

University of Mumbai



AAMS_UGS /ICC/2022-23/81

CIRCULAR:-

Sub :- Dual Diploma – Degree Programme Master of Arts (Maritime and Management Studies) [M.A (MMS)] and Post- Graduate Diploma in Management Studies (PGDMS).

Ref :- RB/MU-2022/CR-207/Edn-5/899, dated 18th August, 2022.

All the Principals of the Affiliated Colleges, the Head of the University Department and Directors of the recognized Institutions in Faculty of Science and Technology are hereby informed that the recommendations made by the Ad-hoc Board of Studies in **Maritime Studies** at its online meeting held on 21st February, 2022 vide item No. 1 and subsequently passed by the Board of Deans at its online meeting held on 23rd February, 2022 vide item No. 6.3 (N) have been accepted by the Academic Council at its meeting held on 17th May, 2022, vide item No. 6.3 (N) and subsequently approved by the Management Council at its meeting held on 25th May, 2022 vide item No. 4 and that in accordance therewith, in exercise of the powers conferred upon the Management Council under Section 74(4) of the Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017) the Ordinance 6789 & 6790 Regulations 9546 to 9548 and the syllabus of **Dual Diploma – Degree Programme Master of Arts (Maritime and Management Studies) [M.A (MMS)] and Post- Graduate Diploma in Management Studies (PGDMS) Sem – I to IV (CBCS)** has been introduced and the same have been brought into force with effect from the academic year **2022-23**, accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032

20th August, 2022

To,

(Dr. Vinod Patil)
I/c. REGISTRAR

The Principals of the Affiliated Colleges, the Head of the University Department and Directors of the recognized Institutions in Faculty of Science and Technology.

A.C/6.3(N)/17/5/2022

M.C/4/25/5/2022

AAMS_UGS/ICC/2022-23/81

20th August, 2022

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans
- 2) The Dean, Faculty of Science and Technology,
- 3) The Chairman, Ad-hoc Board of Studies in Maritime Studies,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Board of Students Development,
- 6) The Director, Department of Information & Communication Technology,
- 7) The Co-ordinator, MKCL.

(Dr. Vinod Patil)
I/c. REGISTRAR

UNIVERSITY OF MUMBAI



Syllabus for Approval

| Sr. No. | Heading | Particulars |
|---------|--|---|
| 1 | Title of the Course 0.6789 | Dual Diploma-Degree Programme Master of Arts (Maritime and Management Studies) [M.A.(MMS)] And Post-Graduate Diploma in Management Studies (PGDMS) |
| 2 | Eligibility for Admission 0.6790 | (a) Selection of candidates will be based on nomination by the service Headquarters based on merit and qualifying the in-service Professional Management Examination. (b) Any Bachelor's Degree from a UGC recognized University. (c) Or Equivalent Qualification. (d) Candidates must have secured minimum 50% marks at bachelor's degree examination and as per rules of University of Mumbai and Govt. of Maharashtra. (e) Foreign candidates should have equivalent degree from foreign Universities recognized by Association of Indian Universities (AIU) |
| 3 | Passing Marks | 50% |
| 4 | Ordinances / Regulations (if any) | — |
| 5 | No. of Years /Semesters / Duration of Course | (i) M.A. (MMS) – 01 Year (Sem.- III & IV) (ii) PGDMS – One Year |
| 6 | Level | Certificate/Diploma/UG/PG (Strike out which is not applicable) |
| 7 | Pattern | Semester/Yearly (Strike out which is not applicable) |
| 8 | Status | Revised/New /Amended (Strike out which is not applicable) |
| 9 | To be implemented from Academic Year | From Academic Year:2022-2023 |

Signature Chairman of BoS

Name of BOS Chairman :- Dr. Anuradha Majumdar

Dr. Anuradha Majumdar
Dean, Science and Technology

3. Eligibility for Admission. 0. 6790

- (a) Selection of candidates will be based on nomination by the Service Headquarters based on merit and qualifying the in-service Professional Management Examination.
- (b) Any Bachelor's Degree from a UGC recognised University.
- (c) Or Equivalent Qualification.
- (d) Candidates must have secured minimum 50% marks at bachelor's degree examination and as per rules of University of Mumbai and Govt. of Maharashtra.
- (e) Foreign candidates should have equivalent degrees from foreign Universities recognized by Association of Indian Universities (AIU).

R.9546

4. Intake Capacity: Maximum intake 75 or as decided by Integrated Head Quarters Ministry of Defence (Navy).

5. Broad Semester wise Programme: Normally a Master's Degree Programme is for a duration of two years or four Semesters. Since the officers attending the course have already gained sufficient hands on experience of more than a decade after completion of Graduation Programme and should have cleared the Professional Management Exam conducted by the respective service headquarters, only Semester III and Semester IV will be conducted spread over 50 weeks as required for the Dual Diploma-Degree Programme. The breakdown of each semester is as follows:-

(a) Semester I and II - The participant should have a minimum qualifying service of 13 years with selection being undertaken by Service Headquarters based on merit and qualifying the in-service Professional Management Exam comprising of six papers totaling 1200 marks totaling 48 Credits. Out of the six papers, three papers are common to all the officers and three elective papers are based on the Branch in which the officer is inducted in the service. The 48 Credits obtained in the six papers will be considered equivalent to completion of Semester I and Semester II as required for the award of M.A. (Maritime and Management Studies). Sem I and Sem II will have a 24 Credits each.

(b) Semester III - Semester III will comprise of four core theory subjects and submission of one Strength Area Paper selected from an elective subject for a total of 24 Credits. Semester III will be a Contact Phase with classes conducted at Naval War College, Goa. Semester III will be a mandatory requirement to be fulfilled for award of M.A. (Maritime and Management Studies) through CEMAS, UoM. In addition to the subjects as mandated for M.A. (MMS) the course participant will also undergo a capsule comprising of nine theory subjects and one project work, which will qualify for award of Post-Graduate Diploma in Management Studies from JBIMS, UoM, conducted by faculty pooled in from JBIMS, NWC, Goa and eminent experts from the field as is currently being followed.

(c) Semester IV - Semester IV will comprise of submission of a Master Level Dissertation with a total of 24 Credits. The topics will be covering subjects related to maritime domain, management, technology and staff processes. The students will be required to submit a dissertation on a relevant topic approved by Naval War College, Goa. Semester IV will be a mandatory requirement for award of M.A. (Maritime and Management Studies) through CEMAS, UoM. This Semester will be a 26 weeks non-

Project Work:-

| Paper Code | Subject | Credits |
|------------|---|---------|
| PGDMSPW | A project is required to be carried out on a topic that applies the tenants of management to practical problems faced by naval agencies. This must be approved by Naval War College. The project is required to be substantiated with a project report which will be evaluated by a panel comprising of examiners from JBIMS and NWC. 102 hrs 150 Marks | 06 |

Semester IV (M.A. (MMS)): M.A. (Maritime and Management Studies) Dissertation Based Major Project Work, **25 weeks, 24 credits, 600 marks.**

M.A. (Maritime and Management Studies) for Semester IV consists of full term Dissertation Based Research Project of 24 credits. Every student will have to complete a separate project with 24 credits totaling 600 marks. Students would be required to prepare and submit a Master level thesis and the final evaluation will be done by a panel comprising of an Expert, Guide and a DS nominated at Naval War College on the bases of the quality of the thesis and Viva-Voce examination. This Semester will be a non-contact phase of the programme, with online contact programmes as necessary for a duration of 24 weeks.

