainable agriculture. The course contains a comprehensive treatment of the traditional agricultural production economics topics employing both detailed graphics and differential calculus. Focus on the neoclassical factor-

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product, factor-factor and product- product models, and is suitable for an advanced undergraduate or a beginning graduate –level course in static production economics.

CO.43. D-695: Agriculture Finance, Business management and trade management and trade. Understand how all aspects of agriculture combine and are used by scientists, marketers, producers and understand how employer characteristics and decision-making at various levels enhance the success of an agricultural enterprise. To understand components of agriculture business and economics of market.

CO.44. D-696: Communication, Diffusion of agriculture innovation History and development of agri. Research and communication and diffusion of agriculture Innovation. Understand the communication process, elements and models of communication process and types of communication. Key communicator Audio visual aids, their use and effectiveness. Knowledge about innovation, diffusion, adoption, diffusion effect and rate of adoption, stages of adoption, factors affection adoption, elements of difference between diffusion and communication. Innovation decision process, categories of adopters, characteristics of innovations.

CO.45. D-697: Plant Pathology: Mushroom cultivation, Mushroom culture and elementary plant nemetology. Understand the morphology of edible mushrooms and their classification. Swawn and its preparation. Methods of Cultivation of different types of edible mushrooms. Mushroom diseases and ests. Mushroom recipies.

CO.46. D-698: Ornamental Horticulture. To evaluate natural herbal products from an economic perspective. To develop effective ideas related to collecting, processing and marketing herbal natural sources. To use medicinal and aromatic

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herbs sustainably. To set up business related to medicinal, aromatic and landscaping.

CO.47. D-791: Rained Agriculture, Dry Land forming And Water Seed Management. The term Rain fed agriculture is used to describe farming practices that rely on rainfall for water. A major study into water use by agriculture, known as the Comprehensive Assessment of Water Management in Agriculture, coordinated by the International Water Management Institute, noted a close correlation between hunger, poverty and water. However, it concluded that there was much opportunity to raise productivity from rainfed farming.

CO.48. D-792: Silviculture and Agro. Forestry and spec. Forestry. Students will understand recognize various harvesting, transportation, and processing systems used in the management of forest resources and production of forest products. Students will understand analyze forest inventory information and project future forest, stand, and tree conditions.

CO.49. D-793: Production technology of Medicinal, Spices and Aromatic Crops. Understand the importance and scope of medicinal, aromatic and spices crops. Knowledge about cultivation of menthe, citronella, Khus, Ocimum, Rauvolifia and Dioscoria. Knowledge about cultivation of turmeric, Zinger, Coriander, Zira and Saunf in the North Indian Condition.

CO.50. D-794: Management of Problems Soil and Water Land. Studies on saline and sodic soils-Occurrence classification, formation, diagnosis, characteristics and management. Knowledge about acid Soils- occurrence, formation, diagnosis, characteristics and management. Understand waterlogged soils- occurrence, characteristics and management. Eroded soils - Occurrence characteristics and management. Factors responsible for land degradation and characteristics of different types of wastelands.

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CO.51. D-795: Dairy Chemistry and Animal Nutrition. Understand the chemistry of milk constituent's viz. lactose, fat protein, enzymes and vitamins. Knowledge about classification of feeding stuffs, composition of Animal body and feeds, Functions of food constituents, the digestion and absorption of food constituents in ruminates.

CO.52. D-796: Computer Application. Understand analogy of computer and basic knowledge of MS Office. Introduction to DOS (Disk operating system), Fundamentals of DOS commands, Internal, External, Editor, Files and Directory, Elementary Idea of Basic (Computer Language).

CO.53. D-891: RAWE Work. Develop the knowledge of students through RAWE work keeping this in view the rural agricultural work experience (RAWE) is included in the programme. Where students will be exposed to rural (Village) environment for strengthening practical training group of students will be associated to farmers. Agro- industrial units and agricultural research station for this purpose for a period of 3-4 months they will be constantly supervised and evaluated by the faculty and a detailed report of the survey and works of the students for the period is to be submitted by him.


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NAME OF THE PROGRAMME: M.Ed.

PROGRAMME OUTCOME:

M.Ed. Programme aims at preparing professionally trained teacher educators. The programme will develop teacher educators who have knowledge on socio and psychological and philosophical perspectives, pedagogical knowhow and skills for effective teaching learning process. Along with that it also aims at building requisite attitude and values of teaching profession among its students. The programme outcomes can be listed as follows:

- To develop teacher educators with the knowledge on sociological, psychological and philosophical perspectives, curriculum and pedagogical concerns.
- To develop teacher educators who are professionally equipped with skills and competencies for changing technological needs and global concerns
- To build the right attitude, values needed for teaching profession.

