राष्ट्रीय खेल विश्वविद्यालय
मणिपुर
केन्द्रीयविश्वविद्यालय
युवाकार्यक्रमएवंखेलमंत्रालय
भारतसरकार

NATTIONAL SPORTS UNIVERSITY
MANIPUR, INDIA
Central University
Minnistry of Youth Affairs and Sports
Government of India

Bachheelor of Science in Sports Coaching
(B.Sc. Sports Coaching)

Specialization: Swimming

SCHEME OF EXAMMIINATION, STRUCTURE & COURSE COONTENT

Four Years: Eight Semesters, Regular Degree Programme

Following UGC-CBCS Guidelines

2021-22 to 2024-25

Department of Sports Coaching 28-09-2021

Bachelor of Science in Sports Coaching

B. Sc. (Sports Coaching)

Specialization: Swimming

SEMESTER - I

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/CC/101	Introduction to Sports Culture and Coaching	3	48	30	45	75
BSC/CC/102	Anatomy and Physiology	3	48	30	45	75
BSC/CC/103G	Historical Development and Organizational Structure: Swimming	3	48	30	45	75
BSC/GE/01	Introduction to InformationTechnology in Sports	2	32	20	30	50
BSC/AECC/01	English (Modern Indian Languages)	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/102	Anatomy & Physiology	1	32	10	15	25
BSC/GE(P)/01	Introduction to Information Technology in Sports	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 104G	General Conditioning and Performance – I: Swimming	4	128	50	50	100
BSC/CCP/ 105G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**592**	**275**	**350**	**625**

NCC will be included as per the UGC guidelines.

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

SEMESTER - I

INTRODUCTION TO SPORTS CULTURE AND COACHING

COURSE CODE: BSC/CC/101

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/CC/101	Introduction to Sports Culture and Coaching	3	48	30	45	75

COURSE LEARNING OUTCOMES

After completing this course, the students will able to

- Understand the Indian Sports Culture, its Philosophy and Culture Heritage.
- Understand role of Sports Competition to Create Sports Culture and impact on strengthening sports ecosystem
- Know about the origin of International and National Games and its organization and conduct role in Sports Culture Development
- Understand social impact of activities of Sports Associations, Institutions, Schemes and Awards.

UNIT - I

Indian Sports Culture

1.1 Philosophy of Sport Culture, Sports as a Cultural Heritage
1.2 History of Exercise and Sports Science in ancient India
1.3 Sports and Games in India during British period and after Independence, Regional Sports Culture in India
1.4 Ancient history of games and sports in different continents

UNIT-II

Role of Sports Competition to Create Sports Culture

2.1 Impact of Community Sports and Local Sports Competition
2.2 Significance of School, College and University Sports Competition
2.3 Importance of National and International SportEvents
2.4 Influence of League Competition

UNIT-III

Origin of International and National Games and its organization and conduct role in Sports Culture Development

3.1 Olympic Games and Commonwealth Games: Values and Culture
3.2 Asian Games and SAF Games: Values and Culture
3.3 Major Sports International, World Competitions and Championship, World University Games
3.4 National Games, Khelo India, All India UniversityGames, SGFI, Rural Sports in India and Major National Sports Events and League etc.

UNIT-IV

Sports Associations, Institutions, Schemes and Awards in India: Social impact

4.1 Ministry of Youth Affairs and Sports and its Schemes, Sports Authority of India, NSNIS, National Sports University, LNIPE, NADA, NDTL, NYK

4.2Indian Olympic Association – Objectives Structure and Functions,State Sports Association/Sports Academy: Objective Structure and function,

4.3Corporate Sports Promotion. School, College and University Sports Culture

4.4 National, State and Sports Awards: Individual and Institutional, Financial scheme and supportetc.

SUGGESTED READING

1. Deshpande S. H., Physical Education in Ancient India, BharatyaVidya Prakashan,1992.
2. Khan, Eraj Ahmed. History of Physical Education, Patna: Scientific Book Co.
3. Leonard, Fred Eugene and Affleck George B. Guide to The History of Physical Education, Philadelphia Leo &Febiger, 1962.
4. Majumdar D.C. Encyclopedia of India Physical Culture Baroda Good Companions, 1952.
5. Rajgopalan K. A. Brief History of Physical Education in India, Delhi Army Publisher 1962.
6. Rice Emmett, A. Hutchinson John L. and Lee Marbal A. Brief History of Physical Education. New York: The Ronald Press Co. 1960.
7. Singh Ajmer, et al. Modern Text Book of Physical Education Health & Sports, Kalyani Publisher.
8. Mondal S, Science of Exercise: Ancient Indian Origin, Journal of the Association of Physician of India, 2013.

SEMESTER - I

ANATOMY AND PHYSIOLOGY

COURSE CODE: BSC/CC/102

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/CC/102	Anatomy and Physiology	3	48	30	45	75

COURSELEARNING OUTCOME

- Understand the Need and importance of anatomy and physiology in the field of physical education.
- To know the structure and function of cell and tissue and muscular system
- To understand classification of bone and joints.
- To understand circulatory and respiratory system,digestive and endocrine system,excretory and nervous system.

UNIT – I

Introduction of Anatomy& Physiology

1.1 Meaning, Definition, Need and importance of anatomy and Physiology in the field of physical Education and Sports science

1.2 Skeletal System, Classification of Bones, Function of bones, Types of Joints, Classification of joints and their functions.

1.3 Definition, Structure and Function of the Cell,

1.4 Tissue: Types and structure of Tissues, Organs and systems

UNIT – II

Introduction of Muscular and Nervous System

2.1 Muscular System: Gross Anatomy of Skeletal Muscles.

2.2 Types of Muscles and Muscle Contraction, Group action in skeletal muscles

2.3 Motor unit, functional types of skeletal muscles, muscles metabolism and fatigue

2.4 Nervous system: Central Nervous System, Peripheral Nervous Systems, function of nervous system.

UNIT-III

Cardiovascular and Respiratory System

3.1 Heart: its structure and function, Systemic and pulmonary circulatory system

3.2 Cardiac Cycle, Stroke volume, Cardiac output and Blood Pressure

3.3 Respiratory System: lungs, Respiratory tract, Mechanism of Respiration (internal and external respiration)

3.4 Exchanges of gases, Ventilation and lungs volumes, Pulmonary Volumes and Vital Capacity

UNIT – IV

4.1 Digestive System: Structure and Function

4.2 Endocrine System: Structure and Function

4.3 Excretory System: Structure and Function

4.4 Reproductive System: Structure and Function

Practical

Anatomy and Physiology
Course CODE: BSC/CC (P)/102

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
LAB PRACTICAL						
BSC/CC(P)/102	Anatomy & Physiology	1	32	10	15	25

UNIT-I

1.1 Demonstration of cell, tissue, major muscles(origin and insertion) through video
1.2 Identification of human bones, Joints and its explanation by the students
1.3 Measurement of BP, resting heart rate and exercise heart rate
1.4 Measurement of Lungs volumes and Capacities

UNIT-II

2.1 Video presentation of digestive system and its explanation by the students
2.2 Video Presentation of endocrine grand its explanation by the students
2.3 Video Presentation of Kidney and urinary tract and its explanation by the students
2.4 Video Presentation of human Brain and its explanation by the students

SUGGESTED READINGS

1. Chaurasia B.D (2020) B D Chaurasias Handbook of General Anatomy, 6th edition, CBS Publisher.
2. Dr. A. Chandra Sekhar (2014) Handbook of Anatomy & Physiology, All India Publishers & Distributors; 2ndEdition
3. Elaine Marieb and Suzanne Keller (2017) Essentials of Human Anatomy & Physiology, Global Edition,Publisher-Pearson; 12th edition.
4. Fredric H. Martini, Michael J. Timmons Human Anatomy Prentice Hall, New Zealand 2000.
5. Garg K. (2020) Essentials of Anatomy and Physiology for GNM with Clinical Importance, Publisher - CBSNursing.
6. Jamet Parker The Human Body Atlas Om Books Publication Comp. Inc. 2006.
7. Ken Ashwell The Student Anatomy of Exercise Manual MedTechan Imprint of Scientific
8. International Pvt. Ltd., Australia 2012.
9. Moorthy, A. M. (2014). Anatomy physiology and health education.Karaikudi:Madalayam Publications.
10. Richard L. Drake Grays Anatomy for Students Elsevier Churchill Livingstone Comp. Inc.,
11. Philadelphia 2005.
12. Gerard J. Tortora and Bryan H. Derrickson (2017) “Tortora' s Principles of Anatomy and Physiology”Publisher: Wiley ;15th edition.
13. G.L. Khanna (2016) Exercise Physiology and Nutrition, Friends Publications (India); First edition.

SEMESTER - I

HISTORICAL DEVELOPMENT AND ORGANIZATIONAL STRUCTURE: Swimming

COURSE CODE: BSC/CC/103G

CourseCode	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/CC/103G	Historical Development and Organizational Structure:Swimming	3	48	30	45	75

ESSENCE OF COURSE

This course will enable student to understand the history and development of swimming in India and the International Federation. Concept of Sports Coaching, Fundamental skills and Technical analysis of strokes.

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Acquire knowledge of history and development of swimming.
- Knowledge about Sports Coaching history.
- Swimming events and order of events.

UNIT-I

History, Development of Swimming and Organizations.

1.1 Introduction of Swimming and historical development of swimming in India and world
1.2 FINA (Federation Internationale de Natation), Events, Aims and Objectives
1.3 Historical development in India.
1.4 SFI (Swimming Federation of India), their Aim and Objectives

UNIT-II

Historical development of swimming Coaching

2.1.Historical development of sports coaching in India.
2.2.Historical development of swimming coaching in India
2.3.Swimming training and modern facilities during British period
2.4. Swimming venues in India after Independence, modern swimming pool complex in India

UNIT-III

Swimming events

3.1.Swimming total events and order of events

3.2 Organization of diving and synchronizing competition

3.3 Swimming Competition protocol

3.4 Ultra modern facilities in swimming poll arena

UNIT-IV

International standard swimming pool

4.1.International standardard swimming pool and all competition facilities

4.2 Camera system and electronic devices used in swimming pool

4.3. Maintenance of swimming pool

4.4. Swimming pool changing room precaution and safety

SEMESTER - I
INTRODUCTION TO INFORMATION TECHNOLOGY IN SPORTS
COURSE CODE: BSC/GE/01

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/GE/01	Introduction to Information Technology in Sports	2	32	20	30	50

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understanding the Concept of Information & Communication and Implement various scientific teaching aids
- Understand the versatile facilities on internet for source of knowledge
- Utilize the various modern Gadgets in sports

COURSE CONTENTS

UNIT - I

Introduction to Information & Communication Technology

1.1 Concept, Importance, Meaning & Nature of Information&Communication Technology.
1.2 Need of Information & Communication Technology in Physical Education; Scope of ICT in Education & Sport.
1.3 Teaching Learning Process, Publication, Evaluation, Research Administration.
1.4 Paradigm shift in Education due to ICT content with special reference to Curriculum.

UNIT-II

Introduction to Internet Browsing

2.1. Internet: Evolution, Protocols, Interlace Concepts, Growth of Internet, ISP; Internet Vs. Intranet.
2.2. Application. E-Mail: Concepts, POP and WEB Based E-mail, merits, address, Basics of sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services.
2.3. Telnet Concept, Remote Logging, Protocols, Terminal Emulation. Massage Board, Internet chatting voice chart text chat.
2.4. WORLD WIDE WEB (WWW) –History, working web browsers, its functions, concept of search Engines, Searching the Web, HTTP, URLs, Web Servers, Web; Protocols.

UNIT – III

Modern Gadget and Technologies in Sports

3.1. Introduction to sports gadgets and technologies.
3.2. Sports Gadgets:Heart Rate Monitor; Polar watches; Heddoko – Uniforms with sensors; Myovolt pads for sports therapy
3.3. Sports Technologies: Hawk-Eye Technology; Stump Camera in cricket; Goal Line Technology in Soccer; Radar Gun technology in Tennis
3.4 Information Technology-enhancing sports performance and maintenance.

PRACTICAL

Introduction to Information Technology in Sports

Course Code: BSC/GE (P)/01

BSC/GE(P)/01	Introduction to Information Technology in Sports	1	32	10	15	25

Unit -I

1.1.Basic Operation of Computers
1.2.Microsoft Office
1.3 Designing of own small apps and create new competence through available Software.
1.4 Access to Sports Analytics and Technology

UNIT -II

2.1. Demonstration of various Sports Analytical Software.
2.2. Demonstration of Hawk eye technology with computer analysis, Goalline technology analysis, Computerized sports performance analysis
2.3.IT technology in Video Analysis and Photo Analysis
2.4. Demonstration of designing techniques, tactics and strategies through software.

Suggested Reading

1. Irtegov, D. (2004). Operating system fundamentals. Firewall Media.
2. Marilyn, M. & Roberta, B. (n.d.).Computers in your future. 2nd edition, India: Prentice Hall. Milke, M. (2007).Absolute beginner's guide to computer basics.Pearson Education Asia. Sinha, P. K. &Sinha, P. (n.d.).Computer fundamentals.4th edition, BPB Publication.
3. P.M. Heathcote (2000), „A' Level Computing (4th ed), Payne-Gallway Publishers Ltd ISBN 1-903112-2
4. P.M. Heathcote (2000), 'A' Level ICT (2nd ed), Payne-Gallway Publishers Ltd ISBN 0-9532490-8-5
5. Tudor Dorothy and Tudor Ian (1997), Business Systems Development , NCC Education Services Limited ISBN 1-90234-305-0

SEMESTER - I

ENGLISH (MODERN INDIAN LANGUAGES)

Course CODE: BSC/AECC/01

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY COURSE						
BSC/AECC/01	English (Modern Indian Languages)	2	32	20	30	50

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Have an appreciable understanding of English grammar.
- Produce grammatically and idiomatically correct spoken and written discourse.
- Spot language errors and correct them.

UNIT- I

Parts of Speech

1.1 Nouns - different types; Pronoun - different types, Verbs – Tense - Concord - types of verbs
1.2 Adjectives – different types; Adverbs - different types, Prepositions - different types
1.3 Conjunctions - subordinating and coordinating
1.4 Determinatives articles - possessives - quantifiers

UNIT-II

Structure of English

2.1 Phrases - various types of phrases, Clauses - main and subordinate clauses
2.2 Basic sentence patterns in English - constituents of sentences, Complement – adverbials
2.3 Basic sentence patterns in English - various types of sentences – simple – compound – complex – declaratives – interrogatives – imperatives – exclamatory.
2.4 Analysis and conversion of sentences – Active to Passive and vice versa – Direct to Indirect and vice versa.

UNIT-III

Composition

3.1 Written Composition – Letter writing, Written Composition – Précis writing
3.2 Written Composition – Outline story, Written Composition - Expansion of proverb
3.3 Written Composition - Short essay

3.4Written Composition – Email / Resume writing

SUGGESTED READINGS:

1. Wren and Martin's High School English Grammar& Composition. S.Chand Publishing, 2018.
2. Cuttis, Martin. (2010) Oxford Guide to Plain English. Oxford University Press.

SEMESTER – I

GENERAL CONDITIONING AND PERFORMANCE – I: Swimming

Course Code: BSC/CCP/104G

BSC/CCP/ 104G	General Conditioning and Performance – I: Swimming	4	128	50	50	100

Learning Outcomes

- To understand the different training of Anaerobic Endurance
- To understanding the development exercise of Maximum Strength
- Gaining knowledge about Maximum Strength training methods
- To understand the developing exercises of Flexibility

UNIT-I

1. Developing exercises for Anaerobic Endurance

1.1 Resistance training
1.2 Jumping exercises
1.3 Circuit Training
1.4 High Intensity training

UNIT-II

2. Developingexercises for MaximumStrength

2.1 Basic Weight training exercises
2.2 Compound exercises
2.3 Free hand strength exercises
2.4 Weight training exercises with equipments

UNIT-III

3. Developing exercises for Speed

3.1 General drills
3.2 Start and Initial-Acceleration Drills
3.3 Acceleration to Maximum-Speed Drills
3.4 Deceleration Drills

UNIT-IV

4. Developing exercises for Flexibility

4.1 Static Stretching
4.2 Passive Stretching
4.3 Active Stretching
4.4 PNF Stretching

Objectives;
To improve general and specific fitness and performance.

