

**SPORTS AUTHORITY OF INDIA
NETAJI SUBAS NATIONAL INSTITUTE OF SPORTS, PATIALA**

DIPLOMA COURSE IN SPORTS COACHING

REVISED SYLLABUS 2015-16

THEORY & SCIENCE OF SWIMMING

1st Semester

THEORY PAPER - I

<i>Sr.no.</i>	<i>Topics</i>	<i>Teaching Hours</i>
1	History, Development & Organizations. a) Development of modern competitive swimming strokes. b) Swimming Federation of India	10
2	Rules and their interpretation: a) FINA: Swimming Rules & Swimming Facilities b) Swimming Terminology	40
3	Organization and Management of competition: a) Swimming b) Waterpolo c) Diving	10
4	Facilities and their Management: a) Construction of Swimming Pool i) Maintenance ii) Chemicals required for maintenance iii) Pool water tests b) Safety c) Maintenance of Pool Equipment	10
5	Common diseases & injuries of Swimmers, their causes and prevention.	12
6	Requisites of a Swimming Coach: - Qualities, Duties & Code of Conduct of a Swimming Coach.	10
7	Pre-requisites of an elite swimmer: a) Anthropometrical b) Physiological c) Psychological d) Knowledge of General & Technical know-how of swimming and competition.	06
8.	Methods of Teaching/Coaching: a) Class organization i) Principles ii) Organisation iii) Formations iv) Control.	12
Total Hours		110

THEORY PAPER- II

Sr.no.	Topics	Teaching Hours
1	A) The Warming up: a) Types: i) General ii) Specific b) Methods and Means. B) Limbering down: - Effects, Methods and means.	08
2	Teaching swimming to the beginners: a) Teaching basic swimming skills – submerging, jumping, floating, locomotion & breathing. b) Laws of learning applied in swimming. c) Methods of teaching. d) Sequence of teaching competitive swimming strokes.	10
3	Mechanical Principles involved in A) Swimming: a) Resistance and propulsion. b) Action & Reaction Law. c) Bernoulli's effect. d) Theoretical square law. e) Continuity of movements. f) Transfer of momentum. B) Faults and corrections: a) Definition. b) Causes of faults. c) Types of Faults. d) Methods of correction of technique faults.	10
4.	Technical Analysis: A) The front crawl: i. The body position. ii. Horizontal body alignment. iii. Lateral body alignment. iv. Breathing v. Body roll. vi. The Arm stroke. vii. The Flutter kick. viii. Coordination. B) Starts: i) Various starts – Grab start, Track start & circular arm swing start for free style. C) Turns: i) Various turns –open turn, flip turn ii) Advantages of flip turn over open turn. D) Finishes of front crawl events.	18

5.	Technical Analysis of Back Strokes: A) The Back stroke: i. The Body position. ii. Body roll. iii. The Arm Action – Pull iv. The Recovery. v. The Breathing. vi. The Leg Action. vii. The coordination. B) The start (the back stroke start) C) The turns – simple turn, roll over turn. D) Finishes of Backstroke events.	18
6.	Tactics in Relay Swimming: a) Importance of tactics. b) Offensive strategy. c) Defensive strategy. d) Basic traits of a relay swimmer. e) Relay race pattern. f) Relay change over.	10
7.	Diet and Nutrition for Swimmers: a) Objectives. b) Everyday diet during training. c) Tips on food selection. d) Fluid and Glycogen replenishment. e) Tips for maintaining body weight. f) Vitamins and Minerals. g) Competition day diet.	10
8.	Development of specific motor abilities in swimming (in water): a) Endurance –means & methods. b) Speed –means & methods. c) Strength - –means & methods. d) Coordinative abilities–means & methods.	18
9.	Individual Medlay events switch over turns.	08
	Total Hours	<hr/> 110 <hr/>

PRACTICALS 1ST SEMESTER

<i>Sr.no.</i>	<i>Topics</i>	<i>Teaching Hours</i>
1.	General and specific warming up: a) On land b) In water – - Methods, Means & Control load.	20
2.	Development of General conditioning abilities: - Freehand/calisthenics exercises. - Development of basic endurance in swimming. - Development of basic strength, speed, flexibility and coordinative abilities required in swimming on land.	40
3.	Development of personal performance and demonstration ability in: a) All four competitive swimming strokes. b) Turns in all competitive swimming strokes. c) Starts of all competitive swimming strokes.	186
4.	Practice on Life Saving.	40
5.	Teaching (Pedagogic) Practice: - Teaching Lesson Plan	90
6.	Test and measurement – General fitness and technical performance in strokes: a) Endurance test (1500m/800m). b) I.M.Test (400m/200m) c) An Olympic event test.	20
Total Hours		396

2nd-Semester

THEORY PAPER -I

<i>Sr.no.</i>	<i>Topics</i>	<i>Teaching Hours</i>
1	Water Polo: a. Interpretation of FINA (W/P) Rules. b. Profiles of a top level waterpolo players. c. Beginners exercises for ball handling, individual, pair & group exercises d. Category of passes. e. Types of passes. f. Types of waterpolo shots. g. Specific training for goalkeepers. h. Individual and team offensive tactics. i. Individual and team defensive tactics.	40
2	Diving: a) Interpretations of FINA diving Rules. b) Pre-requisites of a diver for high performances. c) Teaching basic dives to novices.	10
3	Development of various motor abilities of swimmers on land: a. Strength-Means & Methods & Equipments. b. Flexibility-Means & Methods & Equipments. c. Speed -Means & Methods & Equipments. d. Endurance -Means & Methods & Equipments. e. Coordinative abilities -Means & Methods & Equipments.	18
4	Identification of Talent and Development: a) Selection criteria of talent based on scientific principles, tests and measurements. b) Training the age group swimmers.	12
5	Life Saving: a) Methods. b) Approach factors. c) Causes of drowning. d) Types of holds and Releases. e) C.P.R. f) Mouth to Mouth Resuscitation.	20
Total Hours		100

THEORY PAPER-II

Sr.no.	Topics	Teaching Hours
1.	Technical Analysis of Breast Stroke: <ul style="list-style-type: none">a. Introductionb. Arm Action:<ul style="list-style-type: none">i) The pullii) The recoveryc. Breathingd. Leg Action (whip kick)e. Coordinationf. Breast stroke startg. Breast stroke turnh. The finishes of breast stroke events.	16
2.	Technical Analysis of Butterfly stroke: <ul style="list-style-type: none">a. Introductionb. Arm actionc. Body positiond. Breathinge. Dolphin kickf. Coordinationg. The starth. The turni. The Finish of butterfly events.	16
3.	Planning and Periodisation: <ul style="list-style-type: none">a. Short term planningb. Long term planning.c. Lesson plan.d. Single periodisation.e. Double periodisation.f. Multiple periodisation	12
4.	A) Training methods and training sets used in swimming. B) Training the swimmers for various distances: <ul style="list-style-type: none">i. Training the sprinters.ii. Training the middle distance swimmers.iii. Training the distance swimmers.iv. Training the I.M. swimmers.v. Training the Relay swimmers.	20
5.	Training load (Basic and high performance): <ul style="list-style-type: none">a. Typesb. Principle of load.c. The components of load.d. The Volume.e. The speed/intensity.f. Interval of test.	10

g.	Frequency.	
h.	D.I.R.T	
i.	The judgment of load.	
j.	The arrangement of load.	
6.	Fundamentals of preparing training schedule.	08
7.	Specific Swimming test:	08
	A) Swimming performance ability test:	
	i. Speed test (6×25m)	
	ii. Endurance test:	
	a. 800m test	
	b. 2000 m test	
	c. 20×50m test (R.I. 10sec at 90%)	
	d. 6×200m test (at 85% R.I. 30sec).	
	B) Swimming technique, start & turn evaluation test:	
	a) Technique check list.	
	b) Stroke frequency test.	
	c) Stroke length test.	
	d) 3×50m test.	
	e) 57.5m test.	
	f) Maximum Heart rate test.	
8.	Training systems:	10
	a. Zone-1 – Aerobic (A ₁ ,A ₂ ,A ₃)	
	b. Zone-2 – Anaerobic Threshold	
	c. Zone-3 – High performance endurance.	
	d. Zone-4 – Anaerobic (Race-Pace training, lactic acid accumulation)	
	e. Zone-5 – Sprint	

Total Hours

100

PRACTICALS – 2nd Semester

<i>Sr.no.</i>	<i>Topics</i>	<i>Teaching Hours</i>
1	Competition warming up Methods Means and control of load.	20
2	Development of personal performance and demonstration ability in: a. All four strokes, starts & turns. b. Technique.	180
3.	Development of specific land conditioning abilities.	40
4.	Development of personal performance and demonstration ability in diving and waterpolo.	30
5.	Water games.	10
6.	Test and Measurements – Swimming tests.	10
7.	Teaching (Pedagogic) practice: a. Teaching lesson plan. b. Training lesson plan.	20
8.	Active Recreation: a. In water b. On land	20
	Total hours	380

RECOMMENDED BOOKS

- Bass D. and Gordon A. (1980): Waterpolo E.P. Publications Ltd., east Ardsley, Wakefield East Yorkshire, G.B.
- Colwin C.H.(1992): Swimming into 21st Century. Leisure Press, Champaign, Illinois. 91825.,
- Counsilman J.E.(1977): The Complete book of Swimming. M.C.Cleff and Stewart Ltd.
- Counsilman, J.E.(1978): Competitive Swimming Manual for Coaches and Swimmers. Pelham Books Ltd., 27 Wrights Lane, London W-8-572.
- Counsilman, J.E. and Counsilman, J.E.(1994): the new Science of Swimming Practice Hall, Englewood Cliffs, N.S. 07632.
- Cutino P.J. and Bledsor D.R. (1976). Polo, the manual for coaches and player Swimming World Publications, Los Angeles, California 90045.
- FINA Handbook (2005-07): FINA office. Cornel Marculescu, Executive Director, Avenue del' Avant-Poste 4, 1005 Lausanne, Switzerland.
- Gallagher, H.(1970): Harry Gallagher on Swimming. Pelham Book Ltd. 52 Bedford Square London, W.C.I.
- Goodhew, D.(1988): Swimming in Action, Century Hutchinson Ltd. Bookmount House, 62-65 Chandos Place, Convent Gordon, London W.C. 2N 4N W.
- Gahridson M.A. (1987): Swimming Pools. A guide to their planning, design and operation. Human Kinetics Publishers Inc. Box 5076, Champaign, IL 61820.
- Hogg, J.(1977). Success in Swimming. John Murray Publishers, 50 Athemonde Street, London W1 4BD.
- Hollander, A.P.; Huijing P.A. and Groot G.D.(1983): Biomechanics and Medicine in Swimming. Human Kinetics Publishers, Inc Box 5076, Champaign, IL 61820.
- Jarvis, M.A. Your book of Survival Swimming and Life Saving. Faber and Faber, 24 Russell Square, London.
- Larrabnee, I.G.(1987): Coaching Swimming effectively. Human Kinetics Publishers, Inc Box 5076, Champaign, IL 61820.
- Lewin, G.(1979): Swimming Sport Verlag, Berlin.
- Maglischo, E.W.(1999): Swimming Fastest Mansfield Publishing Company, Polo Alto, California.
- McElroy G.K.(1985): Swimming and Life Saving. The Royal Life Saving Society Australia, 1982 (Reprint).
- Rai, R.(2002): Biomechanics Mechanical Aspects of Human Motion Agrini Publications, HL 224, Phase IX Mohali (Pb) India.
- Singh, H.(1984): Sports Training General Theory and Methods. NIS Publications, Patiala.
- Singh, H.(1991): Science of Sports Training. D.V.S. Publications, New Delhi.
- Sodhi, H.S. & Sidhu, L.S.(1984): Physique and Selection of Sportsmen. Punjab Publishing House, H.M. 1591, Phase-II, Urban Estate, Patiala-147002 India.
- Sweetenham B. and Atkinon J.(2003): Championship Swim Training. Human Kinetics P.O.Box 5076, Champaign IL 618250-5076, 800-746-4457.

WEBSITES

www. Fina.org.

www.nzmastersswimming.org.nz.