SPECIFIC PROGRAMME OUTCOME

The MEd. curriculum facilitates all round development of students in order to prepare teacher educators with requisite knowledge, skills and values. The specific programme outcomes can be listed as follows:

- To develop critical thinking among students on psychological, social and philosophical perspectives so that they can be teacher educators who can prepare teachers with critical and scientific mind.
- To develop Social awareness and skills among students who can be leaders and agents of social change and transformation in society.
- To develop scientific temperament and ICT knowhow for changing technological challenges and globalization demands.
- To develop humanitarian values and ethics who can prepare teachers with competencies as well as humane values.


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DIFFERENT COURSES UNDER MED. PROGRAMME

The M.Ed. Programme is of Two years duration divided into Four semesters. A student is required to offer courses in four semesters as per the details given below.

COURSE 1- PHILOSOPHICAL FOUNDATIONS OF EDUCATIONCOURSE OUTCOME:

After going through this course the learners will develop the following competencies:

1. Know the meaning of philosophy and philosophical foundations of education.
2. Comprehend the nature and functions of philosophy of education.
3. Logically analyze, interpret and synthesize various concepts, proposition and philosophical assumptions about educational phenomena.
4. Understand and use philosophical methods in studying educational data.
5. Develop philosophical insight for resolution of educational issues.
6. Critically appraise contributions of great educators to education and society.
7. Be able to compare (partially and holistically) concepts of education between/ among various philosophical schools/traditions.

COURSE 2- PSYCHOLOGYOF LEARNING AND DEVELOPMENT COURSE OUTCOME:

1. To enable the students
2. To understand the psychological orientation to education.
3. To develop an understanding about theories of learning
4. To develop an understanding about learners' cognitive, thinking and learning styles.
5. To develop an understanding about learners' development and the characteristics associated with it.
6. To develop an understanding of classroom as social group and Group processes.
7. To develop an understanding of concept, models and types of Intelligence
8. To develop an understanding of concept, models and types of Meta- cognition.
9. To develop an understanding of theories of personality and its measurement.


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COURSE 3- HISTORY OF INDIAN EDUCATION AND ECONOMIC ISSUES
COURSE OUTCOME:

1. Unit 1 & 2 of the course aims at providing an exposure to the historical development of the education system in India.
2. Drawing from the historical perspectives, the course would attempt to provide an understanding of the linkage between colonial political factors and forces which shaped modern institutional development of education.
3. Unit 3 of the course aims at providing an exposure to the political perspective and transformative role of education.
4. Drawing from the theoretical and philosophical perspectives, the course would attempt to provide an understanding of the linkage between education, state and democracy, role of education in citizenship building and in expanding the realm of freedom, rights, claims and entitlements.
5. Unit 4 of the course aims at providing an exposure to the issues of educational planning in its political perspectives and methods, modes of educational planning and issues in financing of education.

COURSE 4- FUNDAMENTALS OF RESEARCH METHODOLOGY
COURSE OUTCOME:

After undergoing this course the students will be able to:-

1. Identify a research problem and develop research questions.
2. Write a review of the literature and draw meaningful inferences.
3. Explain and describe the meaning of Scientific Method, Scientific Inquiry, Paradigm, Theory and their implications for educational research.
4. Describe characteristics of philosophical, psychological and sociological research paradigms as they apply to educational research.
5. Explain and adopt different strategies of research to solve educational problems.
6. Write scientific reports and research papers.
7. Acquire skills for evaluating and critiquing research in a meaningful way


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COURSE 5- EDUCATIONAL TECHNOLOGY AND ICT COURSE OUTCOME:

- 1) To enable the learner to understand the role of educational technology in education
- 2) To acquaint the learner with the challenges and opportunities emerging in integrating new technology in Educational process.
- 3) To enable the learner to understand ICT and its applications in Education
- 4) To make the learner familiar with new trends, techniques in education along with e-learning.
- 5) To enable the learner to become a good practitioner of Educational technology and e-learning.

COURSE 6- SOCIOLOGICAL FOUNDATION OF EDUCATION COURSE OUTCOME:

1. To acquaint students with sociological perspectives and concepts that deal with key aspects of social reality relevant to the study of education.
2. To enable students to understand how the 'Education' is embedded in social structure and culture;
3. To enable students to understand education as a social institution and its complex linkages with other major social institutions.
4. To enable students to understand educational problems and issues related to educationally excluded / disadvantaged groups, deriving out of intersections of gender, caste, class, culture, ethnicity, disability.
5. To enhance capacities of students for the critical evaluation of the role of education in social change and for sociological reflection on educational issues.