The candidate shall be awarded a Post-Graduate Diploma in Management from JBIMS, University of Mumbai on successful completion of additional subjects as mandated at Semester III and Master of Arts (Maritime and Management Studies) from CEMAS, University of Mumbai on successful completing the Semester III and IV, and subject to earlier qualification in Professional Management Exam conducted by the Service Headquarters which will be considered as Semester I and II for M.A. (MMS).

R. 9547
7. **Scheme of Examination and Passing.**

- This course will have End Course Examination either on completion of each subject or in the End of Semester.
- Written examination will be conducted for each subject immediately on its completion, by Naval War College as per the existing norms, statutes and ordinances.
- Theory subject will be evaluated for the maximum marks as mentioned against each in para 6 above.
- To pass, a student has to obtain minimum 50% marks and above.
- The examination for theory and term assignments shall be conducted at end of each subject by Naval War College.
- Assessment of Project Work, at Semester III will be carried out by a panel comprising of Examiners from JBIMS, UoM and Naval War College, Goa.
- Evaluation of Strength Area Paper will be carried out by a panel comprising of Directing Staff from Naval War College.
- Evaluation of Dissertation, at the end of Semester IV will be carried out by a panel comprising of an External Examiner, Guide and a Directing Staff, coordinated by Naval War College, Goa.

R.9548

8. Standard of Passing for University Examinations. As per ordinances and regulations prescribed by the University for Trimester based credit and grading system.

9. Standard Point Scale for Grading.

| Grade | Percentage of Marks | Grade Points |
|----------|---------------------|--------------|
| O | 90 & above | 10 |
| A+ | 80 to 89.99 | 9 |
| A | 70 to 79.99 | 8 |
| B+ | 60 to 69.99 | 7 |
| B | 50 to 59.99 | 6 |
| C | 45 to 49.99 | 5 |
| D | 40 to 44.99 | 4 |
| F (Fail) | 39.99 & below | 0 |
| AB | Absent | 0 |

10. Semester Grade Point Average (SGPA). The performance of a course participant in a semester is indicated by a number called SGPA. SGPA is the weighted average of the grade points obtained in all the subjects by the course participant during the semester. For example, if a student takes five courses in a semester with credits C1, C2, C3, C4 and C5 and the student's grade point is G1, G2, G3, G4 and G5, respectively and then students SGPA is equal to :

$$\text{SGPA (S)} = \frac{G1C1+G2C2+G3C3+G4C4+G5C5}{C1+C2+C3+C4+C5}$$

SPGA is calculated to two decimal points. It should be noted that, the SPGA for any semester shall take into consideration the F and ABS grade point value (G) awarded in that semester a Zero.

11. Cumulative Grade Point Average (CGPA). CGPA is calculated with the SGPA of all the four semesters to the two decimal points and is indicated in final grade report card/ final transcript showing the grades of all four semesters and their courses. The CGPA shall reflect the failed status in case of F grades, till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. CGPA is calculated as:

$$\text{CPGA} = \frac{S1C1+S2C2+S3C3+S4C4}{C1+C2+C3+C4+C5}$$

where C1, C2, C3 and C4 is the total number of credits for Semester I, II, III and IV respectively and S1, S2, S3 and S4 are the SPGA obtained in Semester I, II, III and IV respectively.

12. Declaration of Results. Although the GPA is a stand alone system of grading and not amenable to facile conversion to percentage marks, in general, the conversion of CGPA to percentage marks is $\text{CGPA} \times 9.5 = \text{Percentage Marks}$. The class shall be awarded on the basis of CGPA as follows:-

(a) First Class with Distinction - CGPA of 7.37 and above

University of Mumbai



Dean (Science & Technology)

7th June 2022

Programme:

Syllabus for the Dual Diploma - Degree Programme

Master of Arts (Maritime and Management Studies) (M.A. (MMS) Sem. III & IV
And

Post-Graduate Diploma in Management Studies (PGDMS) Sem. III & IV

Justification:

1. Necessity of starting the Courses:

The programme MA (MMS) to be executed by Indian Navy at Naval War College, Goa in Collaboration Center for Excellence in Maritime Studies (CEMAS), University of Mumbai and Post-Graduate Diploma in Management Studies (PGDMS) from Jamnalal Bajaj Institute of Management Studies (JBIMS), University of Mumbai is based on a choice-based credit system. Naval War College conducts courses for officers from the Indian Navy, Indian Army, and Indian Air Force, Coast Guard and DPSU/ Defence Shipyards including participants from friendly foreign countries and maritime experts from civil industries who are senior/ middle level Leaders.

2. Whether UGC has recommended to start the said courses:

Yes, UGC is promoting initiation of inter and transdisciplinary courses. UGC and AICTE is also permitting learners in pursuing two academic programmes parallelly at the same time following all cumulative credit requirements as per UGC guidelines.

3. Whether all the courses have commenced from the academic year 2022-23:

Yes, from the academic year 2022-23.

4. The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?

Yes, faculty of Indian Navy, Naval war college, JBIMS and CEMAS.

5. To give details regarding duration of the course and is it possible to compress the course.

The programme is divided into four semesters, out of which Sem I and Sem II will be based on the marks obtained by the participants in the six papers of the in-service Professional Management Exam conducted by the respective Navy Service Headquarters totaling to 1200 marks. The Sem I and Sem II will have 24 credits, each.

In Sem III and IV the learner has to complete total of 13 Theory, one Project, one Strength Area Paper and one Dissertation covering subjects related to maritime domain, management, technology and staff processes. In Semester III, each learner will have to complete four theory papers, one Strength Area Paper of an individual's area of experience as required for M.A. (MMS) programme and nine additional theory subjects & one project work to meet the requirement of PGDMS. Semester IV of M.A. (MMS) will be submission of one Dissertation for award of Master's degree on a topic related to maritime studies. The syllabus of these courses is designed to be dynamic and contemporary, that will aid conceptual understanding and synergies field work, research with data analysis. Sem III and Sem IV will also have 24 credits, each. Cumulative credits of MA (MMS) will be 96 credits.

