



DIRECTORATE GENERAL OF MARITIME ADMINISTRATION, MUMBAI

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Draft DGMA EAC Branch Circular No.xx of 2026

Subject: Transition pathway from Electro-Technical Officer (ETO) to MEO Class IV CoC, reg.

I. Background

The Directorate General of Maritime Administration (DGMA) has received numerous representations from Electro-Technical Officers (ETOs), seafarers' unions, shipping companies, Maritime Training Institutes (MTIs), and other industry stakeholders seeking the establishment of a structured career progression pathway for certified Electro-Technical Officers to obtain a Marine Engineer Officer Class-IV Certificate of Competency (MEO Class-IV(FG) CoC), on the lines of the transition pathway being offered by other administrations.

Accordingly, the Directorate General of Maritime Administration, in exercise of the powers conferred under the Merchant Shipping Act, 2025 as amended, constituted a Technical Committee comprising representatives from the DGMA, domain experts from various industry organizations and professional bodies and approved Maritime Training Institutes (MTIs) to review the eligibility criteria, preparatory courses, training framework, and course syllabi for Marine Engineer Officers and Electro-Technical Officers.

The STCW Convention prescribes separate standards of competence for:

- (a) Officer in Charge of an Engineering Watch (Regulation III/1); and
- (b) Electro-Technical Officer (Regulation III/6).

The functions, competencies, responsibilities, and certification requirements prescribed under Regulations III/1 and III/6 are distinct and independent. Consequently, possession of an Electro-Technical Officer Certificate of Competency does not, by itself, qualify a candidate for the issuance of a Marine Engineer Officer Class-IV(FG) Certificate of Competency.

After detailed deliberations, the Technical Committee concluded that, subject to the successful completion of prescribed bridging education, practical workshop training, engine-room simulator training, onboard training, and assessment of competence, a structured transition pathway may be established for eligible Electro-Technical Officers. The Committee recommended that such a pathway would appropriately recognize the engineering knowledge, practical shipboard

experience, and technical competence acquired by certified Electro-Technical Officers while ensuring that all competencies prescribed under Regulation III/1 of the STCW Convention are achieved before the issue of a Marine Engineer Officer Class-IV Certificate of Competency.

Accordingly, the Directorate General of Maritime Administration hereby establishes the following transition pathway for eligible Electro-Technical Officers to obtain a Marine Engineer Officer Class-IV Certificate of Competency, subject to compliance with the provisions of the Merchant Shipping Act, 2025, as amended, the STCW Convention, 1978, as amended, and the rules, regulations, and orders issued thereunder.

2. Applicability

This Circular shall apply to candidates who:

- (i) hold a valid Electro-Technical Officer Certificate of Competency issued by the Government of India in accordance with Regulation III/6 of the STCW Convention; and
- (ii) intend to obtain a Marine Engineer Officer Class-IV Certificate of Competency (MEO Class-IV(FG) CoC) under Regulation III/1 of the STCW Convention by following the transition pathway prescribed in this Circular.

3. Eligibility Requirements

A certified Electro-Technical Officer (ETO) seeking admission to the Marine Engineer Officer Class-IV (MEO Class-IV) Certificate of Competency examination shall satisfy the following requirements:

- (a) hold a valid Electro-Technical Officer Certificate of Competency (ETO CoC) issued by the Government of India in accordance with Regulation III/6 of the STCW Convention; and,
- (b) thereafter, have completed not less than 24 months of approved seagoing service as an Electro-Technical Officer on ships of 750 kW propulsion power or more; and,
- (c) have successfully completed a DGMA approved three-month Bridging Course for Transition from Electro-Technical Officer to Marine Engineer Officer Class-IV; and,
- (d) have an approved Training Record Book (TRB) as required by the DGMA for Engineering Officer trainees, duly completed and authenticated to track progress, document completed skills, and prove that the candidate meets the standards prescribed; and
- (e) have successfully completed an Engine Room Simulator (Operational Level) course at a DGMA approved Maritime Training Institute (MTI).