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test a) 4x10m Shuttle run b) 10x30m Sprints c) 1-RM Test d) Standing Broad Jump e) 30m Acceleration Test f) Sit and Reach Test g) Zipper Test	30 Marks	30 Marks
200m IM (Sports Performance)	20 Marks	20 Marks
Total	**50 Marks**	**50 Marks**

SEMESTER - I

PRACTICAL: Swimming

Course Code: BSC/CCP/ 105G

BSC/CCP/ 105G	Practical: Swimming	6	192	75	75	150

Learning Outcomes

- To understand basic rules of Swimming pool
- To develop the knowledge of water balancing and confidence
- To improve Front crawl techniques
- To improve Butterfly techniques

Objectives;

To improve technique proficiency of Freestyle, Butterfly and different floating

UNIT-I

Basic rules to be follow in Swimming Pool

1.5 Orientation of Swimming Pool
1.6 Safe rules
1.7 Health & Hygiene rules
1.8 Guidance and Counselling

UNIT-II

Developing water balance and Confidence

2.5 Enter and exit the water Safely
2.6 Water fear removing drills
2.7 Bubbles and Breathing drills
2.8 Basic steps to learn Swimming

UNIT-III

Teaching techniques for Front Crawl

3.5 Body Position, Leg Action and Arm Action
3.6 Breathing and Co-ordination
3.7 Start (Grab Start, Track Start & Circular Arm Swing Start),
3.8 Turns (Open turn & Flip turn) & Finish

UNIT-IV

Teaching techniques for Butterfly

4.5 Body Position, Leg Action and Arm Action
4.6 Breathing and Co-ordination
4.7 Butterfly: Start (Grab Start &Track Start)
4.8 Turn and Finish

Evaluation Total Mark 150

Evaluation criteria	**Internal Assessment**	**External Assessment**
Technique proficiency of 1- Freestyle: Full stroke, Start and Turn 2- Butterfly: Full stroke, Start and Turn 3- Mushroom float 4- Jellyfish float 5- Gliding-with and without kickboard	12X5= 60 Marks	12x5=60 Marks
Record book and Viva	15 Marks	15 Marks
Total	**75 Marks**	**75 Marks**

References

- Harlen, Bruce. How tow to Improve your Diving Poona Modern Book Stall.
- Reckhan, George, Diving Complete. London: Faber and Faber Ltd.
- David A, Rober H. and Hobert, Swimming and Diving, The C.V. Mosby Company, Saint Lovis-1968
- FINA Handbook
- Kanika K. Swimming Coaching Manual, Sports Publication, New Delhi-2005
- D. Jain, Swimming Skill & Rules, Khel Sahitya, Kendra, New Delhi,2003
- Kelvin Juba, Swimming for fitness, Kelvin Juba-2001
- Dick Hannula, Coaching Swimming, Successfully (Second edition) friends Publication (India) 2003
- Ernest W Maglischo, Swimming Fastest

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SEESTER – II

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/201	Kinesiology and Biomechanics	3	48	30	45	75
BSC/CC/202	Introduction to Bio-Chemistry	2	32	20	30	50
BSC/CC/203G	Rules, Regulations and Interpretation: Swimming	3	48	30	45	75
BSC/GE/02	Communication Skill (English)	2	32	20	30	50
BSC/AECC /02	Environmental Science	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/ 201	Kinesiology and Biomechanics	1	32	10	15	25
BSC/CC(P)/ 202	Introduction to Bio-Chemistry	1	32	10	15	25
BSC/GE(P)/02	Communication Skill (English)	1	32	10	15	25
BSC/AECC(P)/ 02	Disaster Management	1	32	-	-	-
SPORTS PRACTICAL						
BSC/CCP/ 204G	General Conditioning and Performance – II: Swimming	4	128	50	50	100
BSC/CCP/ 205G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**608**	**275**	**350**	**625**

NCC is compulsory for all students in first year.

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

SEMESTER – II

KINESIOLOGY AND BIOMECHANICS

COURSE CODE: BSC/CC/201

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/201	Kinesiology and Biomechanics	3	48	30	45	75

Course LEARNING OUTCOMES

After completing this course, the students will be able to

- Understanding the concept of kinesiology and biomechanics
- Understanding the classification and fundamental movements
- Describing the concept of kinetics and kinematics
- Kinesiological and biomechanical Analysis of the locomotion of movements

COURSE CONTENTS

UNIT - I

Introduction to Kinesiology

1.1 Definition, Aims and Objectives of Kinesiology and sports Biomechanics
1.2 Role of Kinesiology and biomechanics in Sports.
1.3 Brief history with important contributions of Aristotle, Leonard Da Vinci, Weber brothers
1.4 Basic Concepts of Axes and Planes, Center of Gravity&Line of Gravity

UNIT-II

Joints and Movements (Upper Extremity and Lower Extremity)

2.1 Location and action of major muscles acting at the following joints:
(Shoulder, Elbow, Wrist, Hip, Knee & Ankle

2.2. Fundamental Movements of Human Body)

2.3 Two-joint muscles (Origin , Insertion and Function)
2.4 All or None Law , Reciprocal Innervations,

UNIT-III

Application of Mechanical Concepts

3.1 Quantities in biomechanics, Scalar and vector quantities, Motion, type of motion, Distance and speed, Displacement and velocity, Acceleration, Angular distance and Angular displacement, Angular Speed, Angular Velocity, Angular Acceleration, Inertia, mass, weight, Newton's Laws of motion.
3.2 Work, Power & Energy, potential and kinetic energy.
3.3 Force and its characteristics, Internal and external forces and application of force, centripetal and centrifugal forces
3.4 Stability and Equilibrium (Nature , Types and Advantages), factors affecting stability, principles of stability, Lever: Types and Implications in Sports, mechanical advantages of levers

UNIT -IV

Projectile motion,Kinesiological and mechanical analysis of movements

4.1 Kinesiological analysis of fundamental movements
4.2 Motion, its importance in sports with reference to Diving , Gymnastics, Jumping & Throwing
4.3 Projectile Motion : Principles, Factors affecting Projectile Motion and it's Applications in Sport
4.4 Mechanical Analysis of Fundamental Movements : (Walking, Running, Jumping, Throwing, Catching, Landing)

LAB PRACTICAL

Kinesiology and Biomechanics

Course CODE: BSC/CC (P)/201

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/201	Kinesiology and Biomechanics	1	32	10	15	25

UNIT-I

1.1.Demonstration of fundamental movements with reference to Axis and planes
1.2.Calculation of Center of Gravity, Segmentation Method
1.3.Motion Analysis of Sports Skill (Videography)
1.4.Demonstration andanalysis of projectile motion

UNIT-II

2.1.Mechanical analysis of fundamental movements with Kinovia soft ware
2.2The use of videography in recording sports movements
2.3 Recording the movement and Experimental procedures
2.4. Maintaining a practical record book

SUGGESTED READING

1. A.K. Lawrence Mamta MP *Kinesiology*(Friends Publication India 2004)

Broer, M.R. *Efficiency of Human Movement* (Philadelphia : W.B. Saunders Co., 1966)

2. Bartlett Roger, An introduction to sports Biomechanics, Analysing Human Movement Pattern, Rouyledge,2007.
3. Bunn, John W. *Scientific Principles of Coaching* (Engle wood cliffs : N.J. Prentice Hall Inc., 1966)

Duvall, E.N. *Kinesiology* (Engle wood cliffs : N.J. Prentice Hall Inc., 1956)

4. Hoffman S.J. *Introduction to Kinesiology* (Human Kinesiology publication In.2005 Uppal
5. Rasch and Burke, *Kinesiology and Applied Anatomy* (Philadelphia : Lea and Fibger, 1967) Scott, M. G. *Analysis of Human Motion*, New York.
6. Wells, K. P. *Kinesiology* (Philadelphia : W.B. Saunders Co. 1966) Cooper, John M. and Glassgow, R.B. *Kinesiology* (St. Louis : C.V. Mosby Co., 1963)

SEMESTER - II

INTRODUCTION TO BIO-CHEMISTRY

COURSE CODE: BSC/CC/202

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/202	Introduction to Bio-Chemistry	2	32	20	30	50

COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand the concept of exercise & sports biochemistry
- Understand the concept of metabolism during different types of sports & exercise
- Understand the energy system Phosphagen System, Anaerobic System, Aerobic System
- Understand the various biochemical parameters used to monitor the sports training

UNIT - I

INTRODUCTION TO BIOCHEMISTRY AND ENERGETICS

1.1 Concept of Exercise and sports biochemistry
1.2 Importance of Sports and Exercise Biochemistry
1.3 Biochemical Concepts - Organization of matter, Chemical bonding, Chemical Reactions
1.4 Muscle Contractile Elements in Muscle, Process of Muscle Contraction, Energy for Muscle Contraction ATP the energy currency

UNIT- II

BIOENERGETICS AND FUNDAMENTALS OF EXERCISE BIOCHEMISTRY

2.1 Meaning and definition of Metabolism, Anabolic and Catabolic processes, Fundamentals of Bio-Energetics, Energy systems – Phosphagen System, Anaerobic System, Aerobic System

2.2 Brief overview on- Carbohydrate metabolism, Carbohydrates: Basics of Carbohydrate Metabolism, Regulation of glycogen metabolism,

2.3Lipid metabolism: definition, classifications and general functions; Introduction to essential fatty acids, cholesterol, Blood lipids, brief review of lipoproteins.

2.4 Proteins: definition, classification and Biomedical Importance, Plasma Proteins and functions

UNIT- III

Biochemical aspects of exercise

3.1Introduction to investigations related to Basics of routine Bio-chemical tests for Physiological functions i.e., Lipid Profile, Blood Urea, Blood Urea Nitrogen (BUN), SerumCreatinine, Serum Uric Acid with estimation of Urinal Protein and CP Kinase, Glucose.

3.2Fundamentals of Acid base balance and its regulations during exercise.

3.3 Immune system and exercise, Classification and biochemical structure of immunoglobulins with functions

3.4 Overview of Sports anemia in athletes.

PRACTICAL

Introduction to Bio-Chemistry

Course CODE: BSC/CC (P)/202

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/202	Introduction to Bio-Chemistry	1	32	10	15	25

UNIT-I

1.1. Introduction to basic biochemical lab equipment

1.2Laboratory safety and procedures

1.3. Microscopic study of cell

1.4 Urinal Protein and General urine analysis

UNIT-II

2.1.Estimation of hemoglobin and Blood cells

2.2. Lipid Profile

2.3. Urea and Uric acid

2.4 Glucose

SUGGESTED READINGS

1. American College of Sports Medicine (2010). Guidelines for Exercise Testing and Prescription (8th Edition). Lippincott Williams & Wilkins, Philadelphia.
2. McCardle, W.D., Katch, F.I. &Katch, V.L. (2007). Exercise Physiology. Energy, Nutrition and Human Performance (6th Edition). Lippincott Williams & Wilkins, Baltimore.
3. VassilisMougios. Exercise Biochemistry (2006). Human Kinetics.
4. Wilmore, J.H. &Costill, D.L (2008). Physiology of Sport and Exercise (4th Edition). Human Kinetics, Champaign, IL.

SEMESTER – II
RULES, REGULATIONS AND INTERPRETATION: Swimming

Course CODE: BSC/CC/203G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/203G	Rules, Regulations and Interpretation: Swimming	3	48	30	45	75

ESSENCE OF COURSE

This course will enable students to understand about Various Rules of Competitive swimming. Technique of life saving, Basic swimming teaching, Common diseases, Injuries and Rehabilitative swimming.

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understanding about swimming rules, duties of officials and Interpretation.
- Knowledge about diving rules
- Knowledge about water polo rules
- Understand rules for butterfly, breast stroke and Medley

UNIT-I

1. Swimming Rules and Swimwear

1.1 Swimwear: Swimsuit, Cap and Goggles
1.2 Management of Competitions, Officials, Seeding, The Start, Freestyle, Backstroke, , The Race, Timing, World Records and Automatic Officiating Procedure
1.3 Latest swimming rules changes
1.4 Interpretation Swimming Rules

UNIT-II

Rules for Butterfly, Breast stroke and Misdley

2.1. FINA rules for Butterfly events
2.2. Rules for Breast stroke events
2.2. Rules for Medley Swimming events
2.4. Timing keeping procedure and automatic officiating Procedure in swimming

UNIT-III

Diving Rules and facilities

3.1. **F**INA Diving rules: General, Competition, Competition Format, Statement of Dives and Competition Procedure

3.2 Duties of the Referee, Assistant Referee and Summary of the penalties.

3.1. Diving facilities: Springboard diving and general requirements.

3.2. Platform diving and General requirements

UNIT-IV

Water polo Rules

2.5.Rules: Field of Play & Equipment, Goals, The Ball, Caps, Teams & Substitutes.

2.6.Officials rules

2.7.Duration of the Game, Timeouts and Ordinary fouls

2.8.Exclusion fouls and Signal to be used by officials.

SEMESTER –II

COMMUNICATION SKILL (English)

COURSE CODE: BSC/GE/02

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE/02	Communication Skill (English)	2	32	20	30	50

COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand Types and process of communication, Verbal and Non-verbal Communication
- Know about the Language Skill in relation to sports
- Understand the Oral Communication Skill in relation to sports

UNIT-I

Communication: An Introduction

1.1 Introduction to communication: Process of Communication; Differences between Technical and General Communication; Barriers to Communication; Measures to Overcome the Barriers to Communication.

1.2 Types of Communication: Types of Communication; Verbal Communication-Importance of verbal communication- Advantages of verbal communication- Advantages of written communication; Significance of Non-verbal Communication

1.3 Communication in Organizations: Internal Communication; Stake Holders in Internal Communication; Channels of Internal Communication; External Communication; Stake Holders in External Communication; Channels of External Communication.

1.4 Non-Verbal Communication: Personal Appearance; Gestures, Postures, Types of Body Language, Facial Expression; Eye Contacts; Time language; Silence

UNIT-II

LANGUAGE SKILLS

2.1: Listening skills: Hearing and listening; importance of listening skills, listening practice.
2.2: Speaking skills: Importance of speaking skills; Pronunciation; fluency; speaking practice.
2.3: Reading skills: sub-skills of reading; effective reading; reading practice.
2.4: Writing skills: types of writing; General Principles of Writing; Improving Writing Skills, Essentials of good style.

UNIT - III

Oral Communication Skills

3.1 Presentation Literacy: foundation; ideas; tools.
3.2 Presentation Literacy: process; on stage.
3.3 Speaking effectively: basic skills; developing confidence.

3.4 Speaking effectively: subject; audience.

Practical

Communication Skill (English)
Course CODE: BSC/GE(P)/02

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE(P)/02	Communication Skill (English)	1	32	10	15	25

UNIT-I

1.1 Effective Speaking Skills.

Practical: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

1.2 Effective Communication strategies.

Practical: Situational Dialogues – Role-Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone Etiquette.

UNIT-II

2.1 Descriptions- Narrations- Giving Directions and Guidelines.

Practical: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions – Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

2.2. Public Speaking – Exposure to Structured Talks - Non-verbal Communication- Presentation Skills.

Practical: Making a Short Speech – Extempore- Making a Presentation.

2.3. Group Discussion- Interview Skills.

Practical: Group Discussion- Mock Interviews.

SUGGESTED READINGS

1. A.S. Hornby's. *Oxford Advanced Learners Dictionary of Current English*, 7th Edition
2. Bansal, R.K. and J.B. Harrison. *Spoken English*. Orient Language.
3. G.O.E. Lydall, *A practical Guide to précis Writing & indexing*. London: Macdonald & Evans Ltd. (1955)
4. John Elisson Kahn, D. Phil., *How to write & speak better English*.
5. Prasad, P. *Communication Skills*. S.K. Kataria& Sons.
6. R.C. Sharma, Krishna Mohan. *Business Correspondence and Report Writing*.
7. Sen, Leena. *Communication Skills*. Prentice Hall of India, New Delhi.
8. Sethi, J & et al. A Practice Course in English Pronunciation. Prentice Hall of India, New Delhi.

SEMESTER – II

ENVIRONMENTAL SCIENCE

COURSE CODE: BSC/AECC/02

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/AECC/02	Environmental Science	2	32	20	30	50

COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand the scope, importance, eco system and renewable and non-renewable resources
- Understand the Biodiversity, Conservation and Environmental Pollution and Management
- Understand Environmental Policies, Practices and Human Communities &Environment

Unit-I

Introduction to Environmental Studies, Ecosystems&Natural Resources: Renewable and Non-renewable Resources

1.1 Scope and importance of Environmental Science; Concept of sustainability and sustainable development, Environmental Sustainability in Sports.
1.2 Ecosystem andits structure and function; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
1.3 Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
1.4 Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international &inter-state). And Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs,case studies.

Unit-II

Biodiversity, Conservation andEnvironmental Pollution and Management

2.1 Level and Values of Biodiversity; Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity; Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.
2.2 Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution and nuclear hazards and human health risks
2.3 Solid waste management: Control measures of urban and industrial waste.
2.4 Plastic pollution: Pollution case studies and report.

Unit-III

Environmental Policies, Practices and Human Communities &Environment

3.1 Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture

3.2 Human population growth: Impacts on environment, human health and welfare.

3.3 Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.

3.4 Environmental communication and public awareness, case studies and report.

SUGGESTED READING

1. A.C. Pandey (2014). "*Frontiers in Environmental Research, Academic Excellence*, India.
2. Agrawal, K. C. (2001). *Environmental biology*. Bikaner: Nidhi publishers Ltd.
3. Gupta (2001) *Methods in Environmental Analysis, Water, Soil and Air*, AGROBIOS (India).
4. Hofrichter, R. (ed.) Toxic Struggle: *The Theory and Practice of Environmental Justice*. Philadelphia: New Society Publishers.
5. K. Glaz, B.K. Rimer, K. Viswanath (2008). *Healthy Behavior and Healthy Education* (4th edition). Jossey-Bass A Wileyimprint.
6. K. Tones, Y.K. Robinson‟s, S. Tilfor (2013). *Health Education*, Springer.
7. L.B. Lave, E.P. Seskin (2013). *Air Pollution and Human Health*, Ref. Press, New York. P.K.
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9. P. Elliot, J.C. Wakefield, N.G. Best, D.J. Biggs (2000). *Spatial Epidemiology: Methods and Application.*
10. Park J.E. & Park K. (2002). *Textbook of preventive and social medicine*. Jabalpur: Banarasi Das Bhanot Publication.
11. Shiva, V. 1989.*Staying Alive: Women, Ecology and Development*. London: Zed Books.
12. Stein, R. 2004. *New Perspective on Environmental Justice: Gender, Sexuality and Activism*. New Jersey: Rutgers University Press.
13. UGC (2005). *Textbook of Environmental Studies*, University Press.
14. UNDP: Human Development Report (2000) New Delhi: OUP.
15. W.P. Cummingham, B.W. Saigo (2001). *A Global Concern*, Cummingham.
16. WHO (2006). *Preventing diseases through healthy environment*.