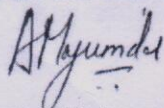
The Semester III of the Dual Degree Programme will consist of additional subjects that are required to be competed for the award of Post Graduate Diploma in Management Studies from JBIMS, UoM. This will consist of 09 theory Subjects and one term project, with cumulative 18 credits.

6. The intake capacity of each course and no of admissions given in the current academic year (2022-23)

Intake: 75

7. Opportunities of employability/Employment available after undertaking this course

This programme will educate, train and groom serving officers from the Indian Navy, Indian Army, Indian Air Force, Coast Guard and Defence Public Sector Undertaking (DPSU)/ Shipyards including participants from friendly foreign navies to be prepared for senior staff appointments and be an able advisor to the policy makers in tune with the prevailing Geo-political security environment, with emphasis on the Maritime Domain.



Dr. Anuradha Majumdar,
Dean & Chairperson, Ad-hoc Board of Studies in Maritime Studies
Under the faculty of Science and Technology

Copy to :-

- 1. The Deputy Registrar, Academic Authorities Meetings and Services (AAMS),**
- 2. The Deputy Registrar, College Affiliations & Development Department (CAD),**
- 3. The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Department (AEM),**
- 4. The Deputy Registrar, Research Administration & Promotion Cell (RAPC),**
- 5. The Deputy Registrar, Executive Authorities Section (EA),**
- 6. The Deputy Registrar, PRO, Fort, (Publication Section),**
- 7. The Deputy Registrar, (Special Cell),**
- 8. The Deputy Registrar, Fort/ Vidyanagari Administration Department (FAD) (VAD), Record Section,**
- 9. The Director, Institute of Distance and Open Learning (IDOL Admin), Vidyanagari,**

They are requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to in the above circular and that on separate Action Taken Report will be sent in this connection.

- 1. P.A to Hon'ble Vice-Chancellor,**
- 2. P.A Pro-Vice-Chancellor,**
- 3. P.A to Registrar,**
- 4. All Deans of all Faculties,**
- 5. P.A to Finance & Account Officers, (F.& A.O),**
- 6. P.A to Director, Board of Examinations and Evaluation,**
- 7. P.A to Director, Innovation, Incubation and Linkages,**
- 8. P.A to Director, Board of Lifelong Learning and Extension (BLLE),**
- 9. The Director, Dept. of Information and Communication Technology (DICT) (CCF & UCC), Vidyanagari,**
- 10. The Director of Board of Student Development,**
- 11. The Director, Department of Students Welfare (DSD),**
- 12. All Deputy Registrar, Examination House,**
- 13. The Deputy Registrars, Finance & Accounts Section,**
- 14. The Assistant Registrar, Administrative sub-Campus Thane,**
- 15. The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,**
- 16. The Assistant Registrar, Ratnagiri sub-centre, Ratnagiri,**
- 17. The Assistant Registrar, Constituent Colleges Unit,**
- 18. BUCTU,**
- 19. The Receptionist,**
- 20. The Telephone Operator,**
- 21. The Secretary MUASA**

for information.

UNIVERSITY OF MUMBAI



Syllabus
for the
Dual Diploma-Degree Programme
Master of Arts (Maritime and Management Studies)
[M.A.(MMS)]
Semesters – III & IV
And
Post-Graduate Diploma in Management Studies
(PGDMS)
Semesters – III & IV

(To introduce with effect from the academic year 2022-23)

UNIVERSITY OF MUMBAI



Syllabus for Approval

| Sr. No. | Heading | Particulars |
|---------|--|---|
| 1 | Title of the Course | Dual Diploma-Degree Programme Master of Arts (Maritime and Management Studies) [M.A.(MMS)] And Post-Graduate Diploma in Management Studies (PGDMS) |
| 2 | Eligibility for Admission | (a) Selection of candidates will be based on nomination by the service Headquarters based on merit and qualifying the in-service Professional Management Examination. (b) Any Bachelor's Degree from a UGC recognized University. (c) Or Equivalent Qualification. (d) Candidates must have secured minimum 50% marks at bachelor's degree examination and as per rules of University of Mumbai and Govt. of Maharashtra. (e) Foreign candidates should have equivalent degree from foreign Universities recognized by Association of Indian Universities (AIU) |
| 3 | Passing Marks | 50% |
| 4 | Ordinances / Regulations (if any) | — |
| 5 | No. of Years /Semesters / Duration of Course | (i) M.A. (MMS) – 01 Year (Sem.- III & IV) (ii) PGDMS – One Year |
| 6 | Level | Certificate/Diploma/UG/PG (Strike out which is not applicable) |
| 7 | Pattern | Semester/Yearly (Strike out which is not applicable) |
| 8 | Status | Revised/New /Amended (Strike out which is not applicable) |
| 9 | To be implemented from Academic Year | From Academic Year:2022-2023 |

A. Majumdar

Signature Chairman of BoS

Name of BOS Chairman :- *Dr. Anuradha Majumdar*

A. Majumdar

Dr. Anuradha Majumdar
Dean, Science and Technology

PREAMBLE

The Dual Diploma-Degree programme of Postgraduate Diploma in Management Studies (PGDMS) and Master of Arts (Maritime and Management Studies) (M.A. (MMS)) is being implemented at Naval War College, Goa.

Naval War College (NWC) was established in the year 1988 at Karanja, Mumbai, as College of Naval Warfare. The College was renamed as Naval War College (NWC) in Aug 2010 and shifted to Goa inside INS Mandovi premises in 2011. NWC, Goa commenced its professional military education activities from present location in Sep 2011.

NWC was set up with a vision to be the pre-eminent iconic institution facilitating higher education, war gaming and cutting edge research on maritime security and warfare at strategic and operational level. The preamble of the college is to prepare officers of the Navy, Army, Air Force and other organisations for Leadership at Strategic and Operational level by developing critical thinking, analytical ability, strategic vision and proficiency in Operational Art.

Naval War College conducts courses for officers from the Indian Navy, Indian Army, and Indian Air Force, Coast Guard and DPSU/ Defence Shipyards including participants from friendly foreign countries and maritime experts from civil industries who are senior/ middle level Leaders.

The interdisciplinary dual diploma-degree of the Master of Arts (Maritime and Management Studies) (M.A. (MMS)) from Center for Excellence in Maritime Studies (CEMAS), University of Mumbai and Post-Graduate Diploma in Management Studies (PGDMS) from Jamnalal Bajaj Institute of Management Studies (JBIMS), University of Mumbai is based on a choice based credit system.

The programme is divided into four semesters, out of which Sem I and Sem II will be based on the marks obtained by the participants in the six papers of the in-service Professional Management Exam conducted by the respective Service Headquarters totaling to 1200 marks. The Sem I and Sem II will have 24 credits each.