4. Bridging Course Requirements

The DGMA approved Bridging Course for Transition from Electro-Technical Officer to Marine Engineer Officer Class-IV(FG) shall have a minimum duration of three months and shall comprise theoretical instruction and practical training, and assessment. The course shall, at a minimum, cover the following subjects:

1. Marine Engineering Practice;
2. Marine Machinery Systems;
3. Thermodynamics and Heat Engines;
4. Applied Mechanics and Fluid Mechanics;
5. Engineering Drawing;
6. Auxiliary Machinery;
7. Marine Boilers and Steam Systems;
8. Refrigeration and Air Conditioning;
9. Naval Architecture and Ship Construction;
10. Engineering Watchkeeping Duties;
11. Planned Maintenance Systems;
12. Marine Legislation and Safety Management;
13. Marine Environmental Protection, SOLAS, MARPOL, and Occupational Safety;
14. Engine-room Resource Management; and
15. Workshop Skills and Practical Training.

The detailed course syllabus, including the subject-wise distribution of instructional hours, theoretical instruction, practical training, and assessment criteria, is enclosed as **Annexure-I** and shall form an integral part of this Circular.

5. Sea Service Requirements

5.1 After successful completion of the DGS-approved Bridging Course, the candidate shall complete a minimum of **Nine (9)** months of approved onboard training and engine-room watchkeeping service. Provided that, the above requirement may be reduced to **six (6)** months, where the candidate has completed not less than **Thirty-six (36)** months of approved seagoing service as a certified Electro-Technical Officer, on ships having a main propulsion power of 750 kW or more prior to commencement of the Bridging Course.

5.2 The onboard training and engine-room watchkeeping service shall:

- (a) be performed under the supervision of a certificated Chief Engineer Officer or Second

Engineer Officer holding a Certificate of Competency in accordance with Regulation III/2 of the STCW Convention;

- (b) include the performance of engine-room watchkeeping duties and associated engineering functions appropriate to the standards of competence prescribed under Regulation III/1 of the STCW Convention;
- (c) be duly recorded in the approved Training Record Book (TRB) prescribed by the DGMA; and
- (d) be supported by testimonials issued jointly by the Chief Engineer Officer and the Master, certifying that the candidate has satisfactorily served as First Assistant to Senior in Full Charge on regular watch on main engines and boilers simultaneously, for the prescribed period of six (6) months or nine (9) months, as applicable.

6. Examination Requirements

Candidates shall be required to:

- (a) Complete all academic and practical requirements prescribed for MEO Class-IV(FG) candidates;
- (b) Demonstrate competence in accordance with Section A-III/1 of the STCW Code;
- (c) Candidates who have not performed boiler-related duties during the approved onboard training period after completion of the Bridging Course shall be required to successfully complete the Marine Boiler and Steam Engineering Course (Operational Level) at a DGS-approved Maritime Training Institute (MTI).
- (d) Pass the written examinations for MEO Class-IV (Part-A), comprising Heat Engines, Applied Mechanics, Mathematics, and Engineering Drawing. However, candidates holding a B.E./B.Tech. Engineering Degree that satisfies the prescribed educational entry standards for the Electro-Technical Officer (ETO) course shall be exempted from the mathematics examination.
- (e) Pass the written and oral examinations for MEO Class-IV (Part-B), except for Function 5 – Electrical, Electronic and Control Engineering at the Operational Level, for which such candidates shall be exempted from both the written and oral examinations.

7. Certificate of Competency

Upon successful completion of all the prescribed academic, practical, sea service, training, and examination requirements, the candidate shall be eligible for the issue of a Marine Engineer Officer Class-IV Certificate of Competency under Regulation III/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended.

8. Miscellaneous Provisions:

- (i) A candidate may appear for the MEO Class-IV (Part-A) written examinations at any time after successful completion of the approved Bridging Course. However, the candidate should have passed all applicable MEO Class-IV (Part-A) examinations before making an application for the MEO Class-IV (Part-B) assessment and examination.

