NS NIS PATIALA

SYLLABUS FOR DIPLOMA IN SPORTS COACHING

DISCIPLINE: CYCLING

COURSE CODE: CY - 07

Total Credits: 24	**Semester - I**	**L**	**IA**	**A**	**P/FW**	**SW**	**TOTAL CREDIT UNITS**
		75	**4**	**5**	**300**	**16**	**12**
		(L-Lecture, P-Practical, SW-Self Work, FW-Field Work, A-Assignment, IA- Internal Assessment)					
	Semester - II	**L**	**IA**	**A**	**P/FW**	**SW**	**TOTAL CREDIT UNITS**
		63	**3**	**20**	**300**	**14**	**12**
		(L-Lecture, P-Practical, SW-Self Work, FW-Field Work, A-Assignment, IA-Internal Assessment)					

COURSE OBJECTIVES:

- Teach latest training methodologies and fundamentals that play important role in coaching.
- Explain fundamentals of Sports Science.
- Training & Physiology: Better understand the theories behind training and adaptation.
- Data Fundamentals: Understand and evaluate training data for healthy coaching approach.
- Periodization: Acquaint with periodization and teach how to apply training fundamentals to Annual Training Plan (ATP).
- Training Plan: Plan, Prescribe and Evaluate training session.

LEARNING OUTCOMES:

- Learn the basic, intermediate and advance skills of Bike Handling
- Understand the methods of teaching the skills.
- Understand the technical and tactical knowledge of imparting coaching.
- Understand the systematic preparation of cyclist at various levels.

- Comprehend the importance of indices for cycling event specific talent identification.
- Understand various cycling specific training parameters and variables.

SKILLS DEVELOPED:

- Bike handling
- Bike Fit
- Create Annual Training Plan
- Evaluate Training session
- Effective communication skills
- Spotting talent, Evaluating skills and Handling children
- Knowledge of which parameters to be assessed at a given age, training phase of a cyclist.
- Develop Soft skills

DETAILED SYLLABUS - SEMESTER I

THEORY - PART 1

Total Credit: 4

Unit No.	Description/Topics Covered	Teaching Method	No. of Hours (period)	Online/ Class room	Faculty
1.	**BRIEF HISTORY & STRUCTURES OF CYCLING CONTROLLING BODIES:** a. Indian Cycling History b. Structure of Indian Cycling, Schools, Distt, state, national levels c. Continental Bodies, their structure, Duties, History, Working d. International Cycling Union (UCI), Structure, History, Duties, Working	L A	2 1		Inhouse
2.	**COMPETITION HELD IN CYCLING:** a. Domestic Competitions (School, State, Nationals, NG) b. International Events (Type of Competitions, Classes etc.) i. Road (Road races, stage races, team event, grand tours) ii. Track (sprint events, endurance events, team events)	L	3		Inhouse

	iii. MTB (XCO, downhill, 4X, eliminator) iv. BMX (BMX and BMX freestyle) v. Other cycling disciplines i.e. Cyclo-Cross, Trials, Artistic & Cycle ball vi. Para Cycling (events, World championships, Olympics) c. Asian Championships d. Regional Games (i.e. Asian Games, CWG etc.) e. World Cups f. World Championships g. Olympic Games				
3.	**COACHING PRINCIPALS AND SAFETY:** a. Roles of a Coach b. Qualities of a Great Sports Coach (10 key qualities given by IOC) c. The Coaching skills (Communication, self-reflection, group management etc…) d. Learning process (Autocratic or Democratic) e. Planning coaching sessions f. Working with SMARTER Principal	**L**	**7**		**Inhouse**

	g. Why warm up and cool down? How to prepare a general warm up. h. Writing a session plan (coaching points, activity explain etc.) i. Reviewing your session. Why, what, how to review. j. Self-evaluation questionnaire. Did I do well? Do the children enjoy the session? Etc. k. Risk Assessment, what is risk assessment, why important, how to carry out. Etc.				
4.	**COACHING CHILDREN AND LONG-TERM ATHLETE DEVELOPMENT:** a. Identifying the difference between children and adults, and their implication for coaching b. Understanding the stages of growth and development for different ages c. Explain Long Term Athlete Development Model (LTAD)	**L**	**8**		**Inhouse**
5.	**EXPLAINING BASIC EQUIPMENT USED IN CYCLING SPORT:** a. Equipment used in cycling (Road, track, MTB, BMX and other disciplines as well) b. Technical Regulations for bicycles by UCI	**L** **SW**	**2** **2**		**Inhouse**