In Sem III and IV the learner has to complete total of 13 Theory, one Project, one Strength Area Paper and one Dissertation covering subjects related to maritime domain, management, technology and staff processes. In Semester III, each learner will have to complete four theory papers, one Strength Area Paper of an individual's area of experience as required for M.A. (MMS) programme and nine additional theory subjects & one project work to meet the requirement of PGDMS. Semester IV of M.A. (MMS) will be submission of one Dissertation for award of Master's degree on a topic related to maritime studies. The syllabus of these courses is designed to be dynamic and contemporary, that will aid conceptual understanding and synergise field work, research with data analysis. Sem III and Sem IV will also have 24 credits each.

This programme will educate, train and groom serving officers from the Indian Navy, Indian Army, Indian Air Force, Coast Guard and Defence Public Sector Undertaking (DPSU)/ Shipyards including participants from friendly foreign navies to be prepared for senior staff appointments and be an able advisor to the policy makers in tune with the prevailing Geo-political security environment, with emphasis on the Maritime Domain. The programme can be executed in the blended mode of teaching and learning.

3. **Eligibility for Admission.**

- (a) Selection of candidates will be based on nomination by the Service Headquarters based on merit and qualifying the in-service Professional Management Examination.
- (b) Any Bachelor's Degree from a UGC recognised University.
- (c) Or Equivalent Qualification.
- (d) Candidates must have secured minimum 50% marks at bachelor's degree examination and as per rules of University of Mumbai and Govt. of Maharashtra.
- (e) Foreign candidates should have equivalent degrees from foreign Universities recognized by Association of Indian Universities (AIU).

4. **Intake Capacity:** Maximum intake 75 or as decided by Integrated Head Quarters Ministry of Defence (Navy).

5. **Broad Semester wise Programme:** Normally a Master's Degree Programme is for a duration of two years or four Semesters. Since the officers attending the course have already gained sufficient hands on experience of more than a decade after completion of Graduation Programme and should have cleared the Professional Management Exam conducted by the respective service headquarters, only Semester III and Semester IV will be conducted spread over 50 weeks as required for the Dual Diploma-Degree Programme. The breakdown of each semester is as follows:-

- (a) **Semester I and II** - The participant should have a minimum qualifying service of 13 years with selection being undertaken by Service Headquarters based on merit and qualifying the in-service Professional Management Exam comprising of six papers totaling 1200 marks totaling 48 Credits. Out of the six papers, three papers are common to all the officers and three elective papers are based on the Branch in which the officer is inducted in the service. The 48 Credits obtained in the six papers will be considered equivalent to completion of Semester I and Semester II as required for the award of M.A. (Maritime and Management Studies). Sem I and Sem II will have a 24 Credits each.
- (b) **Semester III** - Semester III will comprise of four core theory subjects and submission of one Strength Area Paper selected from an elective subject for a total of 24 Credits. Semester III will be a Contact Phase with classes conducted at Naval War College, Goa. Semester III will be a mandatory requirement to be fulfilled for award of M.A. (Maritime and Management Studies) through CEMAS, UoM. In addition to the subjects as mandated for M.A. (MMS) the course participant will also undergo a capsule comprising of nine theory subjects and one project work, which will qualify for award of Post-Graduate Diploma in Management Studies from JBIMS, UoM, conducted by faculty pooled in from JBIMS, NWC, Goa and eminent experts from the field as is currently being followed.
- (c) **Semester IV** - Semester IV will comprise of submission of a Master Level Dissertation with a total of 24 Credits. The topics will be covering subjects related to maritime domain, management, technology and staff processes. The students will be required to submit a dissertation on a relevant topic approved by Naval War College, Goa. Semester IV will be a mandatory requirement for award of M.A. (Maritime and Management Studies) through CEMAS, UoM. This Semester will be a 26 weeks non-

contact phase in which the last two weeks will be reserved for evaluation of dissertation and conduct of Viva Voce.

6. Course Structure & Distribution of Credits.

Semester I and II (M.A. (MMS)): Semester I and II will be based on the marks and credits obtained by the participants in Professional Management Examination, conducted by the Indian Navy/ parent Service Head Quarters which is a mandatory requirement for admission for M.A. (MMS). The three common subjects appeared by the participant during the in-service Professional Management Examination, totaling 600 marks will be awarded 24 credits and will be considered and equated to Semester I. The remaining three elective subjects in which the participants would have appeared based on their specialisation, totaling 600 marks will be awarded 24 credits and will be considered and equated to Semester II. The details of the Six Subjects as part of Professional Management Examination conducted by the Indian Navy are as follows:-

Qualifying Papers of in-service Professional Management Exam for Semester I of M.A. (MMS)

| Paper Code | Subject | Credits | Marks |
|-------------------|--|----------------|--------------|
| MAMMS101 | Military/ Naval History, Maritime Strategy/ Operational Concepts and General Knowledge | 08 | 200 |
| MAMMS102 | Administration, Law, Logistics, Leadership, Safety and Security | 08 | 200 |
| MAMMS103 | Computer Applications and Nuclear Biological Chemical Defence and Damage Control including Fire Fighting | 08 | 200 |
| Total | | 24 | 600 |

Qualifying Papers of in-service Professional Management Exam for Semester II of M.A. (MMS) (Elective Subjects as per individual Branch of admission)

| Paper Code | Subject | Credits | Marks |
|-------------------|---|----------------|--------------|
| MAMMS201E | Navigation & Direction and Communication (or) General Air Traffic Controllers (or) Regulations for the Navy and Navy Act (or) Guided Weapons (or) Naval Service and Related Matters (Law) (or) Material Logistics (or) Technical Management (or) Naval Architecture – I (or) Education Management (or) Medical/ Dental Administration (or) Advanced IT Concepts and IT policies | 08 | 200 |

| | | | |
|------------------|--|----|-----|
| | (or) Pilot/ Observer | | |
| MAMMS202E | Weapons and Sensors (or) Survey Instruments and Weapons (or) Air Traffic Management (or) Physical Security and Administration (or) Conventional Armament (or) International Law and Laws of the Seas (or) Financial Logistics Management (or) Marine Engineering – I (or) Naval Architecture – II (or) Electrical Engineering – I (or) Education Philosophy and Learning (or) Hospital Administration (or) Cyber Security (or) Air Engineering – 1 (or) Air Electrical - 1 | 08 | 200 |
| MAMMS203E | Machinery, Equipment of Warships and Ships Management (or) Air Administration (or) Acts and Regulations Affecting Service Personnel (or) Quality Assurance of Naval Armament (or) Civil Laws/ Rules for Naval Law (or) General Management (Logistics) (or) Marine Engineering – II (or) Naval Architecture – III (or) Electrical Engineering – II (or) Training Methodology, Meteorology/ Oceanology and Welfare Activities (or) | 08 | 200 |

| | | | |
|--------------|--|-----------|------------|
| | Health Administration (or) Network Operations and Management (or) Air Engineering – II (or) Air Electrical – II (or) INAP, Avionics, Air Regulations | | |
| Total | | 24 | 600 |