- (ii) A candidate may complete the Engine Room Simulator (Operational Level) course only after completion of the mandatory sea service.
- (iii) The Training Branch of the Directorate General of Maritime Administration may issue separate Guidelines for Approval of the Bridging Course in due course.
- (iv) Candidates who have successfully completed the approved Bridging Course may obtain the Training and Assessment Record (TAR) Book directly from the Institute of Marine Engineers (India) [IME(I)] or through the Maritime Training Institute (MTI) where they completed the Bridging Course.
- (v) Candidates holding a valid Certificate of Competency as Electro-Technical Officer (ETO) issued by the Government of India in accordance with Regulation III/6 of the STCW Convention, who have served onboard ships in the rank of Electrician, Electrical Officer, or any other equivalent designation, may have such service considered towards the transition requirements, provided that:
- the candidate has independently performed the duties and responsibilities of an Electro-Technical Officer;
 - such service is supported by a certificate or testimonial issued by the Chief Engineer of the vessel confirming the duties performed; and
 - the service is duly authenticated by the Recruitment and Placement Services (RPS) Company or the shipping company concerned and is verifiable online.
- (vi) The prescribed **nine** months or, where applicable, **six** months of approved onboard training, including completion of the Training and Assessment Record (TAR) Book and engine-room watchkeeping service, may be undertaken while serving in the capacity of an Electro-Technical Officer (ETO). Such training shall be conducted under the supervision of the Chief Engineer and in accordance with the approved TAR Book.

A candidate who does not appear for the written examination, the oral examination, or both, within two years from the date of successful completion of the Bridging Course shall be required to undergo the MEO Class IV Preparatory Course before becoming eligible to apply for the Marine Engineer Officer Class-IV (FG) Certificate of Competency examinations.

- (vii) Where the approved onboard training and engine-room watchkeeping service are undertaken concurrently with the candidate's duties as an Electro-Technical Officer, the shipping company shall ensure compliance with the provisions relating to hours of work and hours of rest prescribed under the Maritime Labour Convention, 2006 (MLC, 2006), as amended, and the STCW Convention and Code, as applicable. The company shall ensure that the additional training and watchkeeping responsibilities do not result in any non-compliance with the statutory requirements governing fatigue prevention, safe manning, and hours of rest.

9. Interpretation

Any doubt or difficulty regarding the interpretation or implementation of this Circular shall be referred to the Engineering Wing of the Directorate General of Shipping (email id. xxxxxx). The decision of the Directorate General of Maritime Administration in this regard shall be final and binding.

This Circular is issued with the approval of the Competent Authority.

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(Praveen Nair)

Dy.Chief Surveyor cum Sr.DDG(Technical),

To

1. The Principal Officers, Mercantile Marine Department,
Mumbai/Kolkata/Chennai/Kandla/Kochi.
2. The Surveyor-in-Charge, Mercantile Marine Department, Goa/Jamnagar/Port
Blair/Visakhapatnam/Tuticorin/Noida/Haldia/Paradip/Mangalore
3. Indian National Shipowner's Association (INSA), Mumbai.
4. Indian Coastal Conference Shipping Association (ICCSA), Mumbai
5. Institute of Marine Engineers (India)
6. The Chief Surveyor with the Govt.of India
7. Engineering Wing
8. Training Branch
9. Hindi cell
10. Computer cell

Bridging Course for Transition from Electro-Technical Officer (ETO) to Marine Engineer Officer Class-IV

Course Duration

The Bridging Course shall be Three Months (12 Weeks) comprising 60 Working Days with 360 Contact Hours. The course shall be conducted through classroom instruction supported by multimedia presentations, machinery operation videos, technical animations, case studies, engineering calculations, tutorials and interactive discussions. The Engine Room Simulator (Operational Level) Course shall not form part of this Bridging Course.

