



**राष्ट्रीय खेल विश्वविद्यालय
मणिपुर
केन्द्रीय विश्वविद्यालय
युवाकार्यक्रम एवं खेलमंत्रालय
भारत सरकार**

**NATIONAL SPORTS UNIVERSITY
MANIPUR, INDIA
Central University
Ministry of Youth Affairs and Sports
Government of India**

**Bachelor of Science in Sports Coaching
(B.Sc. Sports Coaching)
Specialization: Archery**

SCHEME OF EXAMINATION, STRUCTURE & COURSE CONTENT

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: Archery****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/103B	Historical Development and Organizational Structure: Archery	3	48	30	45	75
BSC/GE/01	Introduction to Information Technology 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/104B	General Conditioning and Performance – I: Archery	4	128	50	50	100
BSC/CCP/105B	Practical: Archery	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 be 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 Sport Events
- 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 University Games, 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
- 4.2 Indian Olympic Association – Objectives Structure and Functions, State Sports Association/Sports Academy: Objective Structure and function,
- 4.3 Corporate Sports Promotion. School, College and University Sports Culture
- 4.4 National, State and Sports Awards: Individual and Institutional, Financial scheme and support etc.

SUGGESTED READING

1. Deshpande S. H., Physical Education in Ancient India, Bharatya Vidya 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

COURSE LEARNING 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 gland 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; 2nd Edition
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 - CBS Nursing.
6. Janet Parker The Human Body Atlas Om Books Publication Comp. Inc. 2006.
7. Ken Ashwell The Student Anatomy of Exercise Manual MedTechan Imprint of Scientific 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., 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: Archery

COURSE CODE: BSC/CC/103B

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

COURSE LEARNING OUTCOMES

After completing this course, the students will able to

- Acquire knowledge of history and development of archery.
- Knowledge about history of Sports Coaching
- Understanding types Bow and nomenclature
- Understanding basic knowledge of Nine step

Unit- I

Historical Background of Archery

- 1.1. Evolution and Historical Stages of Archery
- 1.2. History and Development of Archery in India
- 1.3. Formation, Structure & Functions of WA
- 1.4. Formation, Structure & Functions of AAI

UNIT- II

Historical Development of Sports Coaching

- 2.1 Historical development of Sports Coaching in India.
- 2.2 Historical development of Archery coaching in India.
- 2.3 Modern Archery events in National and International Level
- 2.4 Modern Archery training center structure and its facilities

UNIT-III

Parts of Bow and Arrow, Accessories, Types of Bow.

3.1. Parts of Bow and Arrow: Handle, Grip, Riser, Stabilizers, Stabilizer Weight, V-Bar, Extender, Damper, Arrow Rest, Button, Clicker, Sight window, Sight, Limb (Upper limb, Lower Limb), Bow Nock, String groove, String, String Loop, Center Serving, Nock Point

3.2 Parts of Arrow: Arrow Shaft, Arrow Point, Arrow Nock, Fletch.

3.3 Accessories: Finger Tab, Quiver, Chest Guard, Arm Guard, Bow Sling, Bow Stand.

3.4 Types of Bow: Long Bow, Recurve Bow, Compound Bow.

UNIT- IV

Archery Safety Measure, Range Etiquette and Field Layout

- 4.1. Individual and Group Safety
- 4.2. Equipment Safety
- 4.3. Range Etiquette
- 4.4. Field Layout



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. Message Board, Internet chatting voice chat 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
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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
- 3.4 Written 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: Archery

Course Code: BSC/CCP/104B

BSC/CCP/ 104B	General Conditioning and Performance – I: Archery	4	128	50	50	100
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Learning outcomes:

- Understand general, specific and cool down exercises
- Understand physical fitness test of different components
- Understand weight training equipments required for athletics
- Understand general weight training exercises

UNIT-I

General warming-up, Specific warm-up and cooling down exercises

- 1.1 General and specific warming-up exercises.
- 1.2 Warming up for a specific training session and before competition
- 1.3 Cooling down exercises after a specific training session.
- 1.4 Organization of warming up and cooling down exercises.

UNIT-II

Physical fitness test

- 2.1 Speed test- 30 meter dash/ 50 meter dash.
- 2.2 Agility test- Shuttle run/ Burpee test.
- 2.3 Flexibility test- Sit and reach test/Scott and French test.
- 2.4 Coopers 12 minutes run and walk test.

UNIT-III

Weight training equipments and exercises

- 3.1 Modern weight training equipments and its set and repetition system.
- 3.2 Free weights, single station Gym and Malty gym
- 3.3 Various types of freehand exercises for development of strength
- 3.4 Medicine ball exercises

UNIT-IV

Weight training exercises

- 4.1 General weight training exercises for shoulder and arm for archers
- 4.2 Weight training exercises for chest
- 4.3 Weight training exercises for back
- 4.4. Weight training exercises for lower extremities

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test All the fitness components	25 Marks	25 marks
Sports Performance	25 marks	25 marks
Total	50 Marks	50 Marks

SEMESTER - I

PRACTICAL: Archery

Course Code: BSC/CCP/ 105B

BSC/CCP/ 105B	Practical: Archery	6	192	75	75	150
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Learning Objectives:

- Understand the basic skill of archery
- Understand and practice the mimetics with tackle
- Understand fundamentals techniques of archery
- Understand the part of bow and its accessories

Memetic without tackle.