Semester – II

Practical

Disaster Management

Course Code: BSC/AECC(P)/02

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/AECC(P)/02	Disaster Management	0	0	0	0	0

Unit – I

Natural disaster

1.1.Land disaster
1.2.Water disaster
1.3.Mountain disaster
1.4.Sea disaster

Unit – II

Men Made Disaster

2.1. Chemical disaster
2.2. Mechanical and Technical disaster
2.3. Structural disaster
2.4. Nuclear disaster

SEMESTER – II

GENERAL CONDITIONING AND PERFORMANCE – II: Swimming

COURSE CODE:BSC/CCP/204G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/204G	General Conditioning and Performance – II: Swimming	4	128	50	50	100

Learning Outcomes

- To understand the different training of Aerobic Endurance
- To understanding the development exercise of Explosive Strength
- Gaining knowledge about Speed Training Methods
- To understand the developing exercises of Flexibility

UNIT-I

Developing exercises for Aerobic Endurance

1.1 Long slow distance training
1.2 Interval training
1.3 High intensity interval training
1.4 Fartlek training

UNIT-II

Developing exercises for Explosive Strength

2.1 Conditioning Exercises
2.2 Medicine ball exercises
2.3 Plyometric exercises
2.4 Weight training

UNIT-III

Developing exercises for Speed

3.1 Designing Speed Training Sessions
3.2 Speed Endurance
3.3 Resisted Sprints
3.4 Assisted Sprinting

UNIT-IV

Developing exercises for Flexibility

4.1 Isometric Stretching
4.2 Ballistic Stretching
4.3 Dynamic Stretching
4.4 PNF stretching

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test All the fitness components	15 Marks	15 Marks
Sports Performance	15 Marks	15 Marks
Warming Up and cool down class Proficiency	10 Marks	10 Marks
Conditioning class proficiency	10 Marks	10 Marks
Total	50 Marks	50 Marks

Semester – II

PRACTICAL: Swimming

Course Code: BSC/CCP/205G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/205G	Practical: Swimming	6	192	75	75	150

Objectives:
To improve technique proficiency of Backstroke, Breaststroke and Life saving technique.

Learning Outcomes

- To improve water treading
- To develop the knowledge of Life saving techniques
- To understand teaching swimming to beginners
- To improve Butterfly techniques

UNIT-I

Water treading drills

1.1 Water treading: Head and body position,
1.2 Sculling hand motion
1.3 Practice bicycle kick
1.4 Whip kick and Eggbeater Kick

UNIT-II

Life Saving techniques

2.1 Duties and responsibilities of Life Guard.
2.2 Life saving drills: Methods (Direct and Indirect), Approach factors (Entry, Slide in Entry, Stride Jump, Compact Jump & Run and swim entry).
2.3 Types of holds and releases and carrying method.
2.4 C.P.R. and Mouth to mouth Resuscitation.

UNIT-III

Teaching swimming to the beginners:

3.1 Submerging
3.2 Jumping
3.3 Floating
3.4 Locomotion
3.5 Breathing.

UNIT-IV

Rehabilitative swimming and teaching of competitive swimming stroke.

4.1 Aquatic therapy for rehabilitation.
4.2 Methods of teaching
4.3 Sequence of teaching competitive swimming strokes

Evaluation Total Mark 150

Evaluation criteria	**Internal Assessment**	**External Assessment**
Technique proficiency of a) Water treading b) Demonstration basic swimming skills – • Submerging • Jumping • Floating • Locomotion • Breathing c) Life saving technique	60Marks	60Marks
Record book and Viva	15 Marks	15 Marks
Total	**75 Marks**	**75 Marks**

References

- *Aneja, Om Prakash, Swimming Skills &Rulbes, Khel Sahitya Kendra, New Delhi, 2010.*
- *D. Jain, Swimming Skill & Rules, Khel Sahitya Kendra, New Delhi, 2003.*
- *Dick Hannula, Coaching Swimming, Successfully (Second edition) Friends Publication (India), 2003.*
- *Harlen, Bruce, How tow to improve your diving, Poona Modern Book Stall.*
- *Juba, Bill. Swimming Stanely Paul, London Published, 1961.*
- *FINA Handbook*
- *Kanika K. Swimming Coaching Manual, Sports Publication, New Delhi, 2005.*
- *Kelvin Juba, Swimming for Fitness, Kelvin Juba-2001.*
- *Ernest W Maglischo, Swimming Fas*
- *American Red Cross, Lifeguarding Manual, Pbt. USA*

  CPR and AED, Student Book, American Safety & Health Institude, USA, 2016

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SEMESTER– III

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/301	Fundamentals of Psychology and Sociology	2	32	20	30	50
BSC/CC/302	Applied Exercise and Sports Physiology	2	32	20	30	50
BSC/CC/303G	Technique and Technical Development: Swimming	3	48	30	45	75
BSC/SECC/01	Science of Sports Training and Conditioning	3	48	30	45	75
BSC/GE/03	Traditional Sports and Games	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/301	Fundamental of Psychology and Sociology	1	32	10	15	25
BSC/CC(P)/302	Applied Exercise and Sports Physiology	1	32	10	15	25
BSC/GE(P)/03	Traditional Sports and Games	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 304G	General Conditioning and Performance – III: Swimming	4	128	50	50	100
BSC/CCP/ 305G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**608**	**275**	**350**	**625**

NSS is compulsory for all students in second year.

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical,

SEMESTER– III
FUNDAMENTALS OF PSYCHOLOGY ANDSOCIOLOGY
COURSE CODE – BSC/CC/301

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/301	Fundamentals of Psychology and Sociology	2	32	20	30	50

COURSE LEARNING OUTCOMES

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

- Understand the Basic Concepts of Sports Psychology
- Understand how sports environment and group process influence performance
- Understand the sociological issues for optimizing behavior and performance

UNIT-I

Basic Concepts of Psychology of Sports

1.1 Introduction to Sports Psychology: Definition, History and understanding present and future trends.
1.2 Personality and Sports: Defining personality and understanding personality structure
1.3 Motivation and Emotions: Definition, developing achievement motivation and positive emotions.
1.4 Arousal, Stress and Anxiety: Definition, identifying sources of stress and anxiety, connecting arousal and anxiety to performance.

UNIT-II

Sports Environment and Group Process

2.1 Sports Environment and Group Process, Competition and Cooperation: Definition, viewing competition as a process, enhancing cooperation
2.2. Group and Team Dynamics: Differences between groups and teams, group development, creating effective team climate.
2.3 Group Cohesion: Definition, relationship between cohesion and performance, enhancing cohesion.
2.4 Leadership and Communication: Definition, effective leadership, understanding communication process.

UNIT-III

Sports and Society:

3.1 Development of sociability through Sports and development of sociability to enhancement sports performance
3.2 Creation of social acceptance of Sports in Society, Development of athlete's identity as the role model in the society
3.3 Role of Family, Institution, and peer group/fan club in developing sports culture, ethical values and code of conduct for players, coaches and spectators
3.4 Gender equity in sports, sports and violence (players and spectators)

PRACTICAL

FUNDAMENTALS OF PSYCHOLOGY AND SOCIOLOGY

Course CODE: BSC/CC(P)/301

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/301	Fundamental of Psychology and Sociology	1	32	10	15	25

UNIT-I

1.1.Reaction time and Bio Feedback technique: Profile assessment of an athlete.
1.2.Color Progressive Matrices
1.3 Depth perception,Finger dexterity,Concentration, Anticipation test: demonstration and performing on an athlete.

1.4. Memory test, Achievement motivation test, Sheldon's Personality Test, Big Five Personality test: interpretation in relation to Sports.

UNIT-II

2.1. Assessment of Leadership quality and cohesiveness
2.2. Sociometry
2.3. Social Facilitation: Assessment of Audience effect in Sports.
2.4. The student will take Psycho-Social Project in their respective Sports/Games

SUGGESTED READING

1. Ball, D. W. & Loy, J. W. (1975).Sport and social order; Contribution to the sociology of sport.London: Addison Wesley Publishing Co., Inc.
2. Blair, J. & Simpson, R. (1962).Educational psychology, New York: McMillan Co. Cratty, B. J. (1968). Psychology and physical activity. Eaglewood Cliffs. Prentice Hall.
3. Kamlesh, M. L. (1998). Psychology in physical education and sport. New Delhi: Metropolitan Book Co.
4. Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1978).Sports and social system. London: Addison Wesley Publishing Company Inc.
5. Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1981).Sports culture and society. Philadelphia: Lea &Febiger.
6. Mathur, S.S., (1962). Educational psychology.Agra.VinodPustakMandir.Skinner, C. E., (1984.). Education psychology. New Delhi: Prentice Hall of India.
7. William, F. O. & Meyer, F. N. (1979).A handbook of sociology. New Delhi: Eurasia Publishing House Pvt Ltd.
8. Ball, Donald, W. and Lay John W. Sport and Social order Contribution to the Sociology of Sport.
9. Lea &Febiger, 1981).
10. Loy John W.,Mepherson, Barry D., and Kenyon Gerall, Sport and Social System(London: Addition Wesley Publishing Co. Inc., 1978).
11. Loy, Jhon W., Kenyon, Geral S. and Mopherson, Barry D., Sports Culture and society (Philadelphia: London: Addition Wesley Publishing Co. Inc., 1975).

SEMESTER – III

APPLIED EXERCISE AND SPORT PHYSIOLOGY

COURSE CODE: BSC/CC/302

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/302	Applied Exercise and Sports Physiology	2	32	20	30	50

LEARNING OUTCOMES

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

- Understand about the exercise physiology and its role in sports.
- Understand the muscles adaptation with various training load.
- Understand the effect of exercise on circulatory and respiratory system.
- Understand hot and humid temperature and sports performance, High altitude training and sports performance.

COURSE CONTENTS

UNIT-I

Exercise and Bioenergetics

1.1 Meaning, Definition and its application of exercise and sports physiology in health fitness and sports performance
1.2 Bioenergetics and exercise metabolism; Measurement of energy expenditure in various activity
1.3 Aerobic and Anaerobic metabolism during exercise and training
1.4 Physiological basis of training related to specific sports, Assessment of aerobic and anaerobic capacity and its interpretation of data (Project based learning).

UNIT-II

Muscular System

2.1 Theories of muscular contraction and sliding filament theory, Neural control of muscular activity
2.2 Effect of exercise and training on muscular system
2.3 Physiology of Fatigue, Over training and Recovery
2.4 Development and determination of muscle strength, Assessment of muscular strength, collection and interpretation of data.

UNIT-III

Conditioning and Training on circulatory and respiratory Systems

3.1 Cardiac Cycle, Stroke Volume, Cardiac Output, factors affecting heart rate and Cardiac Hypertrophy.
3.2 Effect of Exercises and training on the Cardio vascular system.
3.3 Mechanism of Breathing, Respiratory muscles, Minute ventilation, Diffusion of gases, Oxygen Debt, LungVolumes and Capacities, Second Wind.
3.4 Effects of exercises and training on respiratory system.

UNIT-IV

Exercise and Sport Physiology and Performance

4.1 Immune system and sports performance
4.2 Growth and development, maturity of sports person, Genetic and sports performance
4.3 Exercise and Neuro endocrine system
4.4 Hormonal response and adaptation to exercise

PRACTICAL

Applied Exercise and Sports Physiology

COURSECODE: BSC/CC(P)/302

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSCCC(P)/302	Applied Exercise and Sports Physiology	1	32	10	15	25

UNIT-I

1.1 Recording of Resting, Exercise and Recovery Heart rate and Blood pressure, its interpretation and designing specific training protocol
Video presentation and analysis of Physiological system, its interpretation and designing specific training protocol
1.2 Anthropometric measurement and Body Composition assessment, its interpretation and designing specific training protocol,
1.3 Measurements of Lungsfunction, its interpretation and designing specific training protocol
1.4 Assessment of Cardiovascular System by Harvard Step Test, Cooper's Test, Beep Test and PWC 170.

UNIT-II

2.1 Recording of Resting, Exercise and Recovery Heart rate and Blood pressure, its interpretation and designing specific training protocol
2.2 Aerobic andAnaerobicCapacity measurement, its interpretation and designing specific training protocol
2.3Measurement and analysis of lactic acid and heart rate in field, temperature (Dry, wet, and globe temperature) and its interpretation designing specific training protocol as a projectwork
2.4 Hypoxic training in Hypoxic chamber/Altitude

REFERENCE

1. Astrand, P.O. and Rodahi.K. Text Book of Work physiology.Tokye: Mc. Graw – Hill Kogakusha, Ltd. 1970).
2. Bourne, Geoffey H. The Structure and Function of Muscles: (London: Academic Press, 1973).
3. Guyton, Arthur C. Test Book of Medical Physiology (Philadelphia: W.B. Saunder company, 1978).
4. Karporich, P.V. and Sining. Wayne E. Physiology and Muscular Activity (Philadelphia: W.B.
5. Saunder company, 1971), 7thEdn.
6. Mathew, D.K. and Fox. E.L., Physiological Basis of Physical Education and Athletics.
7. (Philadelphia: W.B. Saunder company, 1976).
8. Morehouse, L.E and Miller, A.T. Physiology of Exercise (saint Louis: The C.V. Mosby Co.
9. 1976). 7thEdn.

SEMESTER – III

TECHNIQUES AND TECHNICAL DEVELOPMENT: Swimming

COURSE CODE: BSC/CC/303G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/303G	Techniques And Technical Development: Swimming	3	48	30	45	75

ESSENCE OF LEARNING

This course will enable student to understand the Techniques, facilities, rules of Water polo and Mechanical Principles of Swimming

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understanding different kind of strokes technique.
- Knowledge about water polo ball handling technique
- Knowledge about Technique of Life Saving and Water Treading Drills.

UNIT-I

Technical Analysis for Backstroke and Breaststroke

1.1 Teaching for competitive Backstroke: Body Position, Leg Action, Arm Action, Breathing, Co-ordination
1.2 Backstroke: Start, Turns (Simple turn & Roll over turn) & Finish
1.3 Teaching for competitive Breaststrokes: Body Position, Leg Action, Arm Action, Breathing, Co-ordination
1.4 Breaststroke: Start, Turn & Finish

UNIT-II

Technical Analysis of Front crawl and Butterfly

2.1. Teaching for competitive Front Crawl: Body Position, Leg Action, Arm Action, Breathing and Co-ordination
2.2. Front Crawl: Start (Grab Start, Track Start & Circular Arm Swing Start), Turns (Open turn & Flip turn) & Finis
2.3. Teaching for competitive Butterfly: Body Position, Leg Action, Arm Action, Breathing and Co-ordination
2.4. Butterfly: Start (Grab Start &Track Start), Turn and Finish

UNIT-III

Water polo ball handling technique

3.1 Ball handling: Individual and groups
3.2 Types of Pass
3.3 Types of Shots
3.4 Offensive and defensive tactics (Individual and team)

UNIT-IV

Technique of Life Saving and Water Treading Drills.

4.1.Life saving equipment, Duties and responsibilities of Life Guard
4.2. Life saving techniques: Methods (Direct and Indirect), Approach factors (Entry, Slide in Entry, Stride Jump, Compact Jump & Run and swim entry), Types of holds and releases and carrying method
4.3. Causes of drowning C.P.R. and Mouth to mouth Resuscitation.
4.4.Water treading: Head and body position, Arm position and Legs position (Modified Breaststroke kick and Eggbeater Kick)

SEMESTER –III

SCIENCE OF SPORTS TRAINING AND CONDITIONING

COURSE CODE: BSC/SECC/01

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/SECC/01	Science of Sports Training and Conditioning	3	48	30	45	75

COURSE LEARNING OUTCOME

After completing this course, the students will able to

- Understand the concept, means and methods of Sport Training and Conditioning.
- Equip to formulate and design training as per the pre-requisites of training components.
- Understand the technique and tactical preparation in particular Sports/Games.
- Understand the concept of planning and periodization of pre-requisites of competition demands.