	c. Demonstration with a Road, Road TT, Track Sprint & Track Endurance bikes. use an MTB Bike and a BMX bike. d. Fixing position on the bike (from basic to advance level) e. How to measure a bike. (use a bicycle jig)				
6.	**UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 1):** a. Part I: General organization of cycling sport b. Part X: Continental Championships c. Part IX: World Championships d. Part XI: Olympic Games	**L** **A**	**6** **2**		**Inhouse/ Guest**
7.	**CHARACTERISTICS OF CYCLING VELODROMES AROUND THE WORLD:** a. Brief history of velodromes b. Type of velodromes used around the world c. Lines on the velodrome d. Types of equipment used on velodromes e. Maintenance and upkeep of the velodromes.	**L** **A**	**3** **2**		**Inhouse/ Guest**
8.	**ROLES OF COACHES & OTHER OFFICIALS IN CYCLING SPORT:** a. Role of coaches, in and out of field, in training and in competition	**L**	**4**		**Inhouse/ Guest**

	b. Roles of Commissaires during races, dealing with commissaires c. Role of essential support personal in team i.e. mechanics, Team managers, masseurs d. Role of other support personnel with a team i.e. Physio, doctors, psychologist				
9.	**BASIC LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN** Basic technical skills development for children a. Basic Mounting and dismounting a bicycle (Road/track bikes) b. Basic Mounting and dismounting with cycling shoes c. Basic cornering d. Basic braking e. Basic gear change…..etc.	**L** **SW**	**3** **1**		**Inhouse**
10.	**EQUIPMENTS USED DURING TRAINING OR COMPETITIONS:** a. Rollers/ Trainer (riding, safety precautions) b. Training on Wattbikes c. Mechanical support (various tools, workshop, repair, upkeep & maintenance etc.)	**L** **SW**	**2** **2**		**Inhouse/ Guest**

	d. Clothing (Road, Track, training, competition, helmets, shoes, socks etc. e. Competition equipment's (disc wheels, tyres, tubulars, their uses) f. Gearing (gear calculations, gear restrictions etc..)				
11.	**UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 2):** a. Part II: Road b. Part III: Track c. Part XII: Discipline and procedures	**L SW IA**	**6 4 2**		**Inhouse/ Guest**
12.	**PRINCIPALS OF CONDITIONING:** a. Adaptation b. Overload c. Progression d. Specificity e. Reversibility f. Variation g. Recovery h. Individual differences i. Long term planning	**L**	**5**		**Inhouse**
13.	**INDIVIDUAL DIFFERENCES & OVER COMPENSATION MODEL**	**L**	**3**		**Inhouse**
14.	**COMPONENTS OF FITNESS** a. Aerobic Endurance (AE) b. Short-term Muscular Endurance (STME) c. Muscle Power (MP)	**L**	**3**		**Inhouse**

	d. Strength e. Speed f. Flexibility				
15.	**GENERAL, SPECIFIC WARM UP, COMPETITION WARM UP & COOL DOWN** a. Event specific warm up (sprinters, Pursuit, road TT, road race etc.) b. Warm up for team events (team sprint, team pursuit, road TTT, Madison etc.) c. Environmental effect on warm up Riding track ethics/rules at international events during warm up	**L** **SW**	**2** **2**		**Inhouse/ Guest**
16.	**INTERMEDIATE LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN** a. Intermediate technical skills development for children b. Technical skills - Developing Group riding skills - Learning Standing start.	**L**	**2**		**Inhouse**
17.	**RIDERS HYGIENE:** a. Standard of Rider health. b. Intensive knowledge about Hygiene - clean clothing, washing, bike cleaning, no sharing of clothing etc.	**L**	**2**		**Inhouse/ Guest**

18.	**COACHING EQUIPMENT IN TRAINING:** a. Eqpt needed for smooth conduct of a session by coach. b. Stopwatch & whistle c. Using stopwatch to count cadence, taking pulse, recording times d. Lap & bell e. Start Gates f. Start pistol g. Foam pads for track h. weighing machine for bicycles i. Bicycle measuring jig j. Photo finish & computers for training analysis k. Count down timer for start gates	**L** **SW**	**2** **3**		**Inhouse/ Guest**
19.	**THE BODY AND EXERCISE (Sports Specific):** a. Basic concepts about Anatomy and Physiology b. Skeletal & muscular systems. c. Muscle movements (isometric, concentric, eccentric) d. Energy System	**L**	**4**		**Inhouse/ Guest**

20.	**TALENT IDENTIFICATION AND SELECTION OF CORE PROBABLES:** a. Talent identification for cycling sport. b. Parameters for various tests. c. Selection for various events d. Evaluation of test results	**L** **SW** **IA**	**2** **2** **1**		**Inhouse/ Guest**
21.	**NUTRITION & HYDERATION - Sports Specific:** a. Basic concept of nutrition b. Pre, during & post training eating c. Advise riders importance of hydration (before, during and after training/comp.) d. Nutrition before, during and after competition (as per their races) e. Dietary Nutrients: Carbohydrate, Protein, Fat & Water f. Various sports specific Supplements	**L**	**2**		**Inhouse/ Guest**
22.	**ANTIDOPING:** a. Part XIV: Anti Dope Rules and Regulations b. Therapeutic Use Exemption (TUE) c. Part XIII: Medical Rules	**L** **IA**	**2** **1**		**Inhouse/ Guest**
Total Lectures- 100					

PRACTICAL 1					
Total Credit:8					
Unit No.	**Description/Topics Covered**	**Teaching Method**	**No. of Hours (period)**	**Online/ Class room**	**Faculty**
1.	**COACHING PRINCIPALS AND SAFETY**	**P**	**5**		Inhouse
2.	**EXPLAINING BASIC EQUIPMENT USED IN CYCLING SPORT**	**P**	**30**		Inhouse
3.	**UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 1)**	**P**	**20**		Inhouse/ Guest
4.	**CHARACTERISTICS OF CYCLING VELODROMES AROUND THE WORLD**	**P**	**15**		Inhouse/ Guest
5.	**BASIC LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN**	**P**	**30**		Inhouse
6.	**EQUIPMENTS USED DURING TRAINING OR COMPETITIONS**	**P**	**20**		Inhouse
7.	**UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 2)**	**P**	**30**		Inhouse/ Guest
8.	**GENERAL, SPECIFIC WARM UP, COMPETITION WARM UP & COOL DOWN**	**P**	**40**		Inhouse
9.	**INTERMEDIATE LEVEL: CONDUCTING COACHING SESSIONS WITH CHILDREN**	**P**	**40**		Inhouse
10.	**RIDERS HYGIENE**	**P**	**10**		Inhouse/ Guest
11.	**COACHING EQUIPMENT IN TRAINING**	**P**	**35**		Inhouse/ Guest

12.	**TALENT IDENTIFICATION & SELECTION OF CORE PROBABLES**	**P**	**25**		Inhouse/ Guest
TOTAL HOURS- 300					

DETAILED SYLLABUS - SEMESTER II					
THEORY - 2					
Total Credit: 4					
Unit No.	**Description/Topics Covered**	**Teaching Method**	**No. of Hours (period)**	**Online/ Class room**	**Faculty**
1.	**UCI RULES & REGULATIONS (PART 3):** a. **Part XVI: Para Cycling** i. Events, Class and Categorization ii. Special considerations while dealing with para athletes **b. Part IV: MTB** i. Events and their conduct in Mountain bike ii. Equipment used in MTB races **c. Part VI & VII: BMX** i. Basic overview of BMX events **d. Part XII: Disciplines and procedures** i. Penalties during a Road race, Road TT, Track races ii. Types of warning & relegation during an event iii. Procedures for showing warning & disqualification during an event	**L** **IA**	**4** **1**		**Inhouse/ Guest**
2.	**LONG TERM DEVELOPMENT** a. Structure training according to needs (Specific) b. Individual differences c. Long term planning & prescribing weekly training hours:	**L** **A**	**4** **2**		Inhouse

3.	**ADVANCE LEVEL: CONDUCTING COACHING SESSIONS OF ELITE RIDERS** a. Advance technical skills development for Elite riders b. Trainee coaches to conduct practical coaching sessions of 30 min each, c. Advance Technical skills: i. Standing Start on track ii. Stand still on track iii. Race tactical moves in platoon iv. Sprinting tactics, Attack from front, behind on Road & Track v. Riding on Road & track without looking ahead, watching opponent…. etc.	**L** **SW**	**2** **2**		Inhouse
4.	**EVENTS ON ROAD AND TRACK** a. **Detail about Road race** (one day and Stage races, Team TT) i. One day races ii. Stage races iii. Team time trial iv. Individual time trial **b. Detail about Track events:** i. Sprint (techniques and skills required, latest rules of the event) ii. Keirin iii. Team Sprint iv. 1km/500mtr Ind. Time trial v. Points Race vi. Scratch Race vii. Individual Pursuit viii. Team Pursuit ix. Omnium x. Madison	**L** **SW**	**4** **2**		Inhouse/ Guest