1.1 Stance: square stance, open stance, close stance.

1.2 Grip, Nock, extend,

1.3 Draw, Anchor, aiming

1.4 Release and follow through.

Unit-1

Unit-2

Mimetics with tackle.

2.1 Stance: square stance, open stance, close stance.

2.2 Grip, Nock, extend,

2.3 Draw, ancho, aiming

2.4 Release and follow through.

Unit-3

Fundamental techniques, training and practice for rubber tube and bow.

3.1 Draw practice with rubber tube.

3.2 Draw practice with training bow(less poundage).

3.3 An exercise of repeated drawing the bow.

3.4 Drawing a bow and holding at full draw.

Unit-4

Parts of bow and its accessories.

4.1 Recurve bow.

4.2 Compound bow.

4.3 Arrow.

4.4 Additional items

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Fundamental techniques	25 Marks	25 Marks
Skill proficiency	25 Marks	25 Marks
Parts of bow, accessories items	15 Marks	15 Marks
Record book and Viva	10 Marks	10 Marks
Total	75 marks	75 marks

Reference

1. Edmund Burke, History of archery
An ITRHD Publication, Rural Sports & Games of India
2. Coach's Manual, Level III, Federation of Canadian Archers Inc.
USA Archery, Human Kinetics, 2012
3. Archery Australia Inc, Coaching and Standards Committee, Archery Australia
4. www.indianarchery.info/history
5. www.worldarchery.org/History-Archery
6. www.wikipedia.org/wiki/History_of_archery

SEMESTER – 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/203B	Rules, Regulations and Interpretation: Archery	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/204B	General Conditioning and Performance – II: Archery	4	128	50	50	100
BSC/CCP/205B	Practical: Archery	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

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 and analysis of projectile motion

UNIT-II

- 2.1. Mechanical analysis of fundamental movements with Kinovia soft ware
- 2.2. The 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*, Rouledge, 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,
- 2.3 Lipid 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

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

3.2 Fundamentals 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

1.2 Laboratory 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. Vassilis Mougios. 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: Archery

Course CODE: BSC/CC/203B

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

ESSENCE OF COURSE

This course will enable student to understand the rules, regulation and their interpretation of archery.

COURSE LEARNING OUTCOMES

After completing this course, the students will able to

- Knowledge about Fundamental techniques and its terminologies use in archery
- Knowledge about rules and regulation
- Understanding the size and shape of target
- Understand about archers safety measure rules

Unit-I

Fundamental techniques and its terminologies use in archery

- 1.1 Toxophilite, Field captain, Lady Paramount, End, Rebound, Foot markers, Bare bow, Draw weight, Pressure point, Mass weight, Instinctive shooting, Drawing hand, String hand, Bow weight, Centre line shaft size, String alignment, Spine of arrow, Bow tiller, Petticoat ,Centre shot bow, DOS.,
- 1.2. Draw, Chin Anchor, Side anchor, Hold, Aiming, Alignment of string and sight, Release and Follow through
- 1.3. Method of aiming: Instinctive method, Pre gap method, Post gap method, Point of aim method and sight method
- 1.4 Stringing the bow: Step through method, Cord bow stringer, Box bow stringer, Wall stringer, Loop method and Push pull method

Unit-II

Type of target face and use of target face and buttress

- 2.1. Target Face: Types, Description, Scoring Value, Tolerance of Measurements
- 2.2. Size of Target Buttress, Faces at different distances, Material of Target Faces used in Competitions
- 2.3. Outdoor target rounds
- 2.4. Indoor Target rounds, world archery events.

Unit-III

Archery Safety Measure, Range Etiquette and Field Layout

- 3.1. Individual and Group Safety
- 3.2. Equipment Safety
- 3.3. Range Etiquette
- 3.4. Field Layout



Unit-IV

Official

- 4.1 Duties of Judges (Technical Delegate) and Team officials
- 4.2 Dress regulations
- 4.3 Team official, scoring (scorer)
- 4.4 Control of equipment and Championship venue

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 and its 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 and Environmental 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.
8. Lancaster, R. N. and Leonardo, M. (eds.) 1997. *The Gender /Sexuality Reader: Culture, History, Political Economy.* New York: Routledge. 10
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

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: Archery

COURSE CODE: BSC/CCP/204B

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

Learning Outcomes:

- Understand different types of endurance test in Archery
- Ability to take specific warming up exercises class
- Organizing conditioning classes
- Ability to design conditioning classes for various age group

UNIT-I

Different endurance test in Archery.

- 1.1 12 minutes run and walk test
- 1.2 one mile run test
- 1.3 Harvard step test
- 1.4 2.4 km run test

UNIT-II

Endurance training in Archery

- 2.1 Basic endurance training model
- 2.2. Continues training model
- 2.3 Interval training model
- 2.4. Combination of continues and interval training model

UNIT-III

Muscular endurance

- 3.1 Muscular endurance exercises without weight training exercises
- 3.2 Exercises with own body weight
- 3.3 Muscular endurance training for novice, Intermediate and advance level athletes
- 3.4 Muscular endurance exercises with set, repetition, intensity and muscular endurance test

UNIT-IV

Organizing the conditioning classes

- 4.1 Learning Ability to take General and specific warm-up class
- 4.2. Conditioning Class organization, formation and control
- 4.3. Ability to take conditioning class for different age group of Archery events
- 4.4. Ability to design various Fitness and conditioning classes for various age group

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
Physical Fitness test All the fitness components	15 Marks	15 Marks
Performance in Archery	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: Archery

Course Code: BSC/CCP/205B

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

Learning Outcomes:

- Know about fundamental techniques, training and practice
- Understand about string the bow
- Shooting side choice and Eye dominant test
- Field marking and officiating practice, organizing competition.