UNIT – I

Introduction & Training means and methods

1.1. Definition, Aim and Principles of Sports Training
1.2. Characteristics of Sports Training, volume, intensity, density and frequency
1.3. Definition, importance, Types of Overload.
1.4. Principles of overload, causes& characteristics of fatigue, Tackling overload

UNIT - II

Training Component

2.1 Strength: Types,means and methods of developing strength, scientific basis of designing strength training
2.2 Speed - Forms of speed, means and methods of developing speed, scientific basis of designing speed training
2.3 Endurance and its types, means and methods of endurance training, scientific basis of designing endurance training
2.4 Coordination and Flexibility and its types, means and methods of development coordination and flexibility, scientific basis of designing co-ordination and flexibility training

UNIT – III

Technique, Tactics, Strategies

3.1 Meaning of Technique, Tactics, and Strategies, Difference between Technique, tactics, and strategies
3.2 Technique and phase of technical training related to specific sport and games
3.3Tactical training and strategies planning related to specific sport and games
3.4 Application of technique, tactics, and strategies related to specific sport and games

UNIT – IV

Planning & Periodization

4.1 Definition, Importance and Types of Planning
4.2 Principles of Planning and Steps in Formulation of Plan, scientific basis of designing planning related specific sport and games
4.3 Concept and types of Periodization
4.4 Top form and scientific basis of designing Periodization related to specific sport and games

SUGGESTED READING

1. Bompa O. Tudor and Halff G. Gregory. (2009) "Periodization Theory and Methodology of Training" Human kinetics.
2. Bompa O. Tudor, (2021) Periodization of Strength Training for Sports, Human Kinetics.
3. Bill Sweetenham and John Atkinson, (2003) Championship Swim Training, Human Kinetics.
4. Bill Ramseyer, (2011) Winning football, Human Kinetics.
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12. Uppal, A. K., (1999).Sports Training. New Delhi: Friends Publication.
13. Visual coachingpro software

SEMESTER –III

TRADITIONAL SPORTS AND GAMES

Course CODE: BSC/GE/03

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE/03	Traditional Sports and Games	2	32	20	30	50

Course learning outcomes:

After completing this course, the students will able to

- Know different kind of traditional sports and games
- Understand Historical development of traditional sports and games in India
- Understand importance of traditional sports and games
- Understand the social value of traditional sports and games

Unit-I

Introduction to Traditional Sports and Games

1.1 Need, Scope and benefits of Traditional Sports and Games in present days
1.2 Importance of Indian (Bharatiya) Tradition: Indian dance, music, exercise and Bharatiyama initiative
1.3 UNESCO: Intangible Cultural Heritage-Traditional Sports and Games (TSG)
1.4 International Council of Traditional Sports and Games: cultural values and activities for preservation and protection

Unit-II

Historical Development of Sports and Games
2.1.History of Traditional exercises, Sports and Games in ancient India and their origin.
2.2.Traditional exercise, Sports and Games in North East India.
2.3. Traditional Sports and Games in Central and South India.
2.4.Traditional Sports and Games in North and West India

Unit-III

Traditional Sports and Modern Olympics Sports
3.1. Traditional Sports and Games and its social and cultural values; Khelo India and Fit India initiative
3.2. Traditional Sports and Games as a tool for intercultural learning and physical literacy
3.3. Traditional Games as a recreational activity in active living and wellness
3.4. Impact of Traditional sports and games in skill enhancement of modern Olympic sports

PRACTICAL

Traditional Sports and Games

Course CODE: BSC/GE(P)/03

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE/(P)/03	Traditional Sports and Games	2	32	20	30	50

UNIT-I

Critical analysis of transfer of motor qualities and skill acquisition

1.1.Traditional exercises and sports of North East India, related to specific sports

1.2.Traditional exercises and sports of Central and South India, related to specific sports

1.3.Traditional exercises and sports of North and West India, related to specific sports

1.4.Traditional exercises and Sports from different parts of the World

UNIT-II

Physical fitness and sports skill acquisition through traditional sports

2.1. Traditional wrestling in India

2.2.Thang-Ta, Mukna and Kang.

2.3.Mallakhambh and Gatka

2.4. Kalaripayattu and Circle Kho-Kho, Raibansa

SUGGESTED READING:

1. www.unesco.org : Traditional Games and Sports (TSG)
2. www.tafisa.org
3. Encyclopaedia of Traditional Games, Gremese International; 192nd ed. edition (1 March 1995)
4. Traditional Games, Sports Publication (1 December 2015)
5. www.mallakhambindia.com
6. Rath. ShyamSundar, Martial Arts A critical Analysis of Orissa, Kalpaz Publisher, New Delhi, 2005.
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SEMESTER – III

GENERAL CONDITIONING AND PERFORMANCE – III: Swimming

COURSE CODE: BSC/CCP/ 304G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/304G	General Conditioning and Performance – III: Swimming	4	128	50	50	100

Learning Outcomes

- To understand the different training of Speed Endurance
- To understanding the development exercise of Agility
- Gaining knowledge about Core training methods
- To understand the developing exercises of Flexibility
  Objectives;
- **To improve general and specific fitness and performance.**

UNIT-I

Developing exercises for Speed Endurance

1.1 High volume interval training
1.2 High intensity interval training
1.3 Fartlek training
1.4 Pyramid training

UNIT-II

Developing Exercises for Agility

2.1 Factors determining agility
2.2 Agility drills
2.3 Agility and quickness program design
2.4 Specific Agility Training for Swimmers

UNIT-III

Developing exercises for Core Muscles

3.1 Incorporate Dynamic and Static Core Exercises
3.2 Include Closed-Chain and Open-Chain Core Exercises
3.3 Core Muscle Workouts with Equipments
3.4 Core Muscle Exercise Progressions for Swimmers

UNIT-IV

Developing exercises for Flexibility

4.1 Active Isolated Stretching
4.2 Resistance Stretching
4.3 Loaded Stretching

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test and performance All the fitness components	30 Marks (15+15)	30 Marks (15+15)
Speed training exercise	10 Marks	15 Marks
Explosive strength training exercise	10 Marks	10 Marks
Total	50 Marks	50 Marks

Semester – III

PRACTICAL: Swimming

COURSE CODE: BSC/CCP/ 305G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/305G	Practical: Swimming	6	192	75	75	150

Learning Outcomes

- To improve technique of Backstroke.
- To improve technique of Breaststroke.
- To develop the skills of Water polo.
- To understand the knowledge of management of Swimming pool.

UNIT-I

Teaching technical for Backstroke.

1.1. Body Position, Leg Action and Arm Action
1.2. Breathing and Co-ordination
1.3. Start and Finish
1.4. Turns (Simple turn & Roll over turn)

UNIT-II

Teaching technical for Breaststroke.

2.1 Body Position, Leg Action and Arm Action
2.2 Breathing and Co-ordination
2.3 Start & Finish
2.4 Turn

UNIT-III

Water polo Basic Drills

3.1 Ball handling: Individual and group
3.2 Types of pass and shots
3.3 Basic Goalkeeper drills
3.4 Offensive and defensive tactics (Individual and team)

UNIT-IV

Facilities and Management of Swimming Pool

4.1 Constructions
4.2 Safety and Maintenance
4.3 Chemical required for maintenance and Pool water test
4.4 Maintenance of Pool Equipment

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Skill proficiency with technical aspects	25Marks	25Marks
Fault correction and training plan	20 marks	20 marks
Officiating Proficiency of the events	20 Marks	20 Marks
Record book and Viva	10 Marks	10 Marks
Total	75 Marks	75 Marks

References

- Aneja, Om Prakash, Swimming Skills &Rulbes, Khel Sahitya Kendra, New Delhi, 2010.
- D. Jain, Swimming Skill & Rules, Khel Sahitya Kendra, New Delhi, 2003.
- Dick Hannula, Coaching Swimming, Successfully (Second edition) Friends Publication (India), 2003.
- Harlen, Bruce, How tow to improve your diving, Poona Modern Book Stall.
- Juba, Bill. Swimming Stanely Paul, London Published, 1961.
- FINA Handbook.
- Kanika K. Swimming Coaching Manual, Sports Publication, New Delhi, 2005.
- Kelvin Juba, Swimming for Fitness, Kelvin Juba-2001.
- Ernest W Maglischo, Swimming Fastest

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SEMESTER –IV

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/401	Applied Sports Psychology	2	32	20	30	50
BSC/CC/402	Sports Medicine	3	48	30	45	75
BSC/CC/403G	Tactics , Strategies , and Tactical Development: Swimming	3	48	30	45	75
BSC/SECC/02	Kinanthropometry and Talent development in Sports	2	32	20	30	50
BSC/GE/04	Adapted Sports Education	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/401	Applied Sport Psychology	1	32	10	15	25
BSC/CC(P)/402	Sports Medicine	1	32	10	15	25
BSC/GE(P)/04	Adapted Sports Education	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 404G	General Conditioning and Performance – IV: Swimming	4	128	50	50	100
BSC/CCP/ 405G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**608**	**275**	**350**	**625**

NSS is compulsory for all students in second year.

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

SEMESTER –IV

APPLIED SPORTS PSYCHOLOGY

COURSE CODE: BSC/CC/401

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/401	Applied Sports Psychology	2	32	20	30	50

LEARNING OBJECTIVE:

After completing this course, the students will able to

- Understand how to enhance psychological skills in sport and physical activity.
- Know how to develop mental skills in sports
- How to use sports and physical activity to enhance well-being of athletes

UNIT-I

Enhancing Psychological Skills

1.1. Introduction to mental training: Psychological factors and performance excellence, developing mental skills.
1.2. Goal Setting: Effective goals, developing athlete's goal setting skills
1.3. Imagery and Self-Talk: Using imagery effectively, developing imagery training program, developing athletes' smart-talk skills.
1.4. Concept of Biofeedback, uses and importance in Sports.

UNIT-II

Developing Mental Skills

2.1 Motivation: Needs and intrinsic motivation, creating mastery-oriented motivational atmosphere.
2.2 Attention and Self-Confidence: Attentional capacity, selective attention, implementing attentional skills program.
2.3 Stress Management: Understanding stress, stress management techniques, developing athletes' stress management skills.
2.4 Energy Management: understanding energy management, determining optimal energy zone, developing athletes' energy management skills.

UNIT-III

Enhancing Health and Well-Being

3.1 Physical activity and well-being: Exercise adherence, social-cognitive perspectives of perceived and sustained efforts.
3.2 Burnout in Sports: Burnout dropout, overtraining and staleness, monitoring burnout in athletes
3.3 Physical activity and quality of life: Meaning of Quality of life, Effect of physical activity and sports on quality of life.
3.4 Injury and Psychology: Stress and injury, role of sports psychology in injury rehabilitation.

PRACTICAL

Applied Sports Psychology

Course Code: BSC/CC(P)/401

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/401	Applied Sports Psychology	1	32	10	15	25

UNIT-I

1.1 Assessment and development of Motivation and integration of motivation training in relation to specific sports coaching

1.2 Goal Setting: integration of goal setting training in relation to specific sports coaching

1.3 Stress Management, Relaxation Procedures, Biofeedback Training in relation to specific sports

1.4 Developing Schedule of Psychological Skill Training (PST) Programme in relation to specific sports

UNIT-II

2.1 Relaxation Procedures – Progressive Relaxation – Autogenic Training, Transcendental Meditation.

2.2 Activation Techniques (Imagery, VMBR, HYPNOTHERAPY)

2.3 Cognitive Strategies: Imagery, Thought Stopping and Centering,

2.4 Development of verbal and non-verbal communications skill between athlete and coach

SUGGESTED READING

1. Andersen, M. B. (Ed.). (2005).Sports psychology in practice. Human Kinetics.
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3. Blumenstein, B., Bar-Eli, M., &Tenenbaum, G. (Eds.) (2002). Brain and body in sport and exercise: Biofeedback applications in performance enhancement. Wiley Publishing, Inc.
4. Burton, Damon, Thomas D. Raedeke (2008) Sport Psychology for Coaches Human Kinetics Publishers, ChaampaignIIinois.
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6. Cox, Richard H (2006) Sport Psychology Concept and Application, 3rd edWm.C. Brown Publishers.
7. Horn, Thelma (2008) Advances in Sport Psychology Human Kinetics Publishers, Inc Champaign IL.
8. Kamlesh, M.L. (2001) Psychology in Physical Education and Sport, 3rd ed. Metropolitan Book Co.Pvt.Ltd Delhi.
9. Tenenbaum, Gershon (2001)The Practice of Sport Psychology Fitness Information Technology, INC,US
10. Weinberg, R. S., & Gould, D. (2015). Foundations of Sport and Exercise Psychology (6th ed.). Human Kinetics.
11. Weinberg, R.S & Gould, Daniel (2012) Foundations of Sport and Exercise Psychology Human Kinetics Publishers, Inc Champaign IL.
12. Williams, J.M., &Krane, V. (2014). Applied Sport Psychology: From Personal Growth to Peak Performance (7th ed.). McGraw-Hill.

SEMESTER –IV

SPORTS MEDICINE

COURSE CODE BSC/CC/402

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/402	Sports Medicine	3	48	30	45	75

COURSE LEARNING OUTCOME

After completing this course, the students will able to

- Understand history, scope and importance of sports medicine.
- Understand sports injuries related to skin, muscles, tendons, ligaments, cartilage and bones.
- Understand tissue respond to stress and different types of wound healing.
- Understand ill effect of different drugs and doping.

COURSE CONTENTS

UNIT - I

Introduction to Sports Medicine

1.1 History of Sports Medicine in India and Abroad

1.2 Definition, aims and objectives of Sports Medicine

1.3 Scope, Need and Importance of Sports Medicine in sports

1.4 Classification of sports Injuries, differences between acute and chronic injuries.

UNIT - II

Injuries in Sports

2.1 Skin and Muscles Injuries (blisters, corns, abrasions, bruises, burns,cuts and lacerations, muscles strain and ruptures)

2.2 Tendons Ligaments, Cartilage, bursa and bone Injuries

2.3 Common site-specific injuries in sports Common regional injuries and their management (Head & Neck, Face, Thorax, Abdomen, Pelvis, Upper Limbs and Lower Limbs (shoulder, elbow, Wrist, hip, knee and Ankle joints).

UNIT – III

Injury and Tissue Response

3.1 Micro and Macro trauma

3.2 Over use Trauma

3.3 Tissue response to stress

3.4 Different steps in wound healing

UNIT – IV

Doping in Sports

4.1 Ergogenic aids in Sports

4.2 National and International Anti-doping organization and their role

4.3 Classification and types of drugs banned by WADA, Side effects of drugs

4.4 Blood doping, Types of Blood Doping

PRACTICAL

Sports Medicine

Course CODE: BSC/CC(P)/402

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/402	Sports Medicine	1	32	10	15	25

UNIT-I

1.1.Demonstrate how to set up an individual on a program for injury prevention or general fitness enhancement.
1.2.Describe and demonstrate the proper fit, care, and usage of sports protective equipment.
1.3.Common Rehabilitation exercises used in sports injury.
1.4. Strengthening and stretching of major muscles

UNIT-II

2.1.Arrangement of special lecturer on anti-doping rules
2.2. Demonstration and explanation of sample collection kit and procedure of sample collection
2.3. Explanation of Players form fill up procedure and checking shield equipment by an expert
2.4. Maintaining a practical record book

SUGGESTED READING

1. Andrew Pallas Beating Sports Injuries Mitchell Beazley (London) 2003.
2. Conley, M. (2000). Bioenergetics of exercise training. In T.R. Baechle, & R.W. Earle, (Eds.), Essentials of Strength Training and Conditioning (pp. 73-90). Champaign, IL: Human Kinetics.
3. David, R. M. (2005).Drugs in sports, (4th Ed). Routledge Taylor and Francis Group.
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5. Garick Webb Sports Injuries Diagnosis and Management W.B. Sunders Co. (London) 1990.
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9. Marcia K. Anderson and Malissa Martin Quick Reference Guide for Sports Injury Management Williams & Wilkins (London) 1998.
10. Martha Freeman Sonners Spinal Cord Injury Prentice Hall (New Jersey) 1992.
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12. Pandey, P. K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub. Williams, J. G. P. (1962). Sports medicine.London: Edward Arnold Ltd.
13. Paul N. Taylor and Diane K. Taylor Conquering Athletic Injuries Human Kinetics (Canada) 1988.
14. Philip J. Morone Shoulder Injuries in Sports Aspen Publishers Inc. (London)1992.
15. Robert Gunzburg and Marek Szpalski Whiplash Injuries Lippincott Williams & Wilkins (New York) 1998.
16. Terry R. Malone Throwing Injuries Williams & Wilkin

SEMESTER –IV

TACTICS, STRATEGIES AND TACTICAL DEVELOPMENT: Swimming

COURSE CODE: BSC/CC/403G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/403G	Tactics, Strategies and Tactical Development: Swimming	3	48	30	45	75

ESSENCE OF COURSE

The course will develop the knowledge of tactics, strategies and tactical development. Faults and correction in swimming, Diving rules, Training method and sets use in swimming.

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understand tactics and switch over turn in relay swimming.
- Knowledge about faults and correction of swimmer.
- Understand diving rules and water games.
- Knowledge about method for various distances and training set used in swimming.

UNIT-I

Tactics in Relay Swimming & I.M. switch over turns

1.1 Importance of tactics and Basic traits of a relay swimmer.
1.2 Offensive and Defensive strategy
1.3 Relay race pattern and change over.
1.4 Individual Medley switch over turns (The four swimming strokes in the following order: Butterfly, Backstroke, Breaststroke and Freestyle.

UNIT-II

Faults and corrections, Pre-requisites of Elite Swimmers

2.1.Definition and causes of faults and corrections for swimmer
2.2.Types and Method of correction
2.3.Pre-requisites of an elite swimmer: Anthropometrical, Physiological and Psychological
2.4.Somatotype of a swimmers

UNIT-III

3. Diving Rules, Water games and their benefits

3.1. FINA Diving rules: General, Competition, Competition Format, Statement of Dives, Competition Procedure, Duties of the Referee, Assistant Referee and Summary of the penalties.
3.2. Diving facilities: Springboard diving and Platform diving and General requirements
3.3. Water games and their benefits: Relay race, Colorful stone, Play with water ball, underwater hoop, Making face and Jumping for distance in water.

UNIT-IV

4. Training Methods for various distances and Training Sets used in Swimming.

4.1. Training method and Sets used in Swimming: The straight set, Descending time set, Ascending set, Decreasing rest interval set, Increasing rest interval set, Mixed set, Broken set, The simulators.
4.2. Training the swimmers for various distance: Sprinters, Middle Distance, Distance, I.M. and M.R. Swimmers
4.3. Phases of skill acquisition and scientific procedure of technique training in swimming.
4.4. Water training for competitive swimming.

SEMESTER –IV

KINANTHROPOMETRYAND TALENT DEVELOPMENT IN SPORTS

COURSE CODE: BSC/SECC/02

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/SECC/02	Kinanthropometry and Talent Development in Sports	2	32	20	30	50

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understand the concept and techniques of Anthropometry and Kinanthropometry.
- Understand Anthropometry profiling and evaluation.
- Understand the talent identification.

COURSE CONTENTS

UNIT – I

Anthropometry and Kinanthropometry

1.1 Introduction of Anthropometry and Kinanthropometry and its importance in sports

1.2 Basic Anthropometric tools, measurements and landmarks, Applications of Kinanthropometry in sports.

1.3 Somatotypes/Body Types/Body Physique and its relevance in sports, Body composition and its importance in sports.

1.4 Human Growth and Development.

UNIT – II

Anthropometric Profiling and Evaluation

1.1 Assessment technique of Somatotyping / Body typing.

1.2 Assessment technique of Body composition.

1.3 Assessment technique of Skeletal Diameter (Body Breadth) and Body Girth (Body Circumference).

1.4 Evaluation of Body composition by BIA (Bio Impedance Analysis) Instrument.

UNIT – III

Sports Talent Identification and development

3.1 Need and Importance of Talent Identification

3.2 Principles of talent identification and development

3.3 Talent Identification in relevant Sports, Long Term Athlete Development

3.4 Global scenario of talent identification, selection and development in relevant sports

SUGGESTED READING

1. Singh S.P.S. and Malhotra P (2003). *Anthropometry.* Human Biology Department. Punjabi University. Patiala-147 002 (India).

2. Pheasant, S. (1996). *Body space: anthropometry, ergonomics and design of work*. Taylor & Francis, New York.

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SEMESTER – IV

ADAPTED SPORTS EDUCATION

COURSE CODE: BSC/GE/04

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE/04	Adapted Sports Education	2	32	20	30	50

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand the modern concept of adapted sports education.
- Understand classification of differently abled people.
- Understand adapted Sports education programme.

COURSE CONTENTS

UNIT-I

Introduction to adapted sports education

1.1 Meaning, aim and objectives of adapted sports education
1.2 Brief historical review of adapted sports education
1.3 Need and importance of adapted sports education
1.4 Role of sports education in adapted sports education

UNIT-II

Classification of differently able people

2.1 Changing concept of differently able people.
2.2 Physically challenged, mentally challenged, Speech and Hearingchallenged and visually challenged.
2.3 Other Differently able Condition problems, Behavioral Problems-Adjustment Problem, learning disabilities, Emotional Problem.
2.4 Social Problem -Social Determination, Social Rejection

UNIT-III

Adapted Sports Education Programme

3.1. Guiding Principles for Adapted Sports Education Programme
3.2. Sports Programme for differently able students (Divyangjan)
3.3. Co-Curricular activities for differently ablestudents (Divyangjan)
3.4. Aquatic activity programmes for differently able; Rehabilitative role &importance of aquatic activity

PRACTICAL

Adapted Sports Education

Course Code: BSC/GE(P)/04

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/GE(P)/04	Adapted Sports Education	1	32	10	15	25

Unit – I

Introduction of Specific Programmes for especially abled Child

1.1. Adapted Exercise programme for visual impaired.
1.2. Adapted Exercise programme for hearing impaired.
1.3. Adapted Exercise programme for the people with upper body locomotor problem.
1.4. Adapted Exercise programme for the people with lower body locomotor problem.

Unit – II

Introduction of Adapted Sports and its event

2.1 Adapted Sports and its events programme for visual impaired.
2.2 Adapted Sports and its events programme for hearing impaired.
2.3 Adapted Sports and its events programme for the people with upper body locomotor problem.
2.4 Adapted Sports and its events programme for the people with lower body locomotor problem.

SUGGESTED READINGS

1. Anoop Jain, "Adapted Physical Education" Sports Publications, Ashok Vihar Delhi-52
2. Arthur G. Miller & James, "Teaching Physical Activities to impaired youth" John Wilag& Sons
3. Inc. Canada.
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5. Auxter, Byler, Howtting, "Adapted Physical Education and reactions" Morbey-St. Louis Missouri.
6. K. Park, "Preventive Social Medicine M/s BanaridasBhanot Publishers Prem Nagar Jabalpur. Ronald W. French, & Paul J., "Special Physical Education", Charles E. Merrics Publishing Co.Edinburgh, Ohio.
7. Shekar KC, Adapted Physical Education(KhelSahitya Kendra: New Delhi)-2005
8. Winnick JP, Adapted Physical Education and sport Human Kinetics USA, 2005
9. Uppal, A. K. (1990). Physical fitness: how to develop. New Delhi: Friends Publication.

Semester – IV
GENERAL CONDITIONING AND PERFORMANCE – IV: Swimming
COURSE CODE: BSC/CCP/404G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/404 G	General Conditioning and Performance – IV: Swimming	4	128	50	50	100

Learning Outcomes

- To understand the different training exercise for Power
- To understanding the development exercise of Strength Endurance
- Gaining knowledge about Balance Training Methods
- To understand the Motor Developing Exercises

Objectives;

To improve general and specific fitness and performance.

UNIT-I

Developing exercises for Power

1.1. Power exercises for upper body
1.2. Power exercises for lower body
1.3. Power exercises for whole body
1.4. Specific exercises for swimmers

UNIT-II

Developing exercises for Strength Endurance

2.1 Circuit training
2.2 Weight training
2.3 Resistance running
2.4 Hill running

UNIT-III

Developing exercises for Balance

3.1 Asana
3.2 Stability exercises with Swiss ball and dumbbell
3.3 Stability drills
3.4 Stability exercises for divers

UNIT-IV

Motor Developing Exercises

4.1 Jumping, Catching, Throwing Exercises
4.2 Coordination Exercises drills
4.3 Agility drills
4.4 Plyometric Activities

Evaluation Total Mark 100

Evaluation criteria	**Internal Assessment**	**External Assessment**
Physical Fitness test of the following: **a)** Medicine Ball Throw Test **b)** Standing Broad Jump **c)** 1minutes push up **d)** 1minutes sit up **e)** One-legged standing **f)** Shuttle Run	30 Marks	30 Marks
200m IM Sports Performance	20 Marks	20 Marks
Total	**50 Marks**	**50 Marks**

Semester – IV

PRACTICAL: Swimming

COURSE CODE: BSC/CCP/405G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/405G	Practical: Swimming	6	192	75	75	150

Learning Outcomes

- To improve technique of Backstroke.
- To improve technique of Breaststroke.
- To develop the skills of Water polo.
- To understand the knowledge of management of Swimming pool.

UNIT-I

M.R change over & I.M. switch over turns for swimming.

1.1. Relay race pattern and change over.
1.2. Butterfly to Backstroke switch over turn
1.3. Backstroke to Breaststroke switch over turn
1.4. Breaststroke to Freestyle switch over turn

UNIT-II

Find out the common Faults and corrections.

2.1 Correction of Butterfly
2.2 Correction of Backstroke
2.3 Correction of Breaststroke
2.4 Correction of Freestyle

UNIT-III

Training Sets used in Swimming.

3.1 The straight set and Descending time set
3.2 Ascending set and Decreasing rest interval set
3.3 Increasing rest interval set and Mixed set
3.4 Broken set and the Simulators.

UNIT-IV

Training Methods for various distances

4.1 Training the swimmers for Sprinters
4.2 Training the for Middle Distance swimmer
4.3 Training the Distance swimmers.
4.4 Training the I.M. and M.R. Swimmers

Objectives:

- To teach individual medley
- Relay race pattern and change over

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
➢ Relay race pattern and change over turn a) Butterfly to Backstroke b) Backstroke to Breaststroke c) Breaststroke to Freestyle ➢ Relay race pattern and change over turn ➢ Backstroke to Breaststroke ➢ Breaststroke to Butterfly ➢ Butterfly to Freestyle	60Marks	60Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

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1. Aneja, Om Prakash, Swimming Skills &Rulbes, Khel Sahitya Kendra, New Delhi, 2010.
2. D. Jain, Swimming Skill & Rules, Khel Sahitya Kendra, New Delhi, 2003.
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5. Counsilman, James E., The Science of Swimming, S. Chand & Company Ltd., New Delhi, India 1989.
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7. Harlen, Bruce, How tow to improve your diving, Poona Modern Book Stall.
8. Juba, Bill. Swimming Stanely Paul, London Published, 1961.
9. Kanika K. Swimming Coaching Manual, Sports Publication, New Delhi, 2005.
10. Kelvin Juba, Swimming for Fitness, Kelvin Juba-2001.

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SEMESTER – V

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/501	Sports Physiotherapy and Rehabilitation	2	32	20	30	50
BSC/CC/502	Sports Nutrition	2	32	20	30	50
BSC/CC/503	Research Method and Statistics in Sports	3	48	30	45	75
BSC/DSC/01	Sports Event Management	2	32	20	30	50
BSC/DSC/02G	Specific Motor Qualities of Sports and Games: Swimming	3	48	30	45	75
LAB PRACTICAL						
BSC/CC(P)/501	Sports Physiotherapy and Rehabilitation	1	32	10	15	25
BSC/CC(P)/502	Sports Nutrition	1	32	10	15	25
BSC/DSC(P)/ 02G	Specific Motor Qualities of Sports and Games: Swimming	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 50G	Age Group Sports Training: Swimming	4	128	50	50	100
BSC/CCP/ 505G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**608**	**275**	**350**	**625**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP=Core course practical

SEMESTER –V

SPORTS PHYSIOTHERAPY AND REHABILITATION

COURSE CODE: BSC/CC/501

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/501	Sports Physiotherapy and Rehabilitation	2	32	20	30	50

COURSE LEARNING OUTCOMES

After completing this course,the students will able to

- Understand the Meaning, definition and importance of physiotherapy and therapeutic exercises
- Understand various types of therapeutic modalities
- Understanding the need and importance of rehabilitation and recovery.

COURSE CONTENTS

UNIT-I

Introduction to Physiotherapy

1.1 Definition, meaning and Importance of Physiotherapy
1.2 Definitions of Therapeutic exercise, Classification, Effects and uses of different types ofexercise.
1.3 Stretching- types of stretching, Passive Movements (Relaxed, Forced and passive - stretching)Active movements.
1.4 Strengthening Exercises, therapeutics means and methods of strengthening exercises

UNIT-II

Therapeutic Modalities

2.1 Definition of Hydrotherapy, Different forms of Hydrotherapy: Whirlpool, Contrast bath,(Indications & Contra-indications of each modality).
2.2 Thermotherapy – Hydrocollator Pack and Cryo-Therapy: Cold Packs, Cryo-Compression, Cryokinetics
2.3 Electrotherapy – Infrared rays – Ultraviolet rays –short wave diathermy – ultrasonic rays. IFT (interferential therapy) Brief Concept of electrical muscle stimulator, Paraffin wax and LASER therapy.
2.4 Manual Therapy and Massage

UNIT-III

Sports Rehabilitation and Recovery

3.1 Definition concept & approach in athletic rehabilitation.
3.2 Principles of Rehabilitation
3.3 Phases of Athletic Rehabilitation,Role of Coaches in Athlete's Care and Rehabilitation
3.4. Medico biological means of recovery, Ice Bath, steam bath, Sauna bath, whirlpool bath

PRACTICAL

SPORTS PHYSIOTHERAPY AND REHABILITATION

Course CODE: BSC/CC(P)/501

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/501	Sports Physiotherapy and Rehabilitation	1	32	10	15	25

UNIT-I

1.1. Relaxed, Forced and passive – stretching therapeutic exercises, PNF stretching
1.2. Strengthening Exercise (Isometric and Isotonic)
1.3. learn acute injury management
1.4. Relaxation techniques

UNIT-II

2.1 Operation of steam, sauna and whirlpool bath
2.2. Knowledge of operating instruments like IFT, Ultrasound, long and short-wave diathermy
2.3 Application of paraffin bath, Cryotherapy, compression bandaging, use of Kinesiotape
2.4 Massage technique

REFRENCES

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2. Christine, M. D., (1999). Physiology of sports and exercise. USA: Human Kinetics.
3. Conley, M. (2000).Bioenergetics of exercise training.In T.R. Baechle, & R.W. Earle, (Eds.), Essentials of Strength Training and Conditioning (pp. 73-90). Champaign, IL: Human Kinetics.
4. David, R. M. (2005). Drugs in sports, (4th Ed).Routledge Taylor and Francis Group.
5. Hunter, M. D. (1979). A dictionary for physical educators. In H. M. Borrow & R. McGee, (Eds.), A Practical approach to measurement in Physical Education (pp. 573-74).

Philadelphia: Lea &Febiger.
6. Jeyaprakash, C. S., Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.
7. Khanna, G. L., (1990). Exercise physiology & sports medicine. Delhi: Lucky Enterprises.
8. Mathew, D. K. & Fox, E. L, (1971).Physiological basis of physical education and athletics.
9. Philadelphia: W.B. Saunders Co.
10. Pandey, P. K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub.
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12. Williams, J. G. P. (1962). Sports medicine.London: Edward Arnold Ltd.

SEMESTER –V

SPORTS NUTRITION

COURSE CODE: BSC/CC/502

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/502	Sports Nutrition	2	32	20	30	50

COURSE LEARNING OUTCOMES

After completing this course, the students will able to

- Understand Meaning, Definition, Aims and Objectives of Sports Nutrition, Mal nutrition and Balanced diet.
- Understand nutritional requirement of Sports person
- Concept of fluid and electrolyte replacement, values of vitamins and minerals, carbohydrate loading according to the requirement of sports

UNIT – I

Introduction to Nutrition

1.1 Meaning, Definition, Aims and Objectives of Sports Nutrition
1.2 Essentials of Nutrition, Carbohydrate-Protein-Fat-Vitamin-Minerals
1.3 Balance Diet and Nutritive values of food
1.4 Malnutrition and imbalance of nutrition

UNIT – II

Nutritional Requirement of Sports Person

2.1 Essential Dietary requirements of Sports persons.
2.2 Planning of athletic diets for different categories of sports
2.3 School students-College men and women, Team Sport-Athletics
2.4 Pre-game Meal, Obesity, Weight Control, Crash dieting and Eating Disorders, Bulimia, Anorexia Nervosa, Binge Eating

UNIT – III

Carbohydrate Loading and Metabolism

3.1 Metabolism, Hydration in Athlete
3.2 Food Safety –Factors Affecting Nutrition, Energy – BMR, RDA, Weight and Body Composition of Athletes
3.3 Diet during Sports competition for endurance athletes, carbohydrate loading, supplement to the daily diet,
3.4 Vitamins & Minerals, Fluids and electrolyte replacement, Calcium and iron supplementation

PRACTICAL

Sports Nutrition

Course CODE: BSC/CC(P)/502

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/502	Sports Nutrition	1	32	10	15	25

UNIT-I

1.1.Preparation of a Balanced Diet chart.
1.2 Obesity (Height, Weight Ratio), Body Mass Index and Calculation of Body Fat Percentage, planning of weight reduction in combat sports.
1.3. Nutritional assessment for Athletes and planning for nutrition for athletes.
1.4. Assessment of Eating Disorders.

UNIT-II

2.1.Designing a diet plan for different level of players and elite athletes.
2.1. Assessment of Hydration of athletes and planning of hydration strategies.
2.3 Assessment of hemoglobin deficiency and diet of athletes.
2.4. Designing carbohydrate loading plan for endurance sports person.

SUGGESTED READING

1. Benardot Dan, Advanced sports Nutrition, Human Kinetics, 2020.
2. Fink Heather Hedrick, JSports Nutrition, A Practical approach, Jones and Bartlett Learning, 6thed
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4. Jeukendrup Asker, Sports Nutrition, Human Kinetics, 2018.
5. KarpinskiChristina and A. Rosenbloom Christine, Sports Nutrition: Ahand book of Professionals, Academy of Nutrition and Dietetics, 2017.
6. MizeraJustyna and Krzysztofmizera, Sports Nutrition: Eat smart, Be healthy Get on top of your game, Velo press, 2019.
7. Stull, G. A. and Cureton, T.K. Encyclopedia of Physical Education , Fitness and Sports-Training Environment , Nutrition and Fitness, Brighton Publishing Co. Saltlake City, 1980.
8. Wolliam D Mcardle, Sports , Exercise and Nutrition, LWW, 2019.

SEMESTER –V
RESEARCH METHOD AND STATISTICS IN SPORTS
COURSE CODE: BSC/CC/503

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/503	Research Method and Statistics in Sports	3	48	30	45	75

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand types, nature, scope of Research
- Understand the classification ofresearch and the researchprocess.
- Identify various sources of information for literature review and datacollection.
- Understand statistics and its application in sports research

UNIT-I

Introduction toResearch

1.1 Meaning, definition and types ofResearch.

1.2 Characteristics of GoodResearch, Nature and Scope of Research in Sports.

1.3 Classification of Research, Location and identifying of research Problem, Criteria for Selecting a researchProblem

1.4 Understand Research Format, chapters and writing synopsis

UNIT-II

Methods of Research

2.1 Descriptive Methods of Research: Survey and Case study, interview and questionnaire

2.2 Historical Research: Steps in Historical Research, Sources of Primary and Secondary Data,Internal and External Criticism.

2.3 Experimental Research – Meaning, Nature and Importance, Meaning of Variable, Types of Variables, Research Design.

2.4 Purpose of literature review, presenting the research hypothesis, Limitation, delimitation and significance of studies

UNIT-III

Introduction to Statistics-I

3.1 Meaning, Definition and Importance ofStatistics in sports.

3.2 Quantitative and qualitative Data, tools and techniques of data collecting, population and sample

3.3 Class interval, Raw data, group and ungroup data, Construction ofTable, Introduction to Graphic Techniques (Histogram, Bar chart and pie-diagram)

3.4 Measure of Central tendency, Calculation of Mean, Median &Mode

UNIT-IV

Introduction to Statistics-II

3.1 Normal Curve, skewness and kurtosis

3.2 Measure of Dispersion (Standard Deviation, Mean Deviation, Quartile Deviation)

3.3 Method of Calculation ofCorrelation

3.4 Types of t-test, interpreting t, relationship of t and r.

SUGGESTEDREADINGS

1. Best, J.W. (1963).Research in education. U.S.A.: Prentice Hall.

2.Clark, H. H., & Clark, D. H. (1975).Research process in physical education. Englewood cliffs, New
Jersey: Prentice Hall, Inc.

3.Garrett, H.E. (1981). Statistics in psychology and education. New York: VakilsFeffer and Simon Ltd.

4.Oyster, C. K., Hanten, W. P., &Llorens, L. A. (1987). Introduction to research: A guide for the health
science professional. Landon: J.B. Lippincott Company.

4.Thomas, J.R., & Nelson J.K. (2005).Research method in physical activity. U.S.A: Champaign, IL:
Human Kinetics Books.

5.Thomas, J.R., Nelson, J.K. & Silverman, S.J. (2011). Research method in physical activity.

6.U.S.A: Champaign, IL: Human Kinetics Books.

7.Verma, J. P. (2000). A text book on sports statistics. Gwalior: Venus Publications.

SEMESTER –V
SPORTS EVENT MANAGEMENT
COURSE CODE: BSC/DSC/01

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC/01	Sports Event Management	2	32	20	30	50

COURSE LEARNING OUTCOMES
After completing this course, the students will be able to

- Identify various types of contemporary sporting events and role of event manager and staffs
- Understand budget, sponsorship and marketing system of event management
- Understand pre and post event evaluation, Risk Management and negligence

COURSE CONTENT:

UNIT-I

Introduction
1.1.Understanding Sport Facilities/ Planning, Importance of Sports Event Management
1.2.Different types of sports events
1.3.Event Planning Sequence, Opening and Closing ceremony
1.4. Event manager and role of management staffs and different committee

UNIT-II

Budgeting, Sponsorship and Marketing
2.1 Sports event budget, Planning and preparation of budget, Event Cost Estimate
2.2 Sponsorship, advertisement
2.3 Marketing strategies and Event Marketing
2.4 Media role and promotion

UNIT-III

Event Management and Negligence:
3.1 Sports Venue location and selection and facilities
3.2 Event and Game Day Management, Risk Management and negligence
3.3 Services and Logistics, Pre Event and Post event evaluation, evaluation of managing staffs
3.4 Crowed Management

Suggested Reading:

1. Guy Masterman, Strategic Sports Event Management: Third edition 3rd Edition, Routledge Edition,2016.
2. Guy Masterman, Innovative Marketing Communications: Strategies for the Events Industry (Masterman& Wood, 2006)

3.Jordan Leslie-Ann,Sports Event Management: The Caribbean Experience (New Directions in Tourism Analysis)Routledge, 2010.
4.Stedman Grahamthe Ultimate Guide to Sport Event Management and Marketing, McGraw-Hill Education (19 January 1995)

SEMESTER –V
SPECIFIC MOTOR QUALITIES OF SPORTS AND GAMES: Swimming
COURSE CODE: BSC/DSC/02G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC/02G	Specific Motor Qualities of Sports and Games: Swimming	3	48	30	45	75

ESSENCE OF COURSE

The course will enable the student about the motor abilities for swimmers and organization of competition. Dry land exercises, Warming Up, Cooling Down and Training system to be use in swimming.

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understand the motor abilities of swimmer.
- Knowledge about motor abilities for swimmers and organization of competition.
- Knowledge about dry land exercise and muscles to be use in swimming.
- Understanding training system.

UNIT-I

Development of motor abilities for Swimmers in water and Organization of Competition

1.1 Motor abilities of Swimmers in water: Endurance, Speed, Strength and Coordinative abilities
1.2 Means & Methods of development motor abilities
1.3 Organization and Management of competition: Swimming, Water polo and Diving
1.4 Terminologies involved in swimming

UNIT-II

Dry Land Exercise and Muscles to be use in Swimming

2.1 Dry land exercises (Equipment and Calisthenics) for Freestyler and Butterfly swimmer and muscle chart.
2.2 Dry land exercises (Equipment and Calisthenics) for Breaststroke and Backstroke swimmer and muscle chart.
2.3 Dry land exercises (Equipment and Calisthenics) for Backstroke swimmer and muscle chart.
2.4 Values of Physical Activities other than swimming for swimming.

UNIT-III

Warming Up and Cooling/Limbering Down :

3.1 Definition, Meaning and Objectives of Warming Up and Cooling/Limbering Down.
3.2 Important and Types of Warming Up and Cooling down
3.3 Different method of doing Warming Up and Cooling down on Land and Water.
3.4 Specific Warming Up and Cooling down procedure for competition.

UNIT-IV

Training systems

4.1 Zone - 1 – Aerobic (A1, A2, A3)
4.2 Zone – 2 – Anaerobic Threshold
4.3 Zone – 3 – High performance endurance
4.4 Zone – 4 – Anaerobic (Race – Pace training, lactic acid accumulation) and Zone – 5 – Sprint

Semester – V

PRACTICAL

Specific Motor Qualities of Sports and Games: Swimming

COURSE CODE: BSC/DSC(P)/02G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC(P)/02G	Specific Motor Qualities of Sports and Games: Swimming	1	32	10	15	25

UNIT-I

1.1. Administration of explosive strength test for swimmers in different age category
1.2.Administration Cardiovascular endurance test
1.3.Flexibility test
1.4.Speed test

UNIT-II

2.1 Coordination test
2.2. Balance test
2.3 Reaction time test
2.4Agility test

Semester – V

AGE GROUP SPORTS TRAINING: Swimming

COURSE CODE: BSC/CCP/504G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/504G	Age Group Sports Training: Swimming	4	128	50	50	100

Learning Outcomes

- To understand health and history background
- To understand systematization of sports training
- To develop fitness components
- To develop different training for Age Group

UNIT-I

Health and History background

1.1.Review of history and health records of an Age Group swimmer
1.2.Important to be keep in your mind
1.3.Talent identification for the swimmer
1.4.Making plan for the different Age Group

UNIT-II

Systematization of Sports Training Process

2.1.Basic training
2.2.Advanced (Intermediate) training
2.3.High Performance training
2.4.Creating Proper Attitudes

UNIT-III

Fitness Components for Age Group swimming

3.1.Force abilities
3.2.Endurance abilities
3.3.Speed abilities
3.4.Coordinative abilities
3.5.Flexibility

UNIT-IV

Training for Age Group

1.1.Characteristics during developmental stages
1.2.Physical fitness training
1.3.Dry land Training
1.4.Water training

Objectives:

- To develop fitness components

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test for different age group	15 Marks	15 Marks
Design conditioning and fitness programme for different age group	15 Marks	15 Marks
Design training plan for different age group	10 Marks	10 Marks
Record book and viva	10 Marks	10 Marks
Total	50 Marks	50 Marks

Semester – V

PRACTICAL: Swimming

COURSE CODE: BSC/CCP/ 505G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/505G	Practical: Swimming	6	192	75	75	150

Learning Outcomes

- To understand different drills and to develop freestyle.
- To understand different drills and to develop backstroke.
- To understand different drills and to develop Breaststroke.
- To understand different drills and to develop Butterfly.

UNIT-I

Drills for Freestyle

1.1.Body Position Drills
1.2.Kick Drills
1.3.Arm Stroke Drills and Recovery Drills
1.4.Breathing Drills and Coordination Drills

UNIT-II

Drills for Backstroke

2.1.Body Position Drills
2.2.Kick Drills
2.3.Arm Stroke Drills and Recovery Drills
2.4.Breathing Drills and Coordination Drills

UNIT-III

Drills for Breaststroke

3.1.Body Position Drills

3.2.Kick Drills
3.3.Arm Stroke Drills
3.4.Recovery Drills, Breathing Drills, and Coordination Drills

UNIT-IV

Drills for Butterfly

1.1.Body Position Drills
1.2.Kick Drills
1.3.Arm Stroke Drills
1.4.Recovery Drills, Breathing Drills and Coordination Drills

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Skill proficiency	20Marks	20Marks
Fault correction and training plan	20 marks	20 marks
Officiating Proficiency of the events	20 Marks	20 Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

References

1. Maglischo, Ernest W., Swimming Fastest, Human Kinetics Publishers Ltd., Leeds, England, 2003.
2. Colwin, Cecil M., Swimming into 21st Century, Leisure Press, Illinois, U.S.A., 1992.
3. Counsilman, James E., The Science of Swimming, S. Chand & Company Ltd., New Delhi, India 1989.
4. MacLaren D. ed., Biomechanics and Medicine in Swimming, E & FN SPON, Madras, India 1992.
5. Carcia, David F., Swimming Pools, Daly Technical Books Publishers Ltd., Fuengirola, Spain, 2005.
6. Blythe Lucero, The 100 best Swimming Drills, Meyer & Meyer Sports (UK) Ltd. 2008

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SEMESTER –VI

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/601	Adventure Sports	3	48	30	45	75
BSC/CC/602	Sports Technology and Innovation	2	32	20	30	50
BSC/CC/603	Philosophy of Sports Coaching	2	32	20	30	50
BSC/DSC/03	Sports Pedagogy	3	48	30	45	75
BSC/DSC/04G	Tests, Measurements and Evaluation: Swimming	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/601	Adventure Sports	1	32	10	15	25
BSC/DSC(P)/ 03G	Sports Pedagogy	1	32	10	15	25
BSC/DSC(P)/ 04G	Tests, Measurements and Evaluation: Swimming	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 604G	Gender Based Sports Training: Swimming	4	128	50	50	100
BSC/CCP/ 605G	Practical: Swimming	6	192	75	75	150
	TOTAL	**25**	**608**	**275**	**350**	**625**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course,
GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

SEMESTER –VI

ADVENTURE SPORTS

COURSE CODE: BSC/CC/ 601

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/601	Adventure Sports	3	48	30	45	75

COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand about adventure sports and its classification
- Understand about mountain sports and their equipment and clothing
- Understand about water sports and their equipment and clothing
- Understand about aero sports and their equipment and clothing

Unit I

Introduction to Adventure Sports

1.1 Classification of Adventure Sports
1.2 Scope of Adventure Sports: New Trends, Training Institutes, Job Opportunities, Advantages & Disadvantages
1.3 Fitness Training: Physical Fitness Factors, Fitness Training & its Importance
1.4 Ethics & Qualities of an Adventure Expert.

Unit II

Mountain Sports

2.1 Definition of Mountaineering, History, Types: Trekking, Rock Climbing,Bouldering, Ice Climbing, Wall Climbing
2.2 Trekking: Mountain Manners, Trek Planning, Trekking sites in India.
2.3 Rock climbing: Principles, Route Planning, Holds, Equipment and Clothing
2.4 Knots: Thumb, Reef, Clove Hitch, Fisherman, Simple Bowline, Figure of Eight

Unit III

Water Sports

3.1 Types: Canoeing, Kayaking, Rafting, Scuba Diving, WaterSkiing
3.2 Adventure sports sites in India
3.3 Rafting & Kayaking: Equipment, Clothing & Techniques
3.4 Scuba Diving: Equipment, Clothing & Techniques

Unit IV

Aero Sports

4.1 Types: Ballooning, Hang gliding, Paragliding, Parasailing, Skydiving
4.2 Hang gliding & Paragliding: Equipment, Clothing & Techniques
4.3 Parasailing: Equipment, Clothing & Techniques
4.4 Sky diving: Equipment, Clothing & Techniques

PRACTICAL
Adventure Sports
COURSE CODE: BSC/CCP/601

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/601	Adventure Sports	1	32	10	15	25

UNIT-I

1.1 Camping
1.2 Trekking, Hiking
1.3 Rock climbing/ artificial
1.4 Canoeing, kayaking, etc.

UNIT-II

2.1 Designing adventure Sports programme for School Children – Individual and Groups
2.2 Designing adventure Sports programme Sports for Youth – Individual and Groups
2.3 Designing adventure Sports programme Sports for Middle Aged People – Individual and Groups
2.4 Adventure sports equipment and its application

Suggested Reading:

1. Anker Conrad, Mountaineering the freedom hill, kindle ed., 2017
2. Berry Matt, Adventure Sports Coaching,Routledge; 1st edition (April 1, 2015)
3. Bob Gaines, Mastering Sports and Trad Climbing, Kindle 2o18
4. Bob Gaines, Rock climbing for outdoor begineers, Kindle ed.,2020
5. Razzetta Sam, Canoe and Kayak Building the Light and Easy Way: How to Build Tough, Super-Safe Boats in Kevlar, Carbon, or Fiberglass (International marine-RMP), 2009
6. Randy pen, The handy box of knots: Useful knots for every situation, Indoor and Out,Sterling Innovation, 2017
7. Slight Steve and Ben Ainslie, The Complete Sailing Manual, 4th Edition, DK, 2017

SEMESTER – VI
SPORT TECHNOLOGY
COURSE CODE – BSC/CC/602

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/602	Sport Technology	2	32	20	30	50

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand the relevant technology and utilization of technology in sports.
- Understand the science of sports material and its implementation in enhance of Sports performance.
- Understand the different type of surface of play field.

UNIT - I

Sports Technology

1.1 Opportunities and challenges in sports technology.
1.2 The nature of Sports Technology and Data Science in sports performance
1.3 A scientific view on sports technology
1.4 Technologies for judging, umpiring and refereeing

UNIT – II

Material Science in Sports

2.1 Importance of Material Science in sports
2.2 The key aspects of materials processing, performance and disposal with respect to sustainability
2.3 Types of materials used in Playing Equipment, Balls, Footwear and sports garments.
2.4 Understanding the role of polymers in sports equipment

UNIT – III

Artificial Sports Surfaces

3.1 Modern surfaces for playfields, construction and installation of sports surfaces.
3.2 Types of surface materials: synthetic, wood, polyurethane. Artificial turf.
3.3 Importance of ergonomics in sports equipment
3.4 Maintenance of artificial turf and synthetic flooring. Case studies: synthetic sports surfaces

Suggested Reading:

1. Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) "Selection of Engineering Materials" UK: Butterworth Heiremann.
2. Finn, R.A. and Trojan P.K. (1999) "Engineering Materials and their Applications" UK: Jaico Publisher.
3. John Mongilo, (2001), "Nano Technology 101 "New York: Green wood publishing group.
4. Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982
5. Kozman, Cassidy and Jackson. Methods in Physical Education (W.B. Saunders Company, Philadelphia and London), 1952.

SEMESTER –VI

PHILOSOPHY OF SPORTS COACHING

COURSE CODE: BSC/CC/603

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/603	Philosophy of Sports Coaching	2	32	20	30	50

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand about introduction to and a comprehensive study of the philosophy of sport coaching.
- It is designed to examine the most significant questions that have arisen within the discipline of sports science.
- It may focus upon various ethical issues that arise within the sports and the function of games in human life.

UNIT-I

Introduction to Sports Coaching Philosophy

1.1 Meaning of Coaching Philosophy

1.2 Nature and significance of play and sports as a cultural phenomenon

1.3 Sport: An Historical Phenomenology

1.4 Fairness in sport: an ideal and its consequences

UNIT-II

Coaching Philosophy: Science and Art

2.1. Coaching: Art, Science, Skill, style and secret of successful coaching.

2.2. Effective Practices, Knowledge- what makes a coach.

2.3. A Coach- Teacher- Trainer-motivator-disciplinarian –scientist, Coach as aLeader and leadership style in Coaching.

2.4. Moral and ethical values of Sports, ethics in sports coaching.

UNIT- III

Developing a Coaching Philosophy

3.1. Philosophy of a Coach and development of own coaching philosophy.

3.2. Long term and short-term coaching conception, Aesthetic appreciation and Intellectual creativity in coaching.

3.3. Performance development, improvement, management and maintenance.

3.4. Coaching Philosophy for diverse athletes and coaching forcharacter,Leadership capacity and Responsible citizenship.

Suggested Reading:

1. Bucher, C.A.: Foundation of Physical Education, St. Louis: The C.V. Mosby company, 1983.
2. History and Philosophy of Sport and Physical Activity, Human Kinetics by R. Scott Kretchmar, Mark Dyreson, Matthew Liewellyn, John Gleaves, 2017.
3. Synder and Geoh: Professional preparation in Health Education, Physical Education and Recreation.
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5. Joseph, P.M.: Organization of Physical Education, Kandivila,: Old students Association, T.I.P.E.
6. Kamlesh, M.L. and Sangral, M.S.: History and Principles of Physical Education, Prakash Brothers, 1983.
7. Wuest and Bucher: Foundations of Physical Education and Sports, B.I. Publications Pvt. Ltd., New Delhi.
8. William, H.F.: Physical Education and Sports in Changing Society, Surjeet Publication, Delhi.