Semester III (M.A. (MMS)): Semester III will consist of four theory subjects and one Strength Area Paper selected from an elective subject. The duration of Sem III will be 25 weeks. The details are as follows:-

Theory Courses (04) and Strength Area Paper: Lecture hours 32 hours per week

| <u>Paper Code</u> | <u>Subject</u> | <u>Lectures (Hrs)</u> | <u>Credits</u> | <u>Marks</u> |
|-------------------|--|-----------------------|----------------|--------------|
| MAMMS301 | Concepts of National & Maritime Power and Role in International Relations | 70 | 04 | 100 |
| MAMMS302 | India's Maritime Doctrine & Strategy, Operational Art and War-gaming Concepts | 105 | 06 | 150 |
| MAMMS303 | Overview of International & National Maritime Laws, Maritime Safety and Maritime Trade | 35 | 02 | 50 |
| MAMMS304 | Data Analytics, Artificial Intelligence & Disruptive Technologies | 70 | 04 | 100 |
| MAMMSSAP | Strength Area Paper to be on a topic selected based on individuals experience in the relevant maritime field. Field Visit and Research Methodology Capsule will be included in this syllabus | 148 | 08 | 200 |
| Total | | 428 | 24 | 600 |

Additional subjects to be completed in Semester III for award of PGDMS from JBIMS.

The Semester III of the Dual Degree Programme will consist of the following additional subjects that are required to be completed for the award of Post Graduate Diploma in Management Studies from JBIMS, UoM. This will consist of 09 theory Subjects and one term project. The details are as follows:-

Theory Courses (09): 32 hours per week.

| <u>Paper</u> | <u>Subject</u> | <u>Hours</u> | <u>Credits</u> | <u>Marks</u> |
|-----------------|----------------------------|--------------|----------------|--------------|
| PGDMS101 | Human Resources Management | 36 | 02 | 100 |
| PGDMS102 | Industrial Relations | 36 | 02 | 100 |
| PGDMS103 | Material Management | 18 | 01 | 50 |
| PGDMS104 | Financial Management | 36 | 02 | 100 |
| PGDMS105 | Production Management | 18 | 01 | 50 |
| PGDMS106 | Project Management | 36 | 02 | 100 |
| PGDMS107 | Management in Indian Navy | 36 | 02 | 100 |
| PGDMS108 | Management of Technology | 36 | 02 | 100 |
| PGDMS109 | Quality Management | 18 | 01 | 50 |
| Total | | 270 | 15 | 750 |

Project Work:-

| <u>Paper Code</u> | <u>Subject</u> | <u>Credits</u> |
|--------------------------|---|-----------------------|
| PGDMSPW | A project is required to be carried out on a topic that applies the tenants of management to practical problems faced by naval agencies. This must be approved by Naval War College. The project is required to be substantiated with a project report which will be evaluated by a panel comprising of examiners from JBIMS and NWC. 102 hrs 150 Marks | 06 |

Semester IV (M.A. (MMS)): M.A. (Maritime and Management Studies) Dissertation Based Major Project Work, **25 weeks, 24 credits, 600 marks.**

M.A. (Maritime and Management Studies) for Semester IV consists of full term Dissertation Based Research Project of 24 credits. Every student will have to complete a separate project with 24 credits totaling 600 marks. Students would be required to prepare and submit a Master level thesis and the final evaluation will be done by a panel comprising of an Expert, Guide and a DS nominated at Naval War College on the bases of the quality of the thesis and Viva-Voce examination. This Semester will be a non-contact phase of the programme, with online contact programmes as necessary for a duration of 24 weeks.

The candidate shall be awarded a Post-Graduate Diploma in Management from JBIMS, University of Mumbai on successful completion of additional subjects as mandated at Semester III and Master of Arts (Maritime and Management Studies) from CEMAS, University of Mumbai on successful completing the Semester III and IV, and subject to earlier qualification in Professional Management Exam conducted by the Service Headquarters which will be considered as Semester I and II for M.A. (MMS).

7. Scheme of Examination and Passing.

- (a) This course will have End Course Examination either on completion of each subject or in the End of Semester.
- (b) Written examination will be conducted for each subject immediately on its completion, by Naval War College as per the existing norms, statutes and ordinances.
- (c) Theory subject will be evaluated for the maximum marks as mentioned against each in para 6 above.
- (d) To pass, a student has to obtain minimum 50% marks and above.
- (e) The examination for theory and term assignments shall be conducted at end of each subject by Naval War College.
- (f) Assessment of Project Work, at Semester III will be carried out by a panel comprising of Examiners from JBIMS, UoM and Naval War College, Goa.
- (g) Evaluation of Strength Area Paper will be carried out by a panel comprising of Directing Staff from Naval War College.
- (h) Evaluation of Dissertation, at the end of Semester IV will be carried out by a panel comprising of an External Examiner, Guide and a Directing Staff, coordinated by Naval War College, Goa.

8. **Standard of Passing for University Examinations.** As per ordinances and regulations prescribed by the University for Trimester based credit and grading system.

9. **Standard Point Scale for Grading.**

| <u>Grade</u> | <u>Percentage of Marks</u> | <u>Grade Points</u> |
|--------------|----------------------------|---------------------|
| O | 90 & above | 10 |
| A+ | 80 to 89.99 | 9 |
| A | 70 to 79.99 | 8 |
| B+ | 60 to 69.99 | 7 |
| B | 50 to 59.99 | 6 |
| C | 45 to 49 .99 | 5 |
| D | 40 to 44 .99 | 4 |
| F (Fail) | 39.99 & below | 0 |
| AB | Absent | 0 |

10. **Semester Grade Point Average (SGPA).** The performance of a course participant in a semester is indicated by a number called SGPA. SGPA is the weighted average of the grade points obtained in all the subjects by the course participant during the semester. For example, if a student takes five courses in a semester with credits C1, C2, C3, C4 and C5 and the student's grade point is G1, G2, G3 , G4 and G5, respectively and then students SGPA is equal to :

$$\text{SGPA (S)} = \frac{\text{G1C1+G2C2+G3C3+G4C4+G5C5}}{\text{C1+C2+C3+C4+C5}}$$

SPGA is calculated to two decimal points. It should be noted that, the SPGA for any semester shall take into consideration the F and ABS grade point value (G) awarded in that semester a Zero.

11. **Cumulative Grade Point Average (CGPA).** CGPA is calculated with the SGPA of all the four semesters to the two decimal points and is indicated in final grade report card/ final transcript showing the grades of all four semesters and their courses. The CGPA shall reflect the failed status in case of F grades, till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. CGPA is calculated as:

$$\text{CPGA} = \frac{\text{S1C1+S2C2+S3C3+S4C4}}{\text{C1+C2+C3+C4+C5}}$$

where C1, C2, C3 and C4 is the total number of credits for Semester I, II, III and IV respectively and S1, S2, S3 and S4 are the SPGA obtained in Semester I, II, III and IV respectively.