COURSE 7- TESTING, MEASUREMENT AND EVALUATION IN EDUCATION COURSE OUTCOME:

Subsequent to going through this course the understudies will actually want to:-

1. Develop different kinds of examination instruments for information assortment.


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2. Develop a comprehension of standards of quantitative and subjective examination techniques
3. Develop an understanding of principles of data analysis and understanding
4. Develop the vision to do subjective and quantitative examination.
5. Apply important qualitative and quantitative statistical techniques for investigating and deciphering research information.
6. Use PCs to code and investigate information.

COURSE 8- CURRICULUM DEVELOPMENT COURSE OUTCOME:

The student teacher will be able to-

1. Be acquainted with basic concept of curricular content of various courses and its contribution to education.
2. To develop understanding of basic principles of curriculum design and construction.
3. To develop and evaluate a model curriculum when required.
4. Be oriented towards latest issues, trends and researches in area of curriculum construction.

COURSE 9- RESEARCH DESIGN, STATISTICS AND REPORT WRITING COURSE OUTCOME:

After undergoing this course the students will be able to:-

1. Develop various types of research tools for data collection.
2. Develop an understanding of principles of quantitative and qualitative research methods
3. Develop an understanding of principles of data analysis and interpretation
4. Develop the vision to carry out qualitative and quantitative research.
5. Apply important qualitative and quantitative statistical techniques for analyzing and interpreting research data.
6. Use computers to code and analyze data.


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COURSE 10- EDUCATIONAL STUDIES AND SYSTEMCOURSE OUTCOME:

This course aims to help students to

1. Encompass education as social phenomena, practice and field of study.
2. Orient the students to the institutions, systems and structures of education in India and world

Understand the contemporary concerns of education policy and practice

COURSE 11- ACADEMIC WRITING COURSE OUTCOME:

This paper will have the following objectives:

1. To enable the students to understand and develop a good academic writing style
2. To enhance their ability to listen, converse, speak, present, explain and exposit ideas in groups and before an audience
3. To train them in effective presentation styles using available ICT resources.


COURSE 12-SELF DEVELOPMENT AND COMMUNICATION SKILLSCOURSE OUTCOME:

This paper will have the following objectives:

1. To develop a holistic and integrated perspective about oneself –the self as a person and as a professional.
2. To develop sensibilities, dispositions, and skills that will later help them in facilitating the personal growth
3. To develop social relational sensitivity and fair, tolerant and just perspectives about various issues.
4. To develop effective communication skills, including the ability to listen and observe
5. To build resilience within to deal with conflicts at different levels to ensure mental and physical wellbeing
6. To develop the habit to inculcate in self reflection leading to self development

COURSE 13- PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION COURSE OUTCOME:

Students will be able to understand Pre-Service & In- Service Teacher Education Programmes with reference to-


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- (i) Curriculum framework
- (ii) Modes
- (iii) Organization of components
- (iv) Transactional approaches
- (v) Skill & Competency development
- (vi) Planning, Organization & Evaluation of Teacher Education Programme

COURSE 14-ISSUES AND CONCERNS OF SECONDARY AND SENIOR SECONDARY EDUCATION

COURSE OUTCOME:

After pursuing this course the learners will be able to:

1. To enable the students to comprehend and critically examine the changes in policies and practices in secondary level curriculum in Independent India.
2. To enable the students to analyze the policies and practices in secondary level curriculum after independence with regard to national aspirations (Indian Constitution).
3. To enable the students to compare the policies and practices in secondary level curriculum of South East Asian countries, (China, Japan), European countries (Norway) and USA.
4. To analyze the status of secondary education in India
5. To trace out the prevailing hindrances in universalization and quality sustainance.
6. To identify the issues and concerns in secondary education and qualitatively trace out the reasons and visualize their solutions.

COURSE 15- PERSPECTIVES, RESEARCH AND ISSUES IN TEACHER EDUCATION COURSE OUTCOME:

1. Students will be able to understand Perspectives & Policies of Teacher Education Programmes with reference to–
 - (i) Approaches
 - (ii) Policies
 - (iii) Structure, Management of Teacher Education & factors influencing quality of Teacher Education

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2. Students will be able to review the researches conducted on effectiveness of teacher education programme & analyze its trends
3. Students will be able to know about various challenges in professional development of teachers & partnership involve in secondary teacher education

COURSE 16-GUIDANCE & COUNSELLING

Course Outcome:


Course content in this paper will enable the students:

- To understand the meaning, principles, needs and types of guidance and counseling
- To understand Theoretical approaches of guidance and counseling
- To organize guidance and counseling program
- To develop counseling skill in conducting counseling sessions
- To prepare case history, doing case analysis and preparing profile of the case.
- To understand online counseling services
- To understand various intervention programs
- To understand Applications of Guidance and Counseling

COURSE 17-ENVIRONMENTAL EDUCATION

Course Outcome:

1. To help learners acquire an awareness of and sensitivity to the total environment and its allied problems(**Awareness**).
2. To help learners acquire a set of values and feelings of concern for the improvement and protection(**Knowledge, Attitude**)
3. To help learners acquire the skills for identifying and solving environmental problems(**Skills**).
4. To enable learners to develop environmental education (EE) curriculum, teaching methods and evaluation procedures for students at various levels of school education, teacher education and non-formal/informal education.
5. To provide learners with an opportunity to be actively involved at all levels in working toward resolution of environmental problems (**Participation**)


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COURSE 18- EDUCATIONAL MANAGEMENT , ADMINISTRATION & LEADERSHIP

COURSE OUTCOME:

After going through this course prospective teachers will be able to:

- Understand school as a society and role of collective and shared responsibilities in its betterment.
- Understand the paradigm shift in School Based Management.
- Understand the impact of teacher leadership.
- Develop an awareness and understanding of Standard official procedures for disaster management.
- Develop an understanding of the concept and theories of classroom management and discipline.
- Develop the ability to adopt effective classroom managerial skills and strategies
- Develop the competency to use and apply different disciplinary models.
- Develop the ability to propose methods to enhance students' sense of belongingness and responsibility towards their behaviour and learning

Build productive relationships with students and parents.

COURSE 19- YOGA AND HEALTH EDUCATION COURSE OUTCOME:


After undergoing this course the student will be able to: -

- Describe the need and importance of health Education for schools
- Identify issues related to poor health of students
- Take appropriate decisions and adopt measures for good health of students.
- Contribute actively in the prevention of infections and their related diseases.

COURSE 20-TEACHER EDUCATION INTERNSHIP


Course Outcome -

- To train teacher interns to conduct Interview of practicing teachers to identify the nature of in service teacher education received and the felt needs.
- To acquaint teacher interns the process of evaluation of courses of pre- service teacher education


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- To train teacher- interns to observe & supervise practice teaching done by Bed Interns
- To develop the capability and provide knowledge to study the teacher education institution on instructional and evaluation practices.


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SHRI RAM COLLEGE MUZAFFARNAGAR

Dear Employer,

Shri Ram College is pleased to inform you that few of our students are working with your organization and wants to know the applicability of the syllabi (part of curriculum) to the skills required for the work of your employee.

Please give your valuable opinion on a three point scale so as to find out the attainment of concerned program outcomes on the following points.

Employer's Survey Form for Program Outcomes

S.No.	Parameter of Program Outcomes	Grade as per your observations
1.	Critical thinking	2
2.	Effective Communication	3
3.	Social Interaction	2
4.	Effective Citizenship	3
5.	Ethics & Behaviour	3
6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	3

Name of Employer : S.D. College of management Studies
Address: Bhopa Road, Muzaffarnagar
Contact No.: 7017843629
Program/Course Passed from SRC by employee P.T. Ed

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

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6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	3

Name of Employer : St. R.C. College of Education

Address: Banat, Shamli

Contact No.: 9837017214

Program/Course Passed from SRC by employee M.Ed

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

Co-ordinator
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6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	2

Name of Employer : Deendayal college

Address: Muzaffarnagar

Contact No.: 9897811382

Program/Course Passed from SRC by employee M. Ed.

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration

Co-ordinator
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6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	2

Name of Employer : Radha Krishnan Institute of management Studies

Address: Deoband

Contact No.: 938973 8083

Program/Course Passed from SRC by employee M. Ed,

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ☒

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Muzaffarnagar



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7.	Self-Directed and Life-Long Learning	3

Name of Employer : Lord Shiva College of Education

Address: Baghra, Muzaffarnagar

Contact No.: 7017846934

Program/Course Passed from SRC by employee M. Ed

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

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Chairman
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Name of Employer : New Horizon School

Address: Almaspur, Muzaffarnagar

Contact No.: 9568854305

Program/Course Passed from SRC by employee M. Ed.