5.	**COACHING FEMALE ATHLETES** a. Things to kept in mind dealing with female athletes b. Developmental changes between male and female	**L**	**2**		Inhouse/ Guest
6.	**PLANNING AND PRESCRIBING TRAINING ON BIKE** a. Volume and Intensity b. Session Planning c. Effects of cadence in different terrain d. Workload - Applying FIT (Frequency, Intensity and time) principal e. Training Zones f. Importance of Functional threshold power (FTP) and its application g. Heart rate Vs FTP (%) h. Lactate Monitoring, LT testing i. Training prescription for sprinting events j. Training prescription for endurance events. k. Physiological adaptations to training l. Psychological adaptions to training	**L** **A** **IA**	**5** **3** **1**		Inhouse
7.	**SPORTS SPECIFIC PERIODISATION** a. Concept and importance of periodization. b. Planning each phases/cycle of a periodized training year using an ATP c. Factors to consider while periodization planning	**L** **SW** **A** **IA**	**8** **2** **4** **2**		Inhouse/ Guest

	d. Macro, Meso and Micro cycles in planning e. Understanding Annual planning template				
8.	**ANNUAL TRAINING PLAN WITH MULTIPLE PERIODISATION**	**L** **A**	**2** **2**		Inhouse
9.	**PRESCRIBING TRAINING AS PER ANNUAL PLAN FOR RIDERS** a. Prescribe training on session sheet during preparation period b. Prescribe training on session sheet during pre-competition period c. Prescribe training on session sheet during taper period d. Prescribe training during competition	**L** **A**	**1** **3**		Inhouse
10.	**EVENT DEMANDS FOR PLANNING TRAINING** a. Technical b. Tactical c. Physiological d. Psychological e. Nutritional f. Equipment g. Environmental h. Organisational	**L**	**3**		Inhouse/ Guest
11.	**ESTABLISHING TRAINING FOCUS FOR JR/ELITE RIDER** a. Rider's Goals + b. Event Characteristics + c. Event Demands + d. Level of competition LTAD	**L** **SW**	**3** **1**		Inhouse
12.	**PERFORMANCE BENCHMARKS**	**L**	**1**		Inhouse/

	a. Technical/ Tactical benchmarking (summary of research, performance benchmark) b. Physical benchmarking …. Etc.	**A**	**2**		Guest
13.	**ANALYSIS OF PERFORMANCE** a. Physiological analysis b. Psychological analysis c. Technical analysis d. Tactical analysis	**L** **SW** **A**	**3** **2** **1**		Inhouse/ Guest
14.	**MONITORING AND PEROFRMANCE ANALYSIS** a. Role of Sports Science in enhancing performance b. Defining sports physiology, psychology, bio-mechanics and nutrition for performance	**L** **SW**	**3** **1**		Inhouse/ Guest
15.	**METHODS OF MONITORING PERFORMANCE WITH SPORTS SCIENCE** a. Physiological (VO2max tests) b. Psychological c. Aerodynamics & Bike fit d. Technology - Power meters, HR sensors, training zones, altitude, temp… e. Lab testing Vs Field testing. f. Medical testing	**L** **A**	**2** **2**		Inhouse/ Guest
16.	**INJURY, PREVENTION AND REHABILATATION** a. Common injury in cycling sport b. Prevention from such injuries c. Rehab during injury period and come back	**L**	**2**		Inhouse/ Guest
17.	**SAMPLE OF PRESCRIBING TRAINING** a. Sprint training examples	**L** **A**	**1** **2**		Inhouse

	b. Endurance/Road training examples c. Strength & Conditioning training examples d. Core and Athletic exercises				
18.	**RECOVERY** a. Importance of recovery b. Process of recovery. c. Methods of recovery.	**L**	**2**		Inhouse
19.	**ORGANISATIONAL** a. Planning to participate in a competition b. Travel (ticketing, transfers, luggage, equipment etc.) c. Staying hydrated during travel d. Jet leg e. Continental travel, time zones f. Hotels, food, environment g. Social (family, kids, parents, schooling)	**L**	**2**		Inhouse/ Guest
20.	**QUALIFICATION SYSTEMS: WORLD CUPS, WORLD CHAMPIONSHIPS & OLYMPICS**	**L** **A**	**2** **2**		Inhouse/ Guest
21.	**TECHNOLOGICAL DEVELOPMENTS IN BICYCLES**	**L**	**4**		Inhouse/ Guest
22.	**CLOTHING AND SAFETY GEAR**	**L**	**2**		Inhouse/ Guest
Total Hours - 100					

PRACTICAL II					
Total Credit: 8					
Unit No.	**Description/Topics Covered**	**Teaching Method**	**No. of Hours (period)**	**Online / Class room**	**Faculty**
1.	**UCI RULES & REGULATIONS FOR CYCLING SPORT (PART 3):**	**P**	**10**		**Inhouse/ Guest**
2.	**LONG TERM DEVELOPMENT**	**P**	**10**		In-house
3.	**ADVANCE LEVEL: CONDUCTING COACHING SESSIONS WITH RIDERS**	**P**	**35**		In-house
4.	**EVENTS ON ROAD AND TRACK**	**P**	**20**		Inhouse/ Guest
5.	**PLANNING AND PRESCRIBING TRAINING ON BIKE**	**P**	**40**		In-house
6.	**SPORTS SPECIFIC PERIODISATION**	**P**	**40**		Inhouse/ Guest
7.	**ANNUAL TRAINING PLAN WITH MULTIPLE PERIODISATION**	**P**	**25**		In-house
8.	**PRESCRIBING TRAINING AS PER ANNUAL PLAN FOR RIDERS**	**P**	**30**		In-house
9.	**EVENT DEMANDS FOR PLANNING TRAINING**	**P**	**10**		Inhouse/ Guest
10.	**PERFORMANCE BENCHMARKS**	**P**	**10**		Inhouse/ Guest
11.	**ANALYSIS OF PERFORMANCE**	**P**	**10**		Inhouse/ Guest
12.	**MONITORING AND PERFORMANCE ANALYSIS**	**P**	**5**		Inhouse/ Guest

13.	**METHODS OF MONITORING WITH SPORTS SCIENCE**	**P**	**13**		Inhouse/ Guest
14.	**SAMPLES OF PRESCRIBING TRAINING**	**P**	**25**		In-house
15.	**RECOVERY**	**P**	**5**		In-house
16.	**ORGANISATIONAL**	**P**	**5**		Inhouse/ Guest
17.	**TECHNOLOGICAL DEVELOPMENTS IN BICYCLES**	**P**	**7**		Inhouse/ Guest
TOTAL HOURS - 300					

Training Books, Journals, Online Resources Prescribed for Trainees

Printed resources:

1. The Cyclist's Training Bible by Joe Friel.
2. Training and Racing with a Power Meter by Hunter Allen Andrew R. Coggan, PhD Stephen McGregor, PhD.
3. Periodization Theory and Methodology of Training by Tudor Bompa, G. Gregory Haff
4. Big Blue Book of Bicycle Repair by C. Calvin Jones.
5. Fuel Your Ride Complete Performance Nutrition for Cyclists by Hurford, Molly Guest, Nanci.
6. Bike Fit Optimise your bike position for high performance and injury avoidance by Phil Burt, Chris Hoy, Chris Boardman
7. Biomechanics of Cycling by Rodrigo R. Bini, Felipe P. Carpes (eds.)

Online resources:

1. https://www.uci.org
2. https://www.cyclingfederationofindia.org./
3. https://www.cyclingweekly.com
4. https://www.bikeradar.com
5. https://road.cc
6. https://www.cyclingtips.com
7. https://www.velonews.com
8. https://www.researchgate.net/
9. https://www.britishcycling.org.uk/

ASSESSMENT			
	Semester 1	**Semester 2**	**Internal/ External %**
Theory Monthly Assessments	Monthly Assessment using Online Testing Tools with Multiple Choice & Descriptive questions of covered topics during the month **Total – 4 Assessments**	Monthly Assessment using Online Testing Tools with Multiple Choice & Descriptive questions of covered topics during the month **Total – 4 Assessments**	40 % marks of internal assessment will be done on the basis of the marks scored in monthly assessment by adding all the score **Test data will be recorded for reference**
Monthly Practical/Lab/Field	Monthly Assessment Practical demonstration & Execution of learnt techniques **Total – 5 Assessments**	Monthly Assessment Practical demonstration & Execution of learnt techniques **Total – 5 Assessments**	40 % marks of internal assessment will be done on the basis of the marks scored in monthly assessment by adding all the scores. **Test data will be recorded for reference**
Monthly Quiz/Assignments	1 Quiz per month & 5 Assignments **Total – 5 Assignments**	1 Assignment per month **Total – 4 Assignments**	40 % marks of internal assessment will be done on the basis of the marks scored in monthly assessment

			by adding all the scores. **Test data will be recorded for reference**
Theory Exam	At the end of semester – I	At the end of semester – II	60 % of total score in Theory
Practical Exam	At the end of semester – I	At the end of semester – II	60 % of total Score in Practical