Sl. No.	Subject	Hours
1	Marine Engineering Practice	30
2	Marine Machinery Systems	45
3	Thermodynamics and Heat Engines	35
4	Applied Mechanics and Fluid Mechanics	30
5	Engineering Drawing	20
6	Auxiliary Machinery	35
7	Marine Boilers and Steam Systems	25
8	Refrigeration and Air Conditioning	20
9	Naval Architecture and Ship Construction	20
10	Engineering Watchkeeping Duties	25
11	Planned Maintenance Systems	20
12	Marine Legislation and Safety Management	15
13	Marine Environmental Protection, SOLAS, MARPOL and Occupational Safety	15
14	Engine-room Resource Management	10
15	Workshop Skills through Videos, Case Studies and Practical Demonstrations	35
Total		360

1. Marine Engineering Practice (30 Hours)

This subject shall introduce the candidates to the organization and operation of a modern engine room. The syllabus shall include engine-room layout, propulsion arrangements, machinery spaces, shafting systems, bearings, couplings, propellers, stern tube arrangements, piping systems, engineering terminology, machinery nomenclature, engineering materials, fasteners, seals, gaskets, maintenance philosophy, machinery documentation, manufacturer's manuals, and engineering calculations. Classroom instruction shall be supplemented by videos demonstrating engine-room layouts, machinery arrangements, and maintenance procedures.

2. Marine Machinery Systems (45 Hours)

This subject shall cover the construction, operation, maintenance and troubleshooting of marine propulsion machinery. Instruction shall include two-stroke and four-stroke marine diesel engines, fuel injection systems, combustion, scavenging, turbochargers, starting air systems, reversing arrangements, crankshaft systems, bearings, pistons, cylinder liners, lubrication systems, cooling systems, exhaust systems, shaft generators, reduction gears and propulsion shafting. Video demonstrations shall include engine overhauls, piston withdrawal, bearing inspection, turbocharger maintenance and machinery troubleshooting.

3. Thermodynamics and Heat Engines (35 Hours)

The syllabus shall include gas laws, properties of steam, thermodynamic processes, First and Second Laws of Thermodynamics, Diesel Cycle, Otto Cycle, Dual Cycle, Rankine Cycle, heat transfer, combustion, heat exchangers, condensers, evaporators, steam generation, thermal efficiency and marine applications. Video demonstrations shall illustrate combustion processes, heat transfer equipment and steam plant operation.

4. Applied Mechanics and Fluid Mechanics (30 Hours)

This subject shall include engineering mechanics, statics, dynamics, stress, strain, torsion, bending moments, vibration, balancing, bearings, shaft alignment, hydraulic principles, Bernoulli's equation, fluid flow, cavitation, centrifugal pumps, positive displacement pumps, valves, piping systems, bilge systems, ballast systems and hydraulic machinery. Classroom exercises shall include engineering calculations and problem-solving.

5. Engineering Drawing (20 Hours)

Instruction shall include engineering drawing principles, orthographic projection, sectional drawings, assembly drawings, piping diagrams, hydraulic schematics, machinery drawings, interpretation of manufacturers' drawings, engineering symbols, tolerances and reading of marine engineering plans. Practical exercises shall involve interpretation of machinery drawings and piping layouts.

6. Auxiliary Machinery (35 Hours)

The syllabus shall cover pumps, compressors, air bottles, purifiers, fresh water generators, oily water separators, sewage treatment plants, incinerators, steering gear, hydraulic systems, deck machinery, windlasses, mooring winches, heat exchangers and associated piping systems. Video demonstrations shall illustrate dismantling, overhaul, inspection and testing procedures.

7. Marine Boilers and Steam Systems (25 Hours)

Instruction shall include auxiliary boilers, exhaust gas boilers, steam generation, boiler mountings, boiler water treatment, combustion control, steam distribution systems, condensate systems, feed water

systems, steam traps, safety devices, boiler surveys and routine maintenance. Videos shall demonstrate boiler lighting-up, steam raising, water testing, soot blowing, shutdown procedures and boiler inspections.