Unit-1

String the bow.

- 1.1 Step through method.
- 1.2 Cord bow stringer.
- 1.3 Loop method.
- 1.4 Push pull method.



Unit-2

Fundamental techniques, training and practice.

- 2.1 Draw, chin, side anchor.
- 2.2 Hold, aiming.
- 2.3 Alignment of string and sight.
- 2.4 Release and follow through.

Unit -3

Shooting side choice and Eye dominant test

- 3.1 Shooting side choice
- 3.2 Cross palm method
- 3.3 Finger pointing method.
- 3.4 Card board method.

Unit - 4

Field marking and officiating practice, organizing competition.

- 4.1 Field layout
- 4.2 Target setting
- 4.3 Fixing the target faces, target numbers.
- 4.4 Flag and placing red and yellow flag.

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Stringing the bow	20Marks	20Marks
Fundamental techniques	20 marks	20 marks
Officiating Proficiency	20 Marks	20 Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

REFERENCES

1. **Coach's Manual, Level III, Federation of Canadian Archers Inc**
2. **World Archery (WA), Book I, II, III and IV.**
3. www.indianarchery.info/history
4. www.worldarchery.org/History-Archery
5. www.wikipedia.org/wiki/History_of_archery

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/303B	Technique and Technical Development: Archery	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/304B	General Conditioning and Performance – III: Archery	4	128	50	50	100
BSC/CCP/305B	Practical: Archery	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 AND SOCIOLOGY
COURSE CODE – BSC/CC/301

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

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
LABPRACTICAL						
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. Vinod Pustak Mandir. 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., Mepheron, 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
THEORY						
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, Lung Volumes 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 Lungfunction, 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 and Anaerobic Capacity measurement, its interpretation and designing specific training protocol
- 2.3 Measurement 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. Saunder company, 1971), 7thEdn.
6. Mathew, D.K. and Fox. E.L., Physiological Basis of Physical Education and Athletics. (Philadelphia: W.B. Saunder company, 1976).
8. Morehouse, L.E and Miller, A.T. Physiology of Exercise (saint Louis: The C.V. Mosby Co. 1976). 7thEdn.

SEMESTER – III

TECHNIQUES AND TECHNICAL DEVELOPMENT: Archery

COURSE CODE: BSC/CC/303B

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

ESSENCE OF THE COURSE

This course will enable the student to know more about equipment selection, techniques and technical development, common problems and archery rules.

COURSE LEARNING OUTCOME

After completing this course, the student will be:

- Able to select equipment
- Know about techniques and technical development of archery
- Find and correct common problems
- Know more about Archery Rules

Unit-I

Equipment Selection

- 1.1. Selection of bow, bow straightness, limb straightness, vertical string resistance and tiller
- 1.2. Bow length, bow weight and bracing height
- 1.3. Arrow selection, selecting and fitting arrow rest, pressure button
- 1.4. Initial nocking point setting, fitting the sight, clicker and stabilization.

Unit-II

Techniques and Technical Development: Shooting Form

- 2.1. Stance, Setup, Hooking
- 2.2. Grip, Draw, Anchor, Full draw, Extending, Release
- 2.3. Follow through, Breathing
- 2.4. Shooting in the wind.

Unit-III

Common problems

- 3.1. Aiming: unable to close the Non-dominant eye while aiming; arrow falls off the arrow rest while aiming, canting the bow while aiming.
- 3.2. Body posture: Shoulders moving up whilst raising the bow; moving the head towards the string; moving the body weight onto the bow foot; moving the body weight onto the rear foot; bow shoulder moving upwards and backwards.
- 3.3. Draw and Release: Drawing the bow with the arm instead of the muscles in the back; expanding the full draw with the arm instead of muscles from the posterior part of the shoulders and the back; string hits the bow arm, elbow and the back; vibration of the string fingers pressure on the string; grabbing the bow upon release
- 3.4. Target Panic.

Unit-IV

Rules of Archery

- 3.1. Shooting and conduct
- 3.2. Order of Shooting and Timing Control
- 3.3. Competition: Discipline, Classes and Category
- 3.4. Eligibility code for Athletes and Team Officials



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
- 3.3 Tactical 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.
5. David Joyce and Daniel Lewindon (2021) High-Performance Training for Sports, Human Kinetics.
6. Giam, C. K & The, K.C. (1994). Sport medicine exercise and fitness. Singapore: P.G.
7. Kurz Thomas and Mikolaj Zagorski (2001), Science of Sports Training, Stadion Publishing Co.,
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12. Uppal, A. K., (1999). Sports Training. New Delhi: Friends Publication.
13. Visual coaching pro 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 \(1 December 2015\)](#)
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11. <https://gatkaa.com>
12. <https://themanipurpage.tripod.com/culture/thangta.html>
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15. www.chaseyoursport.com

SEMESTER – III

GENERAL CONDITIONING AND PERFORMANCE – III: Archery

COURSE CODE: BSC/CCP/ 304B

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

Course Learning Outcomes:

- The students will able to understand basic speed and advance speed training
- Practically involved various speed training exercises
- Understand basic and advanced explosive strength training exercises
- Practically involved with various explosive strength training exercises