12. **Declaration of Results.** Although the GPA is a stand alone system of grading and not amenable to facile conversion to percentage marks, in general, the conversion of CGPA to percentage marks is $\text{CGPA} \times 9.5 = \text{Percentage Marks}$. The class shall be awarded on the basis of CGPA as follows:-

(a) First Class with Distinction - CGPA of 7.37 and above

| | | |
|------------------|---|----------------------|
| (b) First Class | - | CGPA of 6.32 to 7.36 |
| (c) Second Class | - | CGPA of 6.00 to 6.31 |

13. **Award of Degree.** Candidates who fulfil the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

14. **Duration of Completion of the programme of study.** Duration for completion of the programme of study shall be fixed as per the norms of the University of Mumbai.

Complete Syllabus: Post Graduate Diploma in Management Studies (PGDMS)
Masters of Arts (Maritime and Management Studies) (M.A. (MMS))

Semester III: Course for award of Master of Arts (Maritime and Management Studies) through CEMAS

MAMMS201: Concepts of National & Maritime Power and Role in International Relations (70 Hours, 04 Credits, 100 Marks)

Course Objectives.

1. The aim of the course is to make the learner develop awareness of how strategic issues can be related to broader conceptual concerns in the field of International relations.
2. This module introduces the learner to strategic studies, a major sub fields of international relations concerned with the use of force in world politics.
3. The course interprets the traditional and contemporary uses of force for political ends. Impart knowledge on the prevailing Geopolitical, Geo-economics and Security in the Indo-Pacific and its effect on Maritime Security.
4. Acquaint the learner with the prevailing Maritime Threats in the Indo-Pacific.
5. Acquaint the learner about the effect of various threats on the countries in the Indo-Pacific and the roll of maritime countries.

| <u>Unit</u> | <u>Course Content</u> | <u>Hours</u> |
|--------------------|--|---------------------|
| 1. | National Security National Aim National Interest National Security Objective Military Strategy and Doctrine | 02 |
| 2. | Higher Defence Decision Making National Security Council Higher Defence Decision Making Organisation Civil-Military elations Maritime Force Restructuring and Planning Financial Planning Research and Development Programmes | 32 |
| 3. | International Relations Why Study International Relations? The State, Nation, Nation-States, Multi-nationalism, Nationalism & Internationalism The Key Concepts in IR: Power, National Interest, Balance of Power Foreign Policy: Meaning, Goals and Determinants | 03 |
| 4. | Concepts & Theories of Land and Air Warfare Theories of land warfare with reference to mobile defence, use of tank and machine, warfare. | 06 |

| | | |
|-----|--|----|
| | Theories of Air Power Heartland theories Heartland theories based on National Power | |
| 5. | Introduction to Sea Power Views of A.T. Mahan on the elements of sea power and naval strategy Continental Doctrine of Sea Power Why do Nations build and maintain Navies To what degree does the Mahanian concept of command of sea apply today? How do the objectives of Naval Forces in wartime contribute to the overall war effect? The role of sea power in national policy and diplomacy in both peacetime and war through the present day. | 04 |
| 6. | Introduction to Sea Control & Sea Denial Compare and contrast Sea Control to maritime security. Can Sea Control be exercised in peacetime? Why or Why not? What is sea control and why does one obtain it? What are the various degrees of sea control and how do you differentiate between them? How are terms "Sea Control" and "Sea Denial" related? Discuss the man methods used by opposing sides to obtain, maintain, exploit, deny and dispute sea control. How does a commander balance obtaining and maintaining sea control with risk? | 02 |
| 7. | Indian Ocean and India's Security Consideration Strategic mileu in and around the Indian Ocean Region India's Security problems in relation to IOR India's Maritime Security and its needs for Naval Power Projection | 02 |
| 8. | India's Foreign Policy India and its Maritime Neighbours SAGAR IPOI India's Maritime Relations with USA, Russia, France, UK, China, Israel, EU, ASEAN | 02 |
| 9. | Addressing Maritime Security Traditional Choke Points and their strategic importance Piracy, floating armouries, SLOCS, military presence Coastal Security Non-traditional IUU fishing, illegal migration, human trafficking Security of Ports, Harbours, Fishermen Other factors as a security challenge Climate Change – Floods, Cyclones, Tsunami, Earthquakes, HARD, Sea Level Rise Global Supply Chain Vulnerabilities, Environmental Security Challenges, Marine Pollution | 02 |
| 10. | Maritime Security Threats in the Indo-Pacific Region : Military warfare Economic Warfare | 02 |

| | | |
|-----|--|----|
| | Piracy and Robbery Terrorism and Aggression Illegal Fishing Environmental destruction, Illegal seaborne immigration Sovereignty Disputes | |
| 11. | Maritime threats affecting the lives of coastal communities: Sea-level rise Increase in the frequency and severity of natural disasters A mounting volume of marine debris Losses of biodiversity. | 02 |
| 12. | Institutional Frameworks to mitigate the risks posed by security threats. Their effectiveness and limitations The Association of Southeast Asian Nations (ASEAN) : East Asia Summit (EAS) and ASEAN Regional Forum (ARF). The South Asia Association for Regional Cooperation (SAARC) The role of QUAD in the Indo-Pacific Joint Indian Naval Exercises with foreign navies – Malabar, Milan, Konkan, IBSAMAR, JIMEX, Indra, Varuna | 03 |
| 13. | Changes in the Indo-Pacific Security Order India's View of Indo Pacific The evolving security order in the Indo-Pacific The limits to Maritime Security Collaboration in the Indo-Pacific | 02 |
| 14. | The Role of Maritime Nations in the Indo-Pacific Security The Roll of Japan – Security, Capacity Building The role of Australia – Security, Capacity Building, Blue Economy The role of ASEAN – Security The Role of India – Security, Capacity and Capability Building, Blue Economy Indian Ocean Rim – Association for regional Cooperation (IOR-ARC) Bangladesh, India, Myanmar, Sri Lanka, Thailand Economic Cooperation (BIMST-EC) | 04 |
| 15. | The future of Indo-Pacific Region Challenges and Opportunities Free and Open Indo-Pacific Inter-government organisations in the Indo-Pacific Indo-Pacific Ocean Initiative | 02 |

Note: Condensed from CEMAS MA (Maritime Studies) subject code MAMS202 and MAMS204E

Recommended Books (Latest Editions):

1. Mahan, Alfred T. The Influence of Sea Power upon History 1660-1783, Boston: Little, Brown and Company, 1898.
2. Corbett, Julian S. Some Principles of Maritime Strategy. London, UK: Longmans, Green and Co., 1918.