8. Refrigeration and Air Conditioning (20 Hours)

The syllabus shall include refrigeration principles, refrigerants, refrigeration compressors, condensers, evaporators, thermostatic controls, provision plants, air-conditioning systems, ventilation systems, humidity control and fault diagnosis. Video demonstrations shall illustrate compressor overhaul, leak detection, charging procedures and routine maintenance.

9. Naval Architecture and Ship Construction (20 Hours)

Instruction shall include ship terminology, ship dimensions, hydrostatics, stability principles, trim, subdivision, watertight integrity, ship construction, framing systems, bulkheads, double bottom construction, shaft tunnel arrangements, rudders, propellers, dry docking, corrosion and structural maintenance. Classroom discussions shall be supported by animations and ship construction videos.

10. Engineering Watchkeeping Duties (25 Hours)

This subject shall cover the duties and responsibilities of an Officer in Charge of an Engineering Watch in accordance with STCW Regulation III/1. Topics shall include watchkeeping principles, unattended machinery spaces (UMS), machinery monitoring, engine-room rounds, logbook entries, alarm management, machinery isolation, emergency procedures, communication, watch handover and operational reporting. Videos shall demonstrate normal and emergency watchkeeping situations.

11. Planned Maintenance Systems (20 Hours)

Instruction shall include planned maintenance philosophy, maintenance scheduling, condition monitoring, machinery history records, spare parts management, maintenance documentation, vibration monitoring, lubrication management, dry-docking preparations, machinery surveys and defect reporting. Candidates shall be introduced to computerized Planned Maintenance Systems (PMS) commonly used onboard ships.

12. Marine Legislation and Safety Management (15 Hours)

The syllabus shall cover the Merchant Shipping Act, STCW Convention, ISM Code, ISPS Code, MLC, 2006, statutory surveys and certification, flag State requirements, classification society requirements, accident reporting, safety management systems, permit-to-work procedures, risk assessment, enclosed space entry and emergency preparedness.

13. Marine Environmental Protection, SOLAS, MARPOL and Occupational Safety (15 Hours)

Instruction shall include SOLAS requirements relating to machinery spaces, MARPOL Annexes I to VI, Ballast Water Management Convention, Anti-Fouling Systems Convention, pollution prevention equipment, Oil Record Book, garbage management, sewage management, emission control, energy efficiency, occupational health and safety, personal protective equipment, permit-to-work systems, lock-out/tag-out procedures and accident prevention. Videos of machinery accidents and environmental incidents shall be used for discussion and analysis.