Unit -I

Basic Speed training in Archery

- 1.1. Warm up, Resistance band exercises,
- 1.2. Sprints, sled and pulls and pushes
- 1.3. Squat, jumping ropes
- 1.4. Sprint drills

Unit-II

Advance speed training

- 2.1 Quickness and acceleration/ deceleration training
- 2.2. Top end speed training
- 2.3. Speed endurance Training
- 2.4. Running down hill

UNIT-III

Basic Explosive strength development

- 3.1. Weighted step up exercises,
- 3.2. Overhead walking lunges exercises
- 3.3. Sprints
- 3.4. Speed ladder drills

UNIT-IV

Advance explosive strength development

- 4.1. Weighted dynamic step up exercises and training
- 4.2. Plyometric
- 4.3 Weight training with higher velocity
- 4.4. Variable Resistance training (Bands and chains), Ballistic exercises

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
Speed Training exercises	10 Marks	10 Marks
Explosive strength exercise	10 Marks	10 Marks
Total	50 Marks	50 Marks



Semester – III

PRACTICAL: Archery

COURSE CODE: BSC/CCP/ 305B

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

Learning Outcomes:

- Understand about shooting form
- Understand about fault and its correction
- Understand breathing techniques
- Understand equipments selection in archery

Unit-1

Shooting form

- 1.1 Stance, hooking.
- 1.2 Grip, draw, full draw.
- 1.3 Anchor, aiming
- 1.4 Release and follow through.

Unit-2

Fault and correction

- 2.1 Aiming.
- 2.2 Checking bow hand- wrist, elbow, grip, shoulder
- 2.3 Checking string hand- arm, elbow
- 2.4 Head angle checking.



Unit-3

Breathing technique

3.1 Stance

3.2 Set

3.3 Anchoring

3.4 Release and follow through

Unit-4

Equipment Selection

4.1 Selecting and fitting arrow rest.

4.2 Pressure bottom

4.3 Fitting the nock.

4.4 Bracing height check.

Evaluation Total Mark 150

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Skill proficiency with technical aspects	20Marks	20Marks
Fault correction and training plan	20 marks	20 marks
Equipment selection	20 Marks	20 Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

REFERENCES

1. Coach's Manual, Level III, Federation of Canadian Archers Inc.
2. World Archery (WA), Book I, II, III and IV.
3. Engh Douglas & Archery Fundamentals, Human Kinetics, USA
4. FITA Coach's Manual: Intermediate Level
5. Coach's Manual: Entry Level

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/403B	Tactics , Strategies , and Tactical Development: Archery	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/404B	General Conditioning and Performance – IV: Archery	4	128	50	50	100
BSC/CCP/405B	Practical: Archery	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.
2. Anshel, M.H.(2002). Sport Psychology: From Theory to Practice. Scottsdale, AZ: Gorsuch Scarbrick.
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, Champaign Illinois.
5. Burton, D., & Raedeke, T. (2008). Introduction to mental skills training. Sport psychology for coaches. Human Kinetics.
6. Cox, Richard H (2006) Sport Psychology Concept and Application, 3rd ed Wm.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.
4. Ellis and Henderson Running Injury Free Rodal Press (Pennsylvania) 1994
5. Garick Webb Sports Injuries Diagnosis and Management W.B. Saunders Co. (London) 1990.
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. Mathew, D. K. & Fox, E. L, (1971). Physiological basis of physical education and athletics. Philadelphia: W.B. Saunders Co.
8. M.A. Hutson Sports Injuries Oxford University Press (New York) 1996.
9. Marcia K. Anderson and Malissa Martin Quick Reference Guide for Sports Injury Management Williams & Wilkins (London) 1998.
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11. P.L. Karad Prevention and Treatment of Sports Injuries Khel Sahitya Kendra (New Delhi) 2011.
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: Archery

COURSE CODE: BSC/CC/403B

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

ESSENCE OF COURSE

This course will enable student to know more about shooting in the wind, archer's paradox, arrow pattern and tuning.

Learning Outcomes:

- Understand shooting in the wind
- Understand Archers Paradox
- Understand Five arrow pattern
- Understand Tuning in archery

Unit-1

Shooting in the wind

1.1 Introduction

1.2 The phenomenon that takes place when shooting in windy conditions

1.3 Measuring the archer's ability to adapt to controlled aiming in the wind

1.4 Methods of training in preparation to shooting in the wind

Unit-2

Archer's paradox

2.1 Definition

2.2 Stiffness

2.3 Choice of bow

2.4 Choice of arrow

Unit-3

Five arrow pattern

3.1 High arrow and equipment behavior

3.2 Low arrow and equipment behavior

3.3 Right arrow and equipment behavior

3.4 Left and Scattered arrow and equipment behavior

Unit-4

Tuning

4.1 Installation

4.2 Tiller and tuning tools

4.3 Tuning Methods

4.4 Troubleshooting



SEMESTER –IV

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



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 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. 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: Archery
COURSE CODE: BSC/CCP/404B

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

Learning Outcomes:

- Understand Coordination exercises and training for archers
- Understand flexibility exercises
- Understand balance exercises
- Designing flexibility and coordination exercise programme for different age group

UNIT-I

Coordination exercises and training

- 1.1. Hand eye coordination drills in archery
- 1.2. Multi-directional forms of sprinting, jumping and skipping
- 1.3. Obstacle running, Plyometric agility hurdles, box jumps
- 1.4. Jump rope and target exercises, K band jump training