3. Dombroski, Peter, ed. *Naval Power in the Twenty-First Century: A Naval War College Review Reader*. Newport, RI: Naval War College Press, 2005. (NP24WEB.pdf)
4. Till, Geoffrey. *Sea Power: A guide for the Twenty-First Century*, New York: Routledge, 2013. Read pp.144-156.
5. Hattendorf, John B. "Sea Power and Sea Control in Contemporary times" in *Naval History and Maritime Strategy: Collected Essays*. Malabar, FL: Krieger Publications, 2000.
6. Anil Kumar Singh, "India's Security Concerns in the Indian Ocean Region", Har-Anand Publications, 2003.
7. David Michel, Russell Sticklor (Ed.), "Indian Ocean Rising: Maritime Security and Policy Challenges", published by Stimson, Washington, 2012.
8. James R Holmes, Andrew C., "Indian Ocean and India's Security", Winner, Toshi Yoshihara Routledge, New Delhi, 2009.
9. Khurana, G.S, " Maritime Security in the Indian Ocean: Convergence Plus Cooperation Equals Resonance", *Journal of Strategic Analysis*, Vol. 28, No 3, Jul-Sep 2004, Institute for defence Studies and Analyses, New Delhi.
10. John Garfoano, Andrea J. Dew, "Deep Currents and Rising Tides: Indian Ocean and International Security", Georgetown University Press, 2013.
11. Minister of Defence (Navy), "Ensuring Secure Seas: Indian Maritime Security Strategy", Indian Navy Naval Strategic Publication Oct 2015.
12. Mohan Malik (Ed), "Maritime Security in the Indo-Pacific: Perspectives from China, India and United States", Published by Rowman & Littlefield, United Kingdom, 2014.
13. Qamar Fatima, Asma Jamshed, "The Political and Economic Significance of Indian Ocean: An Analysis" *Journal of South Asian Studies*, vol 30, No. 2, July-December 2015.
14. Rahul Roy Chaudhury, "India's Maritime Security" Knowledge World Publications, New Delhi, 2000.
15. Raj Narain Misra, "Indian Naval Strategy in the 21st Century" Mittal Publications, New Delhi, 1986.
16. Sarabjeet Singh Parmar, "Maritime Security in the Indian Ocean: An Indian Perspective", *Journal of Defence Studies*, Vol 8, No. 1, January-March 2014, Institute for Defence Studies and analyses, New Delhi.
17. Satish Chandra, P.V. Rao eds., "India and Indian Ocean: In the twilight of the millennium", Osmania University, CIOS, Hyderabad, 2003.
18. Sharma, O.P., "International Law of the Sea", Oxford University Press, New Delhi, 2009.
19. Thean Potgieter, " Maritime Security in the Indian Ocean: Strategic Settings and Features", Published by Institute for Security Studies, Paper No 236-August 2012, South Africa.

20. V.R. Raghavan, Lawrence W. Prabhakar, "Maritime Security in the Indian Ocean Region: Critical Issues in Debate", Tata McGraw-Hill Publishing Company, New Delhi.

Course Outcomes:

1. Understood importance of International Relation and the factors influencing.
2. Gained knowledge on the concept and theories of Land, Air and Sea Powers.
3. Acquired in-depth knowledge on what is Sea Control and Sea Denial and its deference along with the international regulations.
4. Developed an understanding of India's foreign Policy.
5. Gained knowledge on the prevailing Geopolitical, Geo-economics and Maritime security in the Indo-Pacific.
6. Understand the Roll of Maritime Nations and there influence and threats in the Indo-Pacific.
7. Learned the roll of India in maintaining a conducive environment in the Indo-Pacific.
8. Acquired knowledge on the present and future developments with respect to Maritime Security and its effects in the Indo-Pacific.

MAMMS202: India's Maritime Doctrine & Strategy, Operational Art and War-gaming Concepts (105 Hours, 06 Credits, 150 marks)

Course Objectives:

1. To orient and introduce the learners on the various aspects of India's maritime doctrine and strategy.
2. To make the course participant gain knowledge on the Operational Art and its various facets.
3. To deliberate upon the Concept of War-gaming and techniques.

Syllabus:

| <u>Unit</u> | <u>Course Content</u> | <u>Hours</u> |
|--------------------|---|---------------------|
| 1. | Maritime Security: Imperatives and Influences Maritime Geography Maritime Neighbours Maritime Relations Maritime Economy Overseas Interests Traditional and Non-traditional threats to security | 03 |
| 2. | Maritime Doctrine and Strategy in Perspective Historical Preview What is Doctrine? National Security Concepts and Military Doctrine National Aim and Interests National Security Objectives and Policy Levels of Doctrine Maritime Power, Strategy and Doctrine Navy and Maritime Doctrine Indian Maritime Doctrine | 10 |
| 3. | The Spectrum of Conflict Peace, Security and Stability Cooperation, Competition and Confrontation Conflict and Combat Subversion Terrorism and Insurgency Guerrilla Warfare Civil War Intervention Limited and Total War Levels of War Purpose of War | 02 |
| 4. | Concepts of War Attributes of War Concepts Related to Use of Force Laws of Armed Conflict | 02 |

| | | |
|-----|---|----|
| 5. | Principles of War Selection and Maintenance of Aim Offensive Action Concentration of Force Economy of Effort Flexibility and Management of Change Surprise Cooperation and Synergy Logistics Security Morale Intelligence | 03 |
| 6. | Concepts of Maritime Power Attributes of Maritime Forces Maritime Command and Control Maritime Domain Awareness Network Centric Operations Sea Control Battle-space Dominance Sea Denial Fleet-in-Being Littoral Warfare Maritime Maneuver Amphibious Operations Expeditionary Operations Distant Operations Trade Warfare Convoy Blockade VBSS Operations Exclusion Zones Maritime Logistics | 04 |
| 7. | Military Roles of the Indian Navy Objectives, missions and tasks Strategy for Deterrence Strategy for Conflict | 02 |
| 8. | Diplomatic Roles of the Indian Navy Objectives, missions, and tasks. Strategy for shaping a favorable and positive maritime environment | 02 |
| 9. | Constabulary Roles of the Indian Navy Objectives, Missions, Tasks Strategy for Coastal and Offshore Security | 02 |
| 10. | Benign Roles of the Indian Navy Objectives, Missions, Tasks Strategy for shaping a favorable and positive maritime environment | 02 |
| 11. | Naval Combat Power Conceptual Component Physical Component Human Component Strategy for Maritime Force and Capability Development Indian Navy's Indigenisation Plan/ Naval Aviation Indigenisation Roadmap | 02 |

| | | |
|-----|---|----|
| 12. | Planning Maritime Operations Operational Readiness Planning Operational Response Planning Concepts of Military Operations Concepts of Operational Art Genesis of Operational Art Operation Function Factor of Space time & Force Operational Design Joint aspects of warfighting Inter Service Synergy Concepts of Operational Planning Operational Planning Process Campaign Studies Naval Operations Planning Process Commanders Estimate of Situation | 33 |
| 13. | Role of the Coast Guard Benign Roles Constabulary Roles Environmental Roles | 02 |
| 14. | Joint Doctrine Indian Armed Forces Concepts of military power application Joint Operations Higher Defence Organisation Integrated and Joint Structures Technical Orchestration and Capability Development | 02 |
| 15. | Maritime Security and Strategy: Global Contexts Australia China France US UK | 02 |
| 16. | War-gaming Concepts Planning Execution Operational Consideration Induced Scenario for Practical implementation (Induced) | 32 |

Recommended Books (Latest Editions).