14. Engine-room Resource Management (10 Hours)

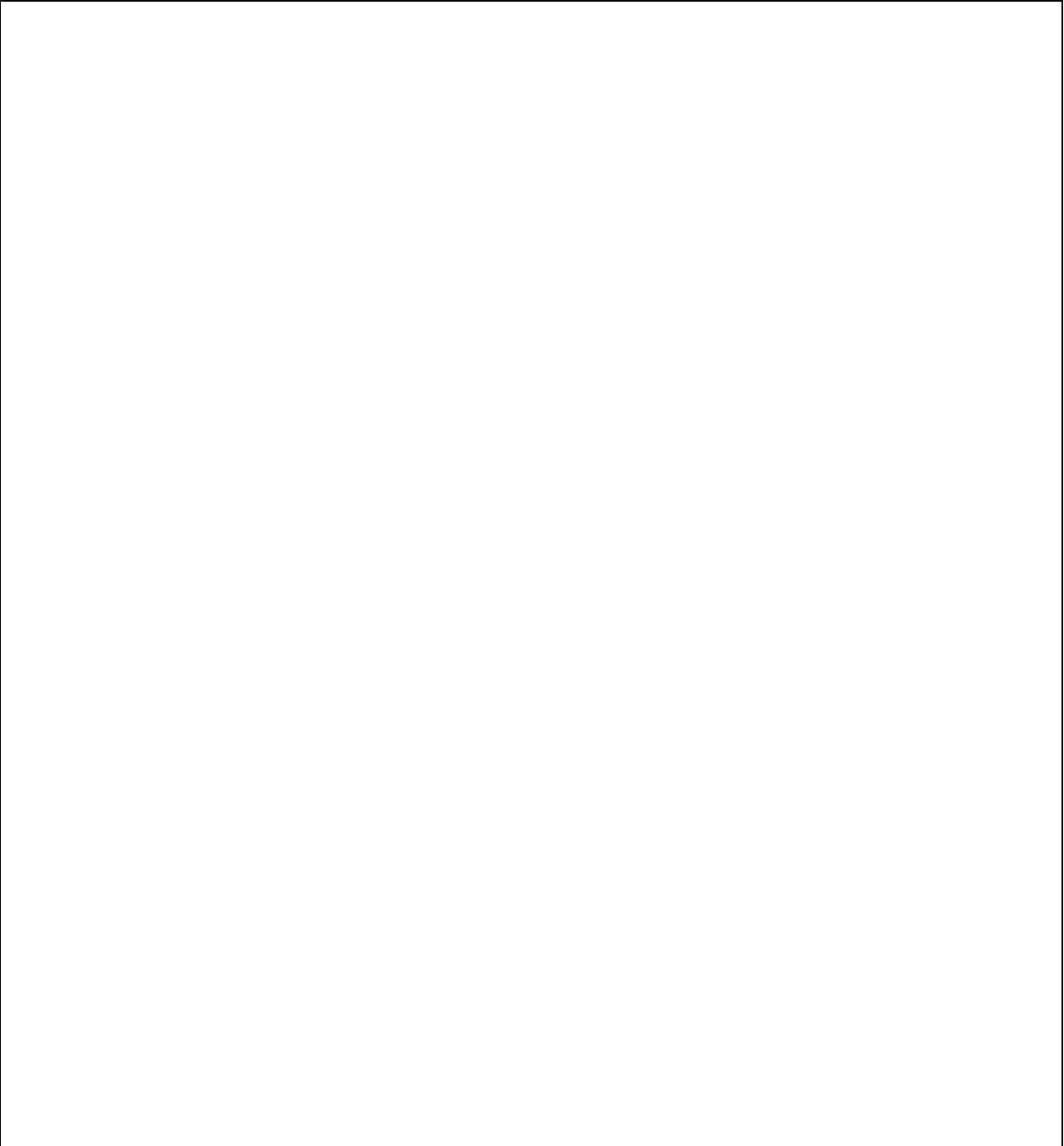
This subject shall include principles of Engine-room Resource Management (ERM), leadership, communication, teamwork, situational awareness, workload management, decision making, fatigue management, human factors, emergency coordination and bridge-engine room communication. Case studies based on marine casualties shall be discussed.

15. Workshop Skills through Videos, Case Studies and Practical Demonstrations (35 Hours)

Since the Bridging Course is classroom-based, workshop training shall be imparted through high-definition instructional videos, three-dimensional animations, manufacturer maintenance videos and technical demonstrations. The module shall cover bench fitting, use of measuring instruments, shaft alignment, bearing inspection, valve overhaul, pump maintenance, gasket making, pipe fitting, mechanical seals, coupling alignment, welding awareness, machinery dismantling and assembly procedures, turbocharger overhaul, purifier maintenance, boiler maintenance and machinery troubleshooting. The module shall also include accident investigation reports, machinery failure analysis and discussion of best maintenance practices. Candidates shall be required to analyse maintenance procedures and engineering case studies as part of classroom exercises.

Assessment

Assessment shall comprise written examinations, tutorials, assignments, engineering calculations, case study analysis and viva-voce. Continuous internal assessment shall be conducted throughout the course. A candidate shall obtain a minimum of 60% marks in the written examination and 60% aggregate marks overall to successfully complete the Bridging Course and become eligible for further onboard Training and Assessment as specified in the TAR Book.



१वीं मंजिल, बीटा बिल्डिंग, आई थिंक टेक्नो कैंपस, कांजुर गाँव रोड, कांजुरमार्ग (पूर्व), मुंबई - ४०००४२

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