SEMESTER –VI
SPORTS PEDAGOGY
COURSE Code: BSC/DSC/03

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC/03	Sports Pedagogy	3	48	30	45	75

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand the current issue in sports coaching Pedagogy
- Understand various teaching and coaching methods and coaching aids
- Preparation of lesson plans for various sports skill and Presentation techniques
- Utilize various teaching and coaching aids for the conduction of sports coaching.

UNIT- 1

Introduction and current issue in Sports Coaching Pedagogy

1.1 Meaning and definition of sports pedagogy
1.2 Current issues in sports coaching pedagogy
1.3 Technology and sports coaching
1.4 Sports Coach Education framework

UNIT-II

Methods, Teaching and Coaching Aids

2.1 Meaning, Importance and Types of Teaching and Coaching Aids.
2.2 Criteria for selecting Teaching Aids: Availability, Modification and, Scientific Aids
2.3 Simulation Teaching: Meaning, Types and steps of simulation teaching.
2.4 Types of Teaching Methods: Lecture, Command, Discussion, Workshop, Project, Demonstration, Imitation methods, and whole part whole methods

UNIT-III

Coaching Lesson Plan and Presentation Technique

3.1 Lesson Planning: Meaning, Importance, Types and Principles of lesson plans.
3.2 Presentation Techniques: Personal and Technical preparation, Steps of presentation – Demonstration, Explanation, Practice and, Rectification.
3.3 Class Construction and Classification:
3.4 Methods of Sports Coaching: Simple to Complex, Known to Unknown, Whole-Part-Whole Method, and Learning by Doing.

Unit- IV

Methods applied to teaching and training in sports

4.1 The difference between learning and doing
4.2 Individual attention to the player in teaching and learning process, types of practice skill; Fixed, massed, variable and distributed practice.
4.3 Evaluation of sports training and teaching
4.4 Connecting sports training to Life skill

PRACTICAL
SEMESTER – VI
SPORTS PEDAGOGY (LESSON PLAN)

COURSE CODE: BSC/DSC(P)/ 03G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC(P)/03G	Sports Pedagogy (Lesson Plan)	1	32	10	15	25

- The students will practice 15 coaching lessons.
- They will appear practical examination (Final Lesson) and evaluated by both internal and external examiner.

Total marks 100
(Internal Marks 50 and external Marks 50)

Lesson plan:

Class formation
Introduction
Demonstration
Explanation
Kinesiological and Mechanical analysis
Rectification
Lead up activities
Class Dismissal

Evaluation	Internal assessment	External assessment
Class formation introduction and Reporting	10 marks	10 marks
Demonstration	10 marks	10 marks
Explanation	10 marks	10 marks
Rectification and class control	10 marks	10 marks
Lead up activities, dismissal part and Time Management	10 marks	10 marks
Total	**50 Marks**	**50 Marks**

Suggested Reading

1. Cassidy, T. (2004). Coaching methods. In C. Cassidy, R. Jones & P. Protrac (Eds). *Understanding Sports Coaching: The Social Cultural and Pedagogical Foundations of Coaching Practice* (pp26-37). London: Routledge.
2. Kidman, L. (2001). *Developing Decision Makers: An Empowerment Approach to Coaching*. Christchurch, NZ: Innovative Print Communications Bhardwaj, A. (2003). *New media of educational planning*. New Delhi: Sarup of Sons.
3. Kochar, S. K. (1982). *Methods and techniques of teaching.* New Delhi: Sterling Publishers Pvt. Ltd.
4. Sampath, K., Pannirselvam, A. &Santhanam, S. (1981). *Introduction to EducationalTechnology.* New Delhi: Sterling Publishers Pvt. Ltd.
5. Walia, J. S. (1999). *Principles and Methods of Education.*Jalandhar: Paul Publishers.

SEMESTER – VI
TESTS, MEASUREMENTS, AND EVALUATION: Swimming
COURSE CODE: BSC/DSC/04G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC/04G	Tests, Measurements, and Evaluation: Swimming	2	32	20	30	50

ESSENCE OF COURSE

The course enables students to learn test and measurement. Selection and Construction of test and Swimming performance ability test

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Knowledge about various test related to the game
- Understand the criteria of test selection.
- Knowledge about measurement of Physical performance.
- Understanding swimming performance ability test

UNIT-I

Introduction of Test and Measurement

1.1 Meaning of Test Measurement and Evaluation.
1.2 Nature and scope of evaluation programme.
1.3 Need and importance of evaluation in the field of physical education.
1.4 Principles of Evaluation.

UNIT--II

Measurement of Physical Performance:

2.1 Organic Functions:Cardiovascular and respiratory function

2.2 Cooper's 12 minutes continuous run-walk test and modifications12 minutes cycling test (Coopers)

2.3 Harvard step test and its modifications (High School and college level (Men and Women)

2.4 Tuttle Pulse ratio test; Hyman's Cardio pulmonary Index (CPI)

UNIT-III

Test and measurement – Swimming performance ability test:

3.1 Speed test (6x25m)

3.2 Endurance test: 800m test, 2000m test, 20x50m test, 6x200m test (at 85% R.I. 30 sec)

3.3 Technique check list, Stroke frequency, Stroke length and Maximum Heart rate test.

3.4 Swimming technique, start & turns evaluation test: 3x50m test and 57.5m test.

PRACTICAL
TESTS, MEASUREMENTS AND EVALUATION: Athletics
Course CODE: BSC/DSC(P)/04A

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC(P)/04A	Tests, Measurements and Evaluation: Athletics	1	32	10	15	25

UNIT-I

1.1.Harvard step test
1.2.Tuttle Pulse ratio test
1.3.AAHPER youth fitness test
1.4.Cooper 12 minutes run and walk test

UNIT-II

2.1. Speed test 30m, 60m sprint
2.2. Bench Press (Maximum Weight)
2.3 Coordination Assessment
2.4. Flexibility test

Suggested Readings

1. Bangsbo, J. (1994). Fitness training in football: A scientific approach. Bagsvaerd, Denmark: Ho+Storm.
2. Barron, H. M., &Mchee, R. (1997).A practical approach to measurement in physical education. Philadelphia: Lea and Febiger.
3. Barron, H.M. &Mchee, R. (1997).A Practical approach to measurement in physical education. Philadelphia: Lea and Febiger.
4. Kansal, D.K. (1996).Test and measurement in sports and physical education. New Delhi: D.V.S. Publications.
5. Mathews, D.K., (1973). Measurement in physical education, Philadelphia: W.B.SoundersCompnay.
6. Pheasant, S. (1996). Body space: anthropometry, ergonomics and design of work. Taylor & Francis, New York.
7. Phillips, D. A., &Hornak, J. E. (1979). Measurement and evaluation in physical education. New York: John Willey and Sons.

Sodhi, H.S., &Sidhu, L.S. (1984).Physique and selection of sports- a kinanthropometric study. Patiala: Punjab Publishing House.

Semester – VI

PRACTICAL

GENDER BASED SPORTS TRAINING: Swimming

COURSE CODE: BSC/CCP/604G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/604G	Gender Based Sports Training: Swimming	4	128	50	50	100

Learning Outcomes

- To improve technique of Backstroke.
- To improve technique of Breaststroke.
- To develop the skills of Water polo.
- To understand the knowledge of management of Swimming pool.

UNIT-I

Health and History background

1.1.Review of history and health records of female athletes
1.2.Important to be keep in your mind
1.3.Talent identification for the female swimmer
1.4.Making plan for the female athletes

UNIT-II

Female Athletes

2.1.Body weight , height and Composition
2.2.Strength and Power Output
2.3.Responsiveness to resistance training in women
2.4. Flexibility of Women swimmers

UNIT-III

Fitness Components for women athletes

3.1.Force abilities
3.2.Endurance abilities
3.3.Speed abilities
3.4.Coordinative abilities, Flexibility

UNIT-IV

Training for Women athletes

2.5 Characteristics during developmental stages
2.6 Physical fitness training
2.7 Dry land Training
2.8 Water training

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Designing training programme for women (different age)	20Marks	20Marks
Preparing Coaching schedule	20 marks	20 marks
Record book and Viva	10 Marks	10Marks
Total	50marks	50 marks

Semester – VI
Practical: Swimming
COURSE CODE: BSC/CCP/605G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/605G	Practical: Swimming	6	192	75	75	150

Learning Outcomes

- To understand motor ability test
- To understand specific fitness test
- To learn Swimming performance ability test

UNIT-I

Motor Ability Test 1

1.1.Maximum strength test
1.2.Explosive test
1.3.Speed ability
1.4.Speed and cardiovascular endurance

UNIT-II

Motor Ability Test 2

2.1.Strength endurance
2.2.Acceleration ability
2.3.Flexibility
2.4.Agility

UNIT--III

Swimming Specific Fitness Tests

3.1. Swimming Beep Test
3.2. Pulmonary Function Test
3.3. Health-Carter method of Somatotype
3.4. Flexibility test

UNIT-IV

Swimming performance ability test:

1.1. Speed test (6x25m)
1.2. Endurance test: 800m test, 2000m test, 20x50m test, 6x200m test (at 85% R.I. 30 sec)
1.3. Technique check list, Stroke frequency, Stroke length and Maximum Heart rate test.
1.4. Swimming technique, start & turns evaluation test: 3x50m test and 57.5m test.

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Skill proficiency	20Marks	20Marks
Fault correction and training plan	20 marks	20 marks
Officiating Proficiency of the events	20 marks	20 marks
Record book and Viva	15 Marks	15Marks
Total	75marks	75 marks

References

1. Maglischo, Ernest W., Swimming Fastest, Human Kinetics Publishers Ltd., Leeds, England, 2003.
2. Colwin, Cecil M., Swimming into 21st Century, Leisure Press, Illinois, U.S.A., 1992.
3. Counsilman, James E., The Science of Swimming, S. Chand & Company Ltd., New Delhi, India 1989.
4. G. Gregory Haff& N. Travis Triplett (PhD, CSCS,*D, FNSCA), Essentials of Strength Training and Conditioning, Fourth Edition, Human Kinetics Publishers Ltd. US, 2016.

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SEMESTER – VII

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/701G	Team Preparation and Match Analysis	3	32	30	45	75
BSC/CC/702	Community Coaching	3	32	30	45	75
SPORTS PRACTICAL						
BSC/CCP/ 701G	Team Preparation and Match Analysis	4	128	50	50	100
BSC/CCP/ 702G	Internship	8	256	50	150	200
BSC/CCP/ 703G	Aged People Sports Training: Swimming	4	128	50	50	100
BSC/D/704G	Dissertation: Research Proposal – Swimming	3	48	30	45	75
	TOTAL	**25**	**640**	**240**	**385**	**625**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course,
GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

SEMESTER – VII

TEAM PREPARATION AND MATCH ANALYSIS

COURSE CODE: BSC/CC/701G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/701G	Team Preparation and Match Analysis	3	48	30	45	75

COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Understand team preparation and match analysis
- Understand match preparation both individual and team sports
- Understand importance of pre match, in game and post-match
- Understand coach analysis intervention system

UNIT-I

Introduction to Team Preparation

1.1. Importance of team preparation and Match analysis
1.2. Team preparation for the competition period and competition schedule days
1.3. Match analysis its meaning, Need and importance of Match analysis
1.4. Equipment and technology required in match analysis

UNIT-II

Match Preparation Training both Individual and Team Sports

2.1. Team work and Tactics familiarity
2.2. Preparing alternate tactics both individual and team sports
2.3. Work, rest intensity training
2.4. Building targets into your training sessions

UNIT-III

Match Analysis

3.1 Coach Analysis Intervention System (CAIS)

3.2 Match analysis pre, during and post-match

3.3 Qualitative and quantitative analysis

3.4 Inclusion of Computer & Video Technology, Match analysis software

PRACTICAL

Team Preparation and Match Analysis

COURSE CODE: BSC/CC(P)/701G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/701G	Team Preparation and Match Analysis	1	32	10	15	25

UNIT-I

1.1 Video presentation and match analysis technology by modern software
1.2 Showing presentation on match analysis pre competition and during completion
1.3 Using video technology in individual and team sports
1.4 Mechanical analysis of sports movement and fault correction

UNIT-II

2.1 Match preparation training schedule and tactics in individual sports
2.2 Match preparation training schedule and tactics in team games
2.3 Use of Coach Analysis Intervention System (CAIS)
2.4 Application ofModern Sports Officiating Technology

SEMESTER – VII
COMMUNITY COACHING
COURSE CODE: BSC/CC/702

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/702	Community Coaching	3	48	30	45	75

COURSE LEARNING OUTCOME:

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

- Understand about community coaching
- Understand differentiation between community coaching and other types of coaching
- Volunteer services to the community for enhancement of societal value of sports
- Benefit of community coaching for society

Unit-I

Introduction of Community Sports Coaching

1.1 Meaning and definition of community coaching
1.2 Need and importance of Community coaching
1.3 Scope of community coaching
1.4 Differentiation between community coaching and other types of coaching

Unit-II

Methods of SportsCoaching in Community

2.1 Framework for Coaching in Community
2.2 Coaching for Relationships and Coaching for Reflection
2.3 Coaching for Results and Coaching for Reach
2.4 Coaching for Resilience

Unit-III

Community Coaching and Development of Society

3.1 Counseling and motivating athletes and parents for participation in sports Community coaching in Society development
3.2 Personal and transferability Developments
3.3 Life Skill Developments
3.4 Coaching Benefits of Communities

Unit-IV

Community Development: Role of Sports

4.1.Community Developmentthrough Sports for all imitative; Planning and execution.

4.2.Role of Community Coaching Organizations: Economic value, Health and environmental benefits, and social importance.

4.3.Art of counseling for active leaving and sports participation of novice participation

4.4. Art of effective communication for parents and spectatorsfor participation in sports

Suggested Reading

1. *Community Coaching Development,Khelo India schemes,* Government of India Ministry of Youth Affairs and Sports-2019.
2. Mary Emery, PhD, Ken Hubbell and Becky Miles-Polka, A Field *Guide to Community Coaching,* Published with support from the W. K. Kellogg Foundation, the Annie E. Casey Foundation, (Kellogg Action Lab at Fieldstone Alliance, and the Northwest Area Foundation-2011)
3. Rob Wilson, Chris Platts, *Managing and Developing Community* Sport, Published, 2018,CRC Press.

Semester – VII
PRACTICAL
INTERNSHIP
COURSE CODE: BSC/CCP/702G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/702G	Internship	8	256	50	150	200

Internship is an important component of sport coaching that provides students with the opportunity to gain applied practical experience in the field of sport coaching. It allows a student to employ what is learned in class in a supervised environment, which is critical in order to further develop professional skills and assure quality practice. Each student admitted to the B.Sc. in Sports Coaching course shall undergo 8 Credits (256 hours) compulsory internship programme at SAI Centre s under Ministry of Youth Affairs and Sports (MYAS). The internship programme shall be of 200 marks.

LEARNING OBJECTIVES OF INTERNSHIP:

The internship would examine the implementation of curriculum-based knowledge acquired by the Under Graduate Students which includes the following learning objectives:

- Theories about coaching requirement and relevance for the sports and exercise participants.
- The social context within which sport coaching is applied.
- Methods and ways to carry out studies in the sports coaching with which the student shall be able to reflect upon the way these methods are applied for Sport Coaching as a profession.
- To acquire knowledge of the challenges faced by sports coaches and the ways to address them.

ASSESSMENT CRITERIA FOR INTERNSHIP:

Sr. No.	Please evaluate this student intern on the following items:	Max. Marks
1.	Arrived to work on-time (Punctuality, sincerity, dedication and devotion towards work)	15
2.	Behaved in a professional manner and dealing with players at SAI Centre	15
3.	Effectively performed Assignments given by Chief Coach/ Senior Coach/Asst. Coach of SAI.	15
4.	Communication skills PPT presentation to Players of the Centre (Sports related topic)	15
5.	Teaching lesson Ability (5 lesson)	15
6.	Coaching lesson Ability (5 lesson	15
7.	Warming up (General & Specific), Cooldown and Conditioning class taken Ability	15
8.	Officiating ability of the Game	15
9.	Observation of records and register of the SAI Center and report writing on records and registers	15
10.	Observation of on Maintenance of Equipment and Play fields (Report writing about Maintenance of Play field and equipment)	15
Total		**150**
INTERNAL ASSESMENT		**50**
TOTAL MARKS FOR INTERNSHIP		**200**

SEMESTER – VII

AGED PEOPLE SPORTS TRAINING: Swimming

COURSE CODE: BSC/CCP/703G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/703G	Aged People Sports Training: Swimming	4	128	50	50	100

Learning Outcomes

- To understand health and history background
- To understand systematization of sports training
- To develop fitness components
- To develop different training for Aged People

UNIT-I

Health and History background

1.1.Review of history and health records of an Aged people
1.2.Fitness assessment for older adult
1.3.Balance assessment for older adult
1.4.Endurance assessment for older people

UNIT-II

Balance exercises for aged people

2.1 Tai chi
2.2.Standing one foot
2.3.Heel to toe walk
2.4.The balance walk, safety tips for all exercises

UNIT-III

Basic strength training for Aged people

3.1.Freehand exercises for strength development
3.2.Back and Trunk exercises
3.3. Upper body strengthen exercises
3.4.Lower body strengthen exercises,safety tips for all exercises

UNIT-IV

Training for Aged people

1.1.Physical fitness training
1.2.Cardiovascular training
1.3. Flexibility Training programme
1.4.Water resistance training

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Designing fitness and conditioning for masters athletes	15 Marks	15 Marks
Designing coaching programme	15 Marks	15 Marks
Designing Training programme	10 Marks	10 Marks
Motor quality development training and administration proficiency	10 Marks	10 Marks
Total	50 Marks	50 Marks

SEMESTER – VII

DISSERTATION: RESEARCH PROPOSAL - Swimming

COURSE CODE: BSC/D/704G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/D/704G	Dissertation: Research Proposal - Swimming	3	48	30	45	75

LEARNING OBJECTIVES

To enable the students to develop skills and competencies for conducting rigorous, theoretically correct and practically relevant research in Bachelors of Science Sports Coaching.