1. Joint Doctrine Indian Armed Forces, HQIDS.
2. NSP 1.2: Ensuring Secure Seas: India's Maritime Security Strategy, IHQ MoD(N).
3. NSP 1.1: Indian Maritime Doctrine, IHQ MoD(N).
4. Blue Waters Ahoy: The Indian Navy 2001-10, IHQ MoD(N).
5. Indian Naval Indigenisation Plan, IHQ MoD(N).
6. Naval Aviation Indigenisation Roadmap, IHQ MoD (N).
7. Role of the Coast Guard in the Maritime Security of India, Prabhakaran Paleri,

Course Outcomes.

Gained knowledge on the Indian Maritime Doctrine and following:-

1. Understand the relationship between doctrine, strategy and policy.
2. Describe the key elements of India's maritime doctrine and its relationships with other doctrines.
3. Describe the essential attributes of India's maritime security strategy.
4. Compare Indian doctrine and strategy with other global doctrines and strategies.
5. Gained knowledge on the Operational Art and its various faced.
6. Developed the concept of War-gaming techniques.

MAMMS203: Overview of International & National Maritime Laws, Maritime Safety and Maritime Trade (35 Hours, 02 Credits, 50 marks)

Course Objectives.

1. Acquaint learners about Indian Maritime History from Ancient times till contemporary period.
2. Impart knowledge of Prevailing Maritime Security Scenario in the Indo-Pacific and Indian Ocean Region.
3. Impart knowledge of Geo-Political environment in the Indo-Pacific and IOR.
4. Familiarize learners to the prevailing important International and National Laws and Legislations with respect to Maritime and Marine ecosystem.
5. To impart knowledge on basics of Maritime and Seaboard Trade.

Syllabus.

| <u>Unit</u> | <u>Course Content</u> | <u>Hours</u> |
|--------------------|---|---------------------|
| 1. | Leadership Challenges of Maritime Forces in 21st Century | 02 |
| 2. | Coastal Security and Piracy | 02 |
| 3. | An Overview of Maritime Laws: UNCLOS The Indian Ports Act, 1908 The Major Port Trust Act, 1963 Customs Act, 1962 Salvage, International Salvage Convention 1989, of 2000, SCOPIC MARPOL SOLAS ISPS Code Maritime Labour Convention, 2006 Hongkong Convention, 2009 Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 Lighthouse Act, 1927 Indian Bill of Lading Act, 1856 Indian Port Health & Indian Port Health Rules, 1955 | 12 |
| 4. | Legal Framework for Maritime Security in India (Principal Legislations) Maritime Terrorism Piracy Illegal Unreported and Unregulated Fishing Smuggling Drug Trafficking Maritime Law Enforcement | 06 |

| | | |
|----|--|----|
| 5. | Maritime Safety Labour Acts and Industries Act, National Health and Safety Policy National Safety Council Charter Linkage Activities Safety Trends in Contemporary Navies Safety Trends in Sister Services Accident Investigation HFACS Best Practices ORM in Campaign Planning Safety Culture | 07 |
| 6. | Basic concepts and Geographies of Maritime Trade | 03 |
| 7. | Basic Concepts and Principles of Seaborne Trade | 03 |

Note: Syllabus has been condensed from CEMAS/ MA (Maritime Studies) subject code MMS101, MMS201, MAMS302, MAMS304E, and MAMS305E

Recommended Books (Latest Editions):

1. A World of Nations: The International Order since 1945 by William R Kaylor.
2. Rulers of the Indian Ocean by G A Ballard.
3. Coastal Security: Maritime Dimensions of India's Homeland Security by Kunwar Rajendra Singh.
4. Coastal Security: The Indian Experience by Pushpita Das.
5. Role of Coast Guard in the Maritime Security of Indian by Prabhakaran Paleri.
6. An Integrated Approach to Coastal and Offshore Defence: Leveraging the Coastal Security by Capt Himadri Das.
7. Armed Robbery in Sea in India: Trends and Imperatives by Capt Himadri Das.
8. Coastal Security, Challenges, Concerns and Wayahead by Brig Hemant Mahajan.

Course Outcomes:

1. Familiarised and gained basic knowledge on critical International and National Maritime Laws.
2. Gained basic knowledge on Maritime and Seaboard trade.

MAMMS204: Data Analytics, Artificial Intelligence and Disruptive Technology
(70 Hours, 04 Credits, 100 Marks)

Course Objectives.

1. Acquaint learners about the importance of Data Analytics, Artificial Intelligence and Disruptive Technology.
2. Familiarise learners to the various technologies and methods that is prevalent in the subject fields.
3. Impart the importance and carry out case study to understand the need for studying the above fields.

Syllabus.

| <u>Unit</u> | <u>Course Content</u> | <u>Hours</u> |
|--------------------|--|---------------------|
| 1. | Data Analytics Introduction to Data Sciences Mathematics Fundamentals – Linear Algebra Fundamentals of Python Statistics for Data Science – Distribution & Estimation Designing Dashboards with Power BI | 30 |
| 2. | Artificial Intelligence Basic Definition & History of Artificial Intelligence Application of AI to real world problems – use cases Definition of Machine Learning & Deep Learning Introduction to Intelligent Agents Decision Trees & Neural Networks Bayesian Learning & Genetic Algorithms, Clustering, AI Case Studies | 20 |
| 3. | Disruptive Technologies Disruptive Innovation Theory Adopting a Strategic Mind-Set Articulating Strategic Questions Avoiding Disruption Developing Innovative Culture Case Studies On Innovation | 20 |

Note: Condensed syllabus from CEMAS/ MSc (Maritime Studies) subject code MSCMS105E

Recommended Books (Latest Editions).

1. New Thinking: from Einstein to Artificial Intelligence, Daggogo Altraide, 2019.
2. Introduction to Artificial Intelligence, Drew McDennott, 1985.
3. Life 3.0: being Human in the Age of Artificial Intelligence, Max Tegmark, 2017.
4. In the Mind of the Machine: the Breakthrough in Artificial Intelligence, Kevin Warwick, 1998.

5. Department of Mad Scientists: How DARPA is remaking our world from the Internet to Artificial Limbs, Michael Belfiore, 2009.
6. Understanding Artificial Intelligence, Henry C Mishkoff, 2009
7. Artificial Intelligence Marketing and Predicting Consumer Choice: