

**SYLLABUS FOR WORKSHOP CALCULATION AND SCIENCE**

**FOR THE TRADE**

**OF**

**VESSEL NAVIGATOR**

**(SEMESTER PATTERN)**

**UNDER**

**CRAFTSMEN TRAINING SCHEME**

**Re-Designed**

**in**

**2015**

**By**

**Government of India**

**Ministry of Skill Development & Entrepreneurship**

**Directorate General of Training**

**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**

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## SYLLABUS OF WORKSHOP CALCULATION AND SCIENCE FOR 3<sup>rd</sup> SEMESTER

### VESSEL NAVIGATOR

### DURATION- 42 HOURS

Sl. No.	WORKSHOP CALCULATION AND SCIENCE
1	<b>FISHING GEAR MATERIALS</b> <b>Introduction to fishing gear materials</b> <b>Classification of fishing gear materials-</b> Natural and synthetic fibres - Origin, sources <b>Yarn and Yarn numbering</b> Indirect system: British system, Metric system, Runnage System Direct System: Denier, Tex Conversion of yarn numbering system <b>Construction details of twines and ropes</b> - Stages in twisting operation, Twist of netting material 'S' and 'Z' twist, Degree of twist, Specification of twines and ropes <b>Properties of fishing gear materials</b> Physical, Chemical and Biological properties
2	<b>FISHING GEAR DESIGN</b> <b>Definition and Terms</b> –Mesh, Shape of mesh, Knot, Netting <b>Direction of Netting-</b> 'T' direction, 'N' direction <b>Type of netting-</b> Knotted netting, Knot less netting <b>Shaping of netting</b> <b>Shaping of netting by hand braiding</b> – Baiting, Creasing, Fly mesh (Single and Double) <b>Shaping of netting by tailoring (Cutting)-</b> Bar cut, Knot cut ('N'cut and 'T' cut), Combination cut
3	<b>MARINE FISHERIES</b> Classification of Marine Environment, Marine Population Marine Fishery Resources of India
4	<b>FISHING TECHNIQUES</b> <b>Classification of fishing methods</b> Operation of (i) Seine nets (Beach seine, Boat seine) (ii) Dredges (iii) Lift net (iv)Falling Gear (v) Entangling net (Trammel net) (vi) Set net (Stake net) (vii) Fyke nets (viii) Hand lines (ix) Fishing without gear (x) Stupefying methods (xi) Grappling and Wounding gears (xii) Miscellaneous fishing gears
5	<b>MARINE ELECTRONICS EQUIPMENTS</b> GPS, AIS, RADAR, NAVTEX <b>Communication equipments</b> MF, HF, VHF Sat.Com

# SYLLABUS OF WORKSHOP CALCULATION AND SCIENCE FOR 4<sup>th</sup>

## VESSEL NAVIGATOR

### SEMESTER: DURATION 42 HOURS

Sl. No.	WORKSHOP CALCULATION AND SCIENCE
1	<b>FISHING GEAR MATERIALS</b> <b>Selection of Materials</b> for the fabrication of Trawl net, Purse seine, Gill Net, Longline Construction and Specification of wire rope, Combination rope Recent Advancements in Fishing Gear Material <b>Fishing gear Accessories</b> Thimble, Shackle, Swivel, Otter Boards, Floats, Sinkers, G-link assembly, Kelly's eye, Stopper link, Purse Ring, Kite, Bobbins, Ground rope assembly, Hooks and Jigs, Depressor, Danleno
2	<b>FISHING GEAR DESIGN</b> <b>Assembling-</b> Horizontal joining, Vertical Joining <b>Mounting-</b> Direct mounting, Stapling (loose mounting), Reeving <b>Design and Construction of Fishing Gear</b> Design Process Factors effecting fishing gear design Designing and construction of Trawl, Purse seine, Gill net and Longline (Monofilament and Multifilament)
3	<b>FISH HANDLING AND FISH PROCESSING</b> <b>Hygienic handling of fish on-board</b> <b>Spoilage of fish, Organoleptic Assessment of Fish Quality</b> <b>Fish Preservation Technique</b> Chilling, Freezing and Drying
4	<b>FISHING TECHNIQUES</b> Trawling, Purse Seining, Gillnetting, Longlining, Trolling, Squid Jigging and Traps <b>Trawl efficiency devices</b> - By-catch Reduction Devices (BRD) Square mesh window, Radial Escapement Device, Fish Eye, Turtle Excluder Device (TED) Code of Conduct for Responsible Fishing <b>Deck Equipments and Deck Layout</b> - Trawler, Purse seiner, Gillnetter, Long liner and Combination Vessel (Trawler-cum-longliner)
5	<b>MARINE ELECTRONIC EQUIPMENTS</b> Navigational Equipments, Fish finding equipments, communication equipments, safety equipments