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

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5.	Ethics & Behaviour	2
6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	3

Name of Employer : D.A.V. Inter college

Address: Arya Samaj Road, Muzaffarnagar

Contact No.: 9927198011

Program/Course Passed from SRC by employee M. Ed.

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration


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6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	3

Name of Employer : S. D. College of Management Studies

Address: Bhopa Road, Muzaffarnagar

Contact No.: 9634747777

Program/Course Passed from SRC by employee M. Ed.

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

Co-ordinator
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Chairman
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Muzaffarnagar



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7.	Self-Directed and Life-Long Learning	3

Name of Employer : S.D. College of management studies

Address: Bhopa Road, Muzaffarnagar

Contact No.: 9634 827777

Program/Course Passed from SRC by employee MEO

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

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Chairman
IQAC, Shri Ram College,
Muzaffarnagar



SHRI RAM COLLEGE MUZAFFARNAGAR

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6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	3

Name of Employer : DAV Inter College, MZN

Address: Arya Samaj road MZN

Contact No.: 7017671488

Program/Course Passed from SRC by employee M.Ed

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓

Co-ordinator
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Chairman
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Muzaffarnagar



SHRI RAM COLLEGE MUZAFFARNAGAR

Dear Alumni,

We are pleased to know about your success and would like to hear about the applicability of course and programs label(part of curriculum) to the skills required for work of you. We would also like to know your opinion about your learning during your doing your life student life at our campus. Please read the following weather they have been beneficial for your professional life as an employee or as an entrepreneur.

Please give your valuable opinion on a three point scale to find out the attainment of concerned program outcomes on the following points.

Alumni's Survey Form for Program Outcomes

S.No.	Parameter of Program Outcomes	Grade as per your observations
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6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	2

Name of Alumni : Yashi Sharma

Contact No.: 9675633187

Program/Course Passed from SRC by employee M.Ed.

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. Strong Consideration ✓


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Muzaffarnagar



SHRI RAM COLLEGE MUZAFFARNAGAR

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5.	Ethics & Behaviour	2
6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	2

Name of Alumni : *Sapna Singhal*

Contact No.: *7818005967*

Program/Course Passed from SRC by employee *M. Ed.*

Grade Weightage:

1. Poor Consideration 2. Average Consideration 3. ☒ Strong Consideration

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Muzaffarnagar

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Chairman
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Muzaffarnagar



SHRI RAM COLLEGE MUZAFFARNAGAR

Dear Alumni,

We are pleased to know about your success and would like to hear about the applicability of course and programs label(part of curriculum) to the skills required for work of you. We would also like to know your opinion about your learning during your doing your life student life at our campus. Please read the following weather they have been beneficial for your professional life as an employee or as an entrepreneur.

Please give your valuable opinion on a three point scale to find out the attainment of concerned program outcomes on the following points.

Alumni's Survey Form for Program Outcomes

S.No.	Parameter of Program Outcomes	Grade as per your observations
1.	Critical thinking	3
2.	Effective Communication	3
3.	Social Interaction	2
4.	Effective Citizenship	3
5.	Ethics & Behaviour	2
6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	2

Name of Alumni : *Preksha Gaudam*

Contact No.: 8279385925

Program/Course Passed from SRC by employee *M. Ed.*

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4.	Effective Citizenship	2
5.	Ethics & Behaviour	3
6.	Environment & Sustainability	2
7.	Self-Directed and Life-Long Learning	3

Name of Alumni : Bharat Kumar

Contact No.: 7088989887

Program/Course Passed from SRC by employee M. Ed.

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5.	Ethics & Behaviour	2
6.	Environment & Sustainability	3
7.	Self-Directed and Life-Long Learning	2

Name of Alumni : Ravikant Dhiman

Contact No.: 9105010311

Program/Course Passed from SRC by employee M. Ed.

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5.	Ethics & Behaviour	3
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7.	Self-Directed and Life-Long Learning	2

Name of Alumni : Anju Whiman

Contact No.: 9528297310

Program/Course Passed from SRC by employee M.Ed.

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Name of Alumni : Megha Chaudhary

Contact No.: 9456232720

Program/Course Passed from SRC by employee m.Ed

Grade Weightage:

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Name of Alumni : *Shivani Sharma*

Contact No.: *9193030218*

Program/Course Passed from SRC by employee *M. Ed*

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Name of Alumni : Ajay Kumar

Contact No.: 9045187753

Program/Course Passed from SRC by employee M.Ed

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Name of Alumni : *Tomya*

Contact No.: *7895801520*

Program/Course Passed from SRC by employee *M.Ed*

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