UNIT-II

Flexibility exercises and Training

- 2.1. Static stretching exercises and training
- 2.2. Ballistic stretching exercises training
- 2.3. Dynamic stretching exercises training
- 2.4. PNF stretching

UNIT-III

Balance training exercises

- 3.1. Single leg balancing games, Stabilization and control drills
- 3.2. Balance exercises on a low balance beam
- 3.3. Jump in place with 180 or 360 turns while in flight
- 3.4. Push-ups on a stability ball, Dynamic balance and balance recover

UNIT-IV

Age specific Coordination training

- 4.1. Design exercise programme for Age group 8-10
- 4.2. Design exercise programme for Age group 10-12
- 4.3 Design exercise programme for Age group 13-16
- 4.4. Coordination exercises for different abled person

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
PNF stretching Proficiency	10 Marks	10 Marks
Coordination exercises	10 Marks	10 Marks
Total	50 Marks	50 Marks



Semester – IV

PRACTICAL: Archery

COURSE CODE: BSC/CCP/405B

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

Learning Outcomes:

- Understand five arrow pattern and its fault correction
- Understand and practice shooting in wind
- Understand Shooting form advance archers
- Maintenance of equipments and Making

UNIT-1

Five arrow pattern (fault/correction)

- 1.1. High arrow pattern and equipment behaviors
- 1.2. Low arrow pattern and equipment behaviors
- 1.3. Left arrow pattern and equipment behaviors
- 1.4. Right arrow pattern, scattered and equipment behaviors

Unit-2

Shooting in wind.

- 2.1. Ability to aim at various points around the target face.
- 2.2. The distance 'aiming off' for the current wind.
- 2.3. The change holding time.
- 2.4. Training for physical power.

Unit 3

Shooting form advance archers

- 3.1. Shooting form advance archers
- 3.2. Breathing techniques
- 3.3. Bow control.
- 3.4. Training for physical power.

Unit-4

Maintenance of equipment and making

- 4.1. Nocking point making.
- 4.2. Arrow rest fitting
- 4.3. Setting brace height, Making Nocking point
- 4.4. Shooting form

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
Skill proficiency with technical aspects	20Marks	20Marks
Fault correction and training plan	20 marks	20 marks
Breathing and bow control	20 Marks	20 Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

Reference:

- 1 FITA Coach's Manual: Intermediate manual
- 2. Coach's Manual: Level III

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/02B	Specific Motor Qualities of Sports and Games: Archery	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)/02B	Specific Motor Qualities of Sports and Games: Archery	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/504B	Age Group Sports Training: Archery	4	128	50	50	100
BSC/CCP/505B	Practical: Archery	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 be 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 of exercise.
- 1.3 Stretching- types of stretching, Passive Movements (Relaxed, Forced and passive - stretching) Active movements.
- 1.4 Strengthening Exercises, therapeutic 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

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1. Armstrong and Tucker, Injuries in sports (London: Staples press, 1964).
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. Philadelphia: W.B. Saunders Co.
9. Pandey, P. K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub.
10. Ray, Steven and Irvin Richard, Sports Medicine. (New Jersey: Englewood cliffa, Prentice Hall, 1983).
11. 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, 6th ed
3. 2020.
4. Jeukendrup Asker, Sports Nutrition, Human Kinetics, 2018.
5. Karpinski Christina and A. Rosenbloom Christine, Sports Nutrition: A hand book of Professionals, Academy of Nutrition and Dietetics, 2017.
6. Mizera Justyna and Krzysztof mizera, 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 of research and the research process.
- Identify various sources of information for literature review and data collection.
- Understand statistics and its application in sports research

UNIT-I

Introduction to Research

- 1.1 Meaning, definition and types of Research.
- 1.2 Characteristics of Good Research, Nature and Scope of Research in Sports.
- 1.3 Classification of Research, Location and identifying of research Problem, Criteria for Selecting a research Problem
- 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 of Statistics 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 of Table, Introduction to Graphic Techniques (Histogram, Bar chart and pie-diagram)
- 3.4 Measure of Central tendency, Calculation of Mean, Median & Mode

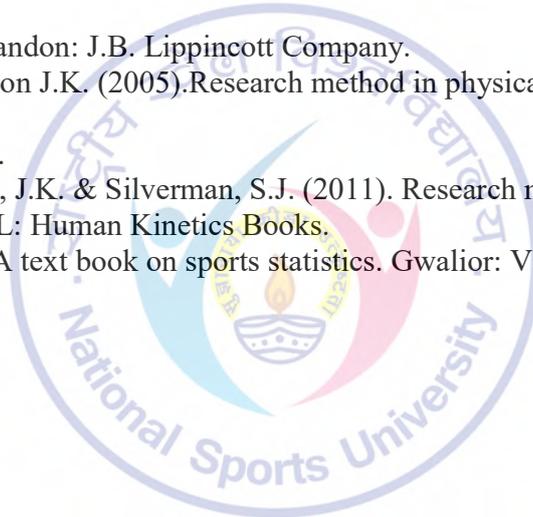
UNIT-IV

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

SUGGESTED READINGS

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. 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 Crowded 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 Graham the Ultimate Guide to Sport Event Management and Marketing, McGraw-Hill Education (19 January 1995)



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

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

Learning Outcomes:

- To understand motor abilities for archers and tournament management
- To understand anatomy and muscles

UNIT – I

Development of motor abilities for archers and tournament management

- 1.1 Motor abilities for archery players: Strength, flexibility, and coordinative abilities.
- 1.2 Body balance.
- 1.3 Specific or shooting strength.
- 1.4 Tournament management of competition.