LEARNING OUTCOME:

- By completing the Bachelors thesis, students will demonstrate their academic ability, i.e., their ability to think critically, write according to academic standards, and conduct independent research that is critical, methodical, and systematic.
- A student admitted to B.Sc. Sports Coaching must submit his/her Synopsis and get it approved by the Head of Department on the recommendation of Department Research Committee (DRC).
- The beginning of the process of Dissertation will start in the beginning of VII Semester in form of preparation and submission of synopsis, facing and getting final approval from the DRC.
- The Final Dissertation must be submitted not less than one week before the beginning of the VIII Semester Examination.
- The candidate has to face the Viva-Voce examination conducted by DRC.

Structure of the Synopsis:

1. **Title Page**
2. **Certificate**
3. **Acknowledgements**
4. **Table of Contents**

- Chapter 1: Introduction
- Chapter 2: Review of Literature
- Chapter 3: Methods

References

Evaluation:

Credit: 3

75 Marks

The students will present their Synopsis through PPT in front of Supervisor and Departmental Research Committee (DRC). Both Supervisor and DRC will evaluate their synopsis presentation and Viva.

Internal Assessment 30 marks (Supervisor)

External Assessment 45 marks (DRC)

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SEMESTER – VIII

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
THEORY						
BSC/CC/801	Science of Yoga	3	48	30	45	75
BSC/CC/802	Introduction to Paralympic and Special Olympic	3	48	30	45	75
PRACTICAL						
BSC/CC(P)/801	Science of Yoga	1	32	10	15	25
BSC/CC(P)/802	Introduction to Paralympic and Special Olympic	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/ 803G	Advance Coaching Lesson: Swimming	6	192	75	75	150
BSC/CCP/ 804G	High Performance Sports Training: Swimming	4	128	50	50	100
BSC/D/805G	Dissertation: Swimming	7	112	75	100	175
	TOTAL	**25**	**592**	**280**	**345**	**625**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course**,** GE=Generic Elective, SECC= Skill Enhancement core course CCP= Core course practical, D = Dissertation

SEMESTER – VIII

SCIENCE OF YOGA

COURSE CODE: BSC/CC/801

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/801	Science of Yoga	3	48	30	45	75

LEARNING OUTCOME

After completing this course, the students will be able to acquire knowledge about

- Understand the concept of yoga and historical background.
- Understand different school of yoga
- Practical and theoretical knowledge about yogic practice of Kriyas, asanas, pranayamas, and different meditation techniques.

UNIT – I

Introduction and historical background of Yoga

1.1 Meaning, Definitions and Historical background of Yoga
1.2 Aim & Objectives of Science Yoga, Ayurveda: Yoga and Vayayama
1.3 Contribution of ancient Yogic text for the development of Science of Yoga
1.4 Application of Yoga in modern society

UNIT – II

Different Schools of Yoga

2.1 Introduction to different schools of Yoga.
2.2 The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi.
2.3 Types of Yoga: Karma Yoga,Bhakthi Yoga, Jnana Yoga, Raja Yoga, Hatha Yoga etc.
2.4 Meditation, Strategies for relaxing body and mind, Various method of relaxation techniques

UNIT – III

Introduction to various practices of Yoga and its implications in sports specific training

3.1 Shatkarma – Meaning, Types, techniques, Precautions and Benefits
3.2 Asanas - Meaning, Definitions, Types, Techniques, Precautions and benefits
3.3 Pranayama - Meaning, Definitions, Types, Techniques, Precautions and benefits
3.4 Mudras – Meaning, Types, Technique, Precautions and Benefits

UNIT-IV

Yoga Art and Science

4.1Yoga is an art, Science and Philosophy: a critical analysis
4.2 Difference between yogic practices and physical exercises
4.3 Yoga for lifestyle diseases
4.4 Application of Yoga in sports performance

PRACTICAL

Science of Yoga

COURSE CODE: BSC/CC(P)/801

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC(P)/801	Science of Yoga	1	32	10	15	25

Unit-I

Yogic Kriya, Yogasana and Mudras and its practices and implication in Sports

1.1.Kriya-kapalbhati, Trataka, Nauli
1.2.Asana- Standing, Sitting, Laying
1.3 Surya Namaskar and Chandra Namaskar
1.4 Mudras

Unit- II

Pranayama and Dhayana and its practices and implication in Sports

2.1. Pranayama- Balancing, Heating, Cooling
2.2. Dhyana for beginners and intermediates
2.3 Stress management through yoga
2.4 Development of concentration through yoga

SUGGESTED READING

1. Muktibodhananda S. (2013). *Hatha Yoga Pradipika*, Munger, Bihar School of Yoga Publication (3rd ed.). ISBN-10:9788185787381
2. Niranjananda S. S. *GherandaSamhita*. (2012).Munger, Bihar School of Yoga. Publication ISBN-9789381620199
3. Maheshananda S, Sharma B.R., Sahay GS, BodhaR.K, Jha B.L, Bharadwaj C.L. (2009).*Siva Samhita*.Lonavalla,Kaivalyadhama Publication. ISBN: 9788189485535
4. Maheshananda S, Sharma B.R, Sahay G.S. (2005). *VasisthaSamhita*. LonavallaKaivalyadhama Publication. ISBN:8189485377
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6. Satyananda S.S. (2004). *Asana Pranayama Mudra Bandha*,Munger,Yoga Publications Trust, Bihar,India. ISBN: 8186336141
7. Nagarathna R, Nagendra H.R. (2008).*Yoga for Promotion of Positive Health*. Vivekananda Yoga Research Foundation Swami Vivekananda Yoga Prakashana. ISBN:9788187313083
8. Iyengar B.K.S. (2003). *Light on Yoga*, USA, HarperCollins. ISBN: 8172235011
9. Mondal S. (2013). Science of exercise: ancient Indian origin. *J Assoc Physicians India* . 61: 40-42.

SEMESTER – VIII

INTRODUCTION TO PARALYMPIC AND SPECIAL OLYMPIC

COURSE CODE: BSC/CC/802

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/802	Introduction to Paralympic and Special Olympic	3	48	30	45	75

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- To understand the Paralympic sport, rules &regulations and also learn the history of Paralympic
- Understand the classification and laws of Paralympic sports
- Understand the Special Olympic rules and regulation.
- Understand Special Olympic sports events, equipment and training.

COURSE CONTENTS

UNIT-I

Paralympic Sports

1.1 History of Paralympic movement and Special Olympics.

1.2 Rules and regulations of Paralympic.

1.3 Paralympic Committee: International and National

1.4 Ceremonies of Paralympic: opening, closing and event management

UNIT-II

Paralympics Sports Classification

2.1 Introduction to Paralympic sports classification.

2.2 Eligibility criteria: medical classification & functional classification.

2.3 Steps of Classification: eligible impairment, minimum disability criteria and sport class.

2.4 Category of summer & winter Paralympic

UNIT-III

Paralympic Laws

3.1 System of Paralympic Governance on National and International Level.

3.2 Fundamental principles of Paralympic movement.

3.3 Human Right in Paralympic context.

3.4 Performance enhancement regulation in Paralympic context: medicine, equipment and new technology.

UNIT-IV

Special Olympic Sports Events, Equipment and Training

4.1 Special Olympic Sports events and its Classification, rules and regulation.

4.2 Special Olympic Sports Equipment and its utilization

4.3 Special Olympic Sports Training Methodology and New Technology

4.4 Preparation of Officials, Coaches and Supporting Staff for Special Olympic

PRACTICAL

INTRODUCTION TO PARALYMPIC AND SPECIAL OLYMPIC

Course CODE: BSC/CC(P)/802

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/802	Introduction to Paralympic and Special Olympic	1	32	10	15	25

UNIT-I

1.1 Designing various types of exercises for impaired muscle power person
1.2 Designing various types of exercise for limb deficiency person
1.3Designing various types of exercise and sports for Paralympic Sports Person
1.4 Paralympic Sports Events and planning.

UNIT- II

2.1 Designing various types of exercise and Sports for Hearing Impairment
2.2 Designing different types of exercise and Sports for Vision Impairment
2.3 Designing different types of exercise and Sports for Intellectual Impairment
2.4 Special Olympic Sports events

Assessment of individual potential and design special training plan

SUGGESTED READING

1. "Assistive technologies". Spaulding Framingham. Retrieved September 5, 2012.
    a. 2004. 376 ps.
2. Anoop Jain, "*Adapted Physical Education*" Sports Publications, Ashok Vihar Delhi-52
3. Arthur G. Miller & James, "Teaching Physical Activities to impaired youth" John Wilag& Sons Inc. Canada.
4. Arthur S. Daniels &Euilya, "Adapted Physical Education", Harpet& Row Publisher-New York.
5. Auxter, Byler, Howtting, "Adapted Physical Education and reactions" Morbey-St. Louis Missouri.
6. Bailey S. Athlete First: A History of Paralympic Movement. Wiley, 2008.
7. Brittain, Ian, Beacom, Aaron (Eds.), "The Palgrave Handbook of Paralympic Studies", Palgrave Macmillan, UK.
8. Elgar Publishing, 2011. 584 ps.
9. Ian S. Blackshaw. International Sports Law: An Introductory Guide. Springer, 2017.
10. James A. R. Nafziger, Stephen F. Ross. Handbook on International Sports Law. Edward
11. K. Park, "Preventive Social Medicine M/s BanaridasBhanot Publishers Prem Nagar Jabalpur.

12. Nafziger, James A. R.. International sports law. Ardsley, N.Y. : Transnational Publishers,
13. Official Website of the Paralympic Movement • IPC,https://www.paralympic.org/.
14. Physical fitness: how to develop. New Delhi: Friends Publication.
15. Ronald W. French, & Paul J., "Special Physical Education", Charles E. Merrics Publishing Co.Edinburgh, Ohio.
16. Ryan Gauthier. The International Olympic Committee, Law, and Accountability. Taylor& Francis, 2017. 220 ps.
17. Scherer, Marcia and Stefano Federici (2012). Assistive Technology Assessment Handbook. CRC Press. p. 425. ISBN 9781439838655.
18. Shekar KC, Adapted Physical Education (KhelSahitya Kendra: New Delhi)-2005
19. Sons, 2008 г. 302 ps.
20. Steve Bailey. Athlete First: A History of the Paralympic Movement. John Wiley &
21. Winnick JP, Adapted Physical Education and sport Human Kinetics USA, 2005 Uppal, A. K. (1990).

SEMESTER – VIII

ADVANCE COACHING LESSON: Swimming

COURSE CODE: BSC/CCP/803G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/803 G	Advance Coaching Lesson: Swimming	6	192	75	75	150

- The students will practice 15 coaching lessons for elite players.
- They will appear practical examination (Final Lesson) and evaluated by both internal and external examiner.

Total marks 100

(Internal Marks 50 and external Marks 50)

Lesson plan: Class formation
Introduction
Demonstration
Explanation
Kinesiological and Mechanical analysis
Rectification
Performance analysis
Lead up activities
Class Dismissal

Evaluation	Internal assessment	External assessment
Class formation introduction and Reporting	10 marks	10 marks
Demonstration	10 marks	10 marks
Explanation	10 marks	10 marks
Rectification and class control	10 marks	10 marks
Performance Analysis	10 marks	10 marks
Total	**50 Marks**	**50 Marks**

SEMESTER – VIII
HIGHPERFORMANCE SPORTS TRAINING: Swimming
COURSE CODE: BSC/CCP/804G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/804 G	High Performance Sports Training: Swimming	4	128	50	50	100

Learning Outcomes

- To improve technique of Backstroke.
- To improve technique of Breaststroke.
- To develop the skills of Water polo.
- To understand the knowledge of management of Swimming pool.

UNIT-I

Training systems

1.1. Zone - 1 – Aerobic (A1, A2, A3)
1.2. Zone – 2 – Anaerobic Threshold
1.3. Zone – 3 – High performance endurance
1.4. Zone – 4 – Anaerobic (Race – Pace training, lactic acid accumulation) and Zone – 5 – Sprint

UNIT-II

Warming Up and Cooling/Limbering Down :

2.1. Important and Types of Warming Up and Cooling down
2.2. Different method of doing Warming Up and Cooling down on Land and Water.
2.3. Specific Warming Up and Cooling down procedure for competition.
2.4. Quicker recovery technique for swimmers

UNIT-III

Dry Land Exercise and Muscles to be use in Swimming

3.1. Dry land exercises (Equipment and Calisthenics) for Freestyler and Butterfly swimmer and muscle chart.
3.2. Dry land exercises (Equipment and Calisthenics) for Breaststroke and Backstroke swimmer and muscle chart.
3.3. Dry land exercises (Equipment and Calisthenics) for Backstroke swimmer and muscle chart.
3.4. Values of Physical Activities other than swimming for swimming.

UNIT-IV

Development of motor abilities for Swimmers in water

1.1. Means and Method of development motor abilities of Swimmers in water: Increase agility, Increase acceleration Coordinative abilities Speed, Strength, Improve conditioning, Improve balance,Increaseflexibility,Improve Endurance
1.2. Sauna and steem bath or Swimmers
1.3. High altitude swimming training
1.4. Creating Proper Attitudes (Behavioral, Training Aims, Recovery and Diet)

Suggested Reading: Athletics

1. Tyson. P& Binder. D (2013), *Coaching Cross Country Successfully*, Human Kinetics.
2. Walter F.A.M (2008), *Coaching and Care of Athletics Performance*, Sports Education Technologies, New Delhi.
3. Wilber R.L. (2004), *Athletic Training and Athletic Performance*, Human Kinetics.
4. Zeigler E.F. (2008), *Applied Ethics for Sports & physical Activity Professionals*, Sports Education Technologies.
5. Oliver D. & Healy D. (2005), *Athletics Strength for Women*, Human Kinetics.
6. Jacoby E.D. & Fraley B. (1995), *Complete Book of Jump*, Human Kinetics.
7. Doherty K (2007), *Track and Field Omni Book, 5th Edition*, Tafnews Press.
8. USA Track and Field (2000), *USA Track and Field Coaching Manual*, Human Kinetics.
9. Webster F.A.M. (2007), *The Science of Athletics*, Sports Education Technologies.
10. Friel J. (2009), *The Triathletes Training Bible, 3rd Edition*, Velo Press
11. Martin D.E. & Coe P.N. (1997), *Better Training for Distance Runner*, 2nd Edition, Human Kinetics.
12. Benyo R. (1998), *Running Past 50*, Human Kinetics.
13. Kumar P. (2007), *Historical Development of Track and Field*, Friends Publication, New Delhi.
14. Puleo J., Milroy P. (2010), *Running Anatomy*, Human Kinetics.
15. Greene L., Pate R. (2004), *Training for Young Distance Runners*, 2nd Edition, Human Kinetics.

SEMESTER – VIII

DISSERTATION: Swimming

COURSE CODE: BSC/D/805G

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/D/805G	Dissertation: Swimming	7	112	75	100	150

DISSERTATION

This document provides preparation for Dissertation including guidelines for structuring the contents. For style, structure and presentation of the Dissertation, students will consult their respective supervisors and refer to style manuals or reference guides lines given by University.

Preparation of Manuscript and Copies

The Dissertation needs to be prepared using a standard text processing software and must be printed in black text (color for images, if necessary) using a laser printer or letter quality printer in standard type face (Times New Roman/ Arial).

The Dissertation must be printed or photocopied on both sides of white paper. All copies of Dissertation pages must be clear, sharp and even, with uniform size and uniformly spaced characters, lines and margins on every page of good quality white bond paper of 75 gsm or more. **(How so ever the students are advised to prepare in the format given and submit in PDF Format to their respective Guide and to the Department duly signed by them, the hard copies as per the specification provided has to be submitted for record.)**

Dissertation should be free from typographical errors.

Binding

The student should submit the copies of the Dissertation in fully bound form (soft cover) or a partially bound form (coiled wire binding, clamping, or filing). Once the Dissertation is accepted, it is the student's responsibility to get it properly bound before depositing the required number of copies with the Department concerned. **The front cover of the bound copy should be the same as the title page of the Dissertation.** The front cover should have printing on the side to include the author's name, abbreviated thesis title (optional), degree, department, and the year.

Note: The students will follow the guidelines for their Dissertationgiven by the University.

TABLE OF CONTENTS

Statistical Analysis

ANALYSIS OF DATA AND RESULTS OF THE STUDY ~~36-53~~

Discussion of Hypotheses

Discussion of Findings

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS ~~54-60~~

Summary

Conclusions

Recommendations

APPENDICES ~~61-63~~

Appendix A ~~64-67~~

Appendix B ~~68-75~~

REFERENCES

N.B.All the students will submit theirDissertation in a particular date notified by the HOD. Both supervisor and external examiner will evaluate the Dissertation. The student will present their chapters through power points.

Total Marks 175

Internal assessment: 75 Marks and External Assessment 100 Marks.