UNIT - II

Anatomy and Muscle conditioning

- 2.1 Archery anatomy
- 2.2 Major muscles used in archery
- 2.3 Prime movers, antagonist, synergist and stabilizer group of muscles in different skill
- 2.4 Exercises for the shoulder, shoulder girdle, elbow and wrist joint muscles

UNIT - III

Psychology and mental control

- 3.1 Effect of activation on archery and other Physical factors
- 3.2 Implications
- 3.3 Mental control
- 3.4 Evaluation

UNIT - IV

Training Program

- 4.1 Planning
- 4.2 Equipment
- 4.3 Training
- 4.4 Evaluation

Semester – V

PRACTICAL

Specific Motor Qualities of Sports and Games: Archery

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

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

UNIT-I

- 1.1 Administration of strength test
- 1.2 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: Archery

COURSE CODE: BSC/CCP/504B

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

Learning Outcomes:

- Understand different age group training
- Stages of development in archery
- Understand and Involvement of specific Physical Training (SPT) drills
- Understand training programme in archery

Unit-I

Stages of development - training and equipment

- 1.1. Discover and explore
- 1.2. Progress
- 1.3. Apply and develop, excel and grow.
- 1.4. Mastery and archery for life.

Unit-II

Stages of development-training and practice plan

- 2.1. Discover and explore
- 2.2. Progress
- 2.3. Apply and develop, excel and grow.
- 2.4. Mastery and archery for life

UNIT-III

Developing a training program-1

- 3.1. Warm-up shooting activities
- 3.2. Stretch band shooting drill
- 3.3. Posture drill
- 3.4. Blank bale

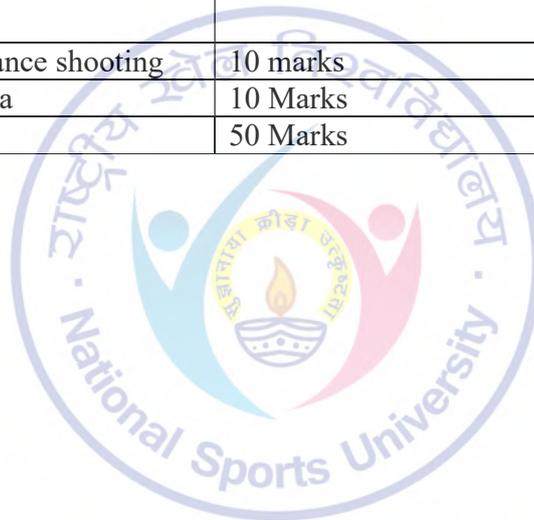
UNIT- IV

Developing a training program-2

- 4.1. Specific Physical Training (SPT) drills
- 4.2. Competition training.
- 4.3. Aim-off training.
- 4.4. Distance shooting

Evaluation Total Mark 100

Evaluation criteria	Internal Assessment	External Assessment
➤ Tuning- centre shot ➤ Tuning – tillering ➤ Shooting form	30Marks	30Marks
Posture drill and distance shooting	10 marks	10 marks
Record book and Viva	10 Marks	10 Marks
Total	50 Marks	50 Marks



Semester – V

PRACTICAL: Archery

COURSE CODE: BSC/CCP/ 505B

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

Learning Outcomes:

- Understand shooting form in archery
- Understand the importance of mental training practices in archery
- Understand specific motor fitness for archers
- Understand tuning in archery

UNIT-I

Shooting form

- 1.1. Advance techniques
- 1.2. Training for clicker control.
- 1.3. Training for bow control
- 1.4. Distance Scoring

Unit-II

Mental training

- 2.1 Meditation
- 2.2 Imagery training
- 2.3 Relaxation training
- 2.4 Breathing- centered meditation

Unit-III

Motor fitness for archers

- 3.1. Body balance exercise for shooting
- 3.2. Specific muscles strength exercises for shooting
- 3.3. Body balance with shooting form.
- 3.4. Core Strength training for archers.

Unit-IV

Tuning

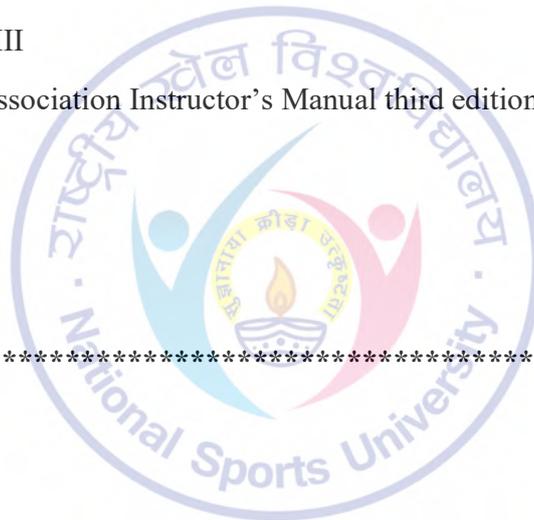
- 4.1 Install the arrow rest, setting brace height
- 4.2 Centering the arrow- adjusting the left/right position
- 4.3 Tiller
- 4.4 Center shot

Evaluation Total Mark 150

Evaluation criteria	Internal Assessment	External Assessment
➤ Tuning- centre shot ➤ Tuning – tillering ➤ Shooting form ➤ Body balance exercises and bow control	60Marks (15x4)	60Marks (15x4)
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

Reference:

- 1 FITA Coach's Manual: Intermediate manual
2. Coach's Manual: Level III
3. The National Archery Association Instructor's Manual third edition



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/04B	Tests, Measurements and Evaluation: Archery	2	32	20	30	50
LAB PRACTICAL						
BSC/CC(P)/601	Adventure Sports	1	32	10	15	25
BSC/DSC(P)/03B	Sports Pedagogy	1	32	10	15	25
BSC/DSC(P)/04B	Tests, Measurements and Evaluation: Archery	1	32	10	15	25
SPORTS PRACTICAL						
BSC/CCP/604B	Gender Based Sports Training: Archery	4	128	50	50	100
BSC/CCP/605B	Practical: Archery	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, Water Skiing
- 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 2018
- 4. Bob Gaines, Rock climbing for outdoor beginners, 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 a Leader 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 for character, 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.
4. Barrow, H.M.: Man and Movement: Principles of Physical Education, Philadelphia Lea and Fabiger, 1977.
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)/ 03B

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/DSC(P)/03B	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
3. Bhardwaj, A. (2003). *New media of educational planning*. New Delhi: Sarup of Sons.
4. Kochar, S. K. (1982). *Methods and techniques of teaching*. New Delhi: Sterling Publishers Pvt. Ltd.
5. Sampath, K., Pannirselvam, A. & Santhanam, S. (1981). *Introduction to Educational Technology*. New Delhi: Sterling Publishers Pvt. Ltd.
6. Walia, J. S. (1999). *Principles and Methods of Education*. Jalandhar: Paul Publishers.



SEMESTER – VI
TESTS, MEASUREMENTS, AND EVALUATION: Archery
COURSE CODE: BSC/DSC/04B

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

COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understand meaning of Test measurement and Evaluation
- Understand selection and construction of test
- Administration of various test and know how to measure physical performance
- Understand sports skill test

UNIT-I

Introduction:

- 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 modifications, 12 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

Archery Skill Test

- 3.1. AAHPER archery skill test
- 3.2. Mckenzie-Shifflett archery test
- 3.3. Farrow archer test
- 3.4. SAI archery test



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

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

UNIT-I

- 2.4 Cooper's 12 minutes continuous run-walk
- 1.2. Harvard step test
- 1.3. Tuttle Pulse ratio test
- 1.4. AAHPER fitness test

UNIT-II

- 2.1. AAHPER Archery test
- 2.2. McKenzie-Shifflett archery test
- 2.3. Farrow archer test
- 2.4 SAI archery 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. Saunders Company.
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.
8. 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: Archery
COURSE CODE: BSC/CCP/604B

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

Learning Outcomes:

- Understand gender based sports training
- Development of training programme
- Understand Specific physical training drills
- Understand training drills and Olympic round practice

Unit -1

Developing training program

- 1.1. Warm-up shooting activities
- 1.2. Stretch band shooting drills
- 1.3. Light weight bow training drills
- 1.4. Blank bale.

Unit-2

Specific physical training drills

- 2.1. Flexibility SPT drill
- 2.2. Power SPT drill
- 2.3. Structure SPT drill
- 2.4. Distance shooting

Unit-3

Training drills

- 3.1. 4 minute drill
- 3.2. Aiming off training
- 3.3. 1000-arrow challenge
- 3.4. Olympic round practice.

Unit-4

Strength, balance and coordination exercises for women

- 1.1 Upper body weight training programme
- 1.2. Lower body weight training program
- 1.3. Balance and coordination exercises
- 1.4 Core strength exercises for women

Evaluation Total Mark 100

Evaluation criteria

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
Specific training drills	10 Marks	10 Marks
Developing gender based training programme	10 Marks	10 Marks
Total	50 Marks	50 Marks



Semester – VI
Practical: Archery
COURSE CODE: BSC/CCP/605B

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

Learning Outcomes:

- Developing training programme
- Understand specific physical training drill
- Understand strength training for women

Unit -I

Developing training program.

- 1.1. Warm-up shooting activities
- 1.2. Stretch band shooting drills
- 1.3. Light weight bow training drills
- 1.4. Blank bale.

Unit-II

Specific physical training drills.

- 2.1. Flexibility SPT drill
- 2.2. Power SPT drill
- 2.3. Structure SPT drill
- 2.4. Distance shooting

Unit-III

Training drills

- 3.1. 4 minute drill
- 3.2. Aiming off training
- 3.3. 1000-arrow challenge
- 3.4. Olympic round practice.

Unit-IV

Strength training for women

4.1 Warm-up and cooling down

4.2 Upper body weight training exercises

4.3 Lower body weight training exercises

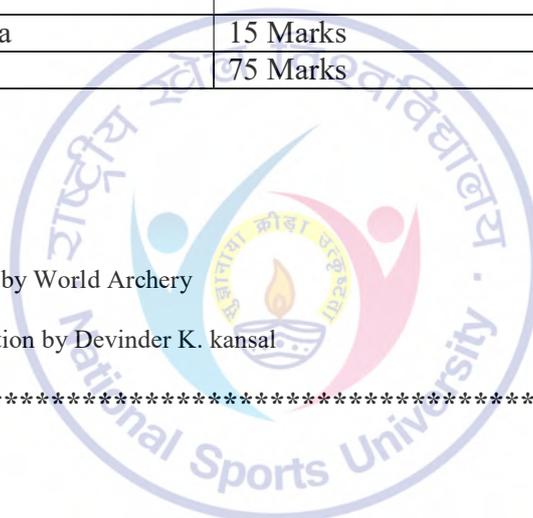
4.4 Balance and coordination exercises

Evaluation criteria	Internal Assessment	External Assessment
<ul style="list-style-type: none">➤ Tuning bareshaft test➤ Advance shooting form➤ Skill test	60Marks	60Marks
Record book and Viva	15 Marks	15 Marks
Total	75 Marks	75 Marks

REFERENCES

1. Coach's Manual: Entry Level by World Archery

2. Test measurement and evaluation by Devinder K. kansal



SEMESTER – VII

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

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC/701B	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)/701B

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CC(P)/701B	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 of Modern 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 Sports Coaching 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 Development through Sports for all initiative; 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 spectators for 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/702B

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/702 B	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 Centres 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: Archery

COURSE CODE: BSC/CCP/703B

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

Learning outcomes:

- Understand various skills of aged people before training
- Observation of training programme
- Conducting physical training programme for aged archers
- Conducting mental test and relaxation training

UNIT-1

Teaching suggestions and observation of skill before aged people training

- 1.1. Stance, Nocking the point,
- 1.2. String hand grip, Bow hand and elbow,
- 1.3. Body pre setting, Raising the bow
- 1.4. Pre draw, Draw and Facial marks or references

Unit-II

Observation and training

- 2.1. Draw expansion,
- 2.2. Aiming and Release
- 2.3. String clearance
- 2.4. Follow through and Breathing

Unit-III

Physical training for aged archers

- 3.1 Pre shooting warm-up.
- 3.2. Weight training exercises
- 3.3. Shoulder strength training
- 3.4. Balance training.

Unit-IV

Mental test and relaxation exercises

- 4.1 Concentration , Reasoning test
- 1.2. Reaction time and command test
- 4.3. Meditation and Yoga nidra
- 4.4. Autogenic training

REFERENCES

1. Coach's Manual: Entry Level by World Archery
2. Coach manual Intermediate level
3. The National Archery Association Instructor's Manual third edition
4. Federation of Canadian archers inc.coach'manual level 3

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 - Archery

COURSE CODE: BSC/D/704A

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/D/704B	Dissertation: Research Proposal - Archery	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)



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/803B	Advance Coaching Lesson: Archery	6	192	75	75	150
BSC/CCP/804B	High Performance Sports Training: Archery	4	128	50	50	100
BSC/D/805B	Dissertation: Archery	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

- 4.1 Yoga 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. Niranjana 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
5. Kuvalayananda S. (1993). *Asanas*. Lonavala,KaivalyadhamaPublication, India.
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

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
- 1.3 Designing 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.
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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
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SEMESTER – VIII

ADVANCE COACHING LESSON: Archery

COURSE CODE: BSC/CCP/803A

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/CCP/803 B	Advance Coaching Lesson: Archery	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: Archery
COURSE CODE: BSC/CCP/804B

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

Learning Outcomes:

- Understand developing high performance training
- Understand Visualization and mental Rehearsal in Archery
- Understand matchperformanceanalysisMatch performance analysis

UNIT-I

Developing High performance training program

- 1.1. Specific physical training (SPT) drills
- 1.2. Distance shooting (100 meters/ 80 meters)
- 1.3. 1000 arrow challenge.
- 1.4. Aiming off training

UNIT-II

High Performance training programme

- 2.1 Bare bow training
- 2.2. Visualization and mental Rehearsal in Archery
- 2.3Managing stress in archery competition
- 2.4. Overcoming target panic

UNIT-III

String making

- 3.1. String a making
- 3.2. Making center serving
- 3.3. Setting nocking point.
- 3.4. Maintenance of the string

UNIT-IV

Performance Analysis

4.1 Analyzing arrow patterns

4.2 Analyzing techniques

4.3 1.4 Target panic exercises and performance evaluation

4.4. Match performance analysis through software

REFERENCES

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3. The National Archery Association Instructor's Manual third edition
4. Federation of Canadian archers inc. coach' manual level 3
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SEMESTER – VIII

DISSERTATION: Archery

COURSE CODE: BSC/D/805B

Course Code	Course Name	Credit	Teaching Hours	Internal Marks	External Marks	Total Marks
BSC/D/805B	Dissertation: Archery	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 Dissertation given by the University.

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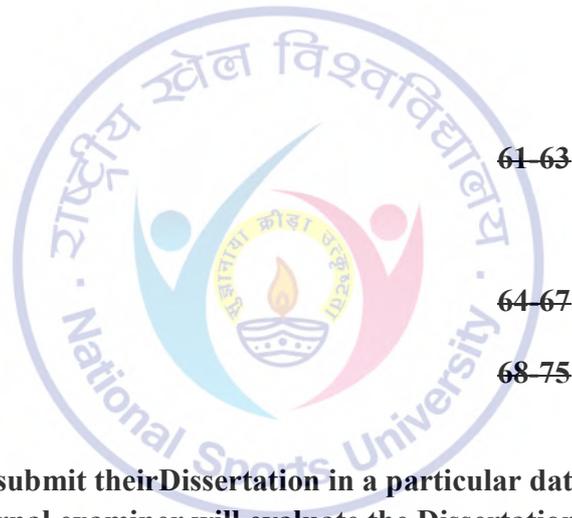
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APPENDICES

Appendix A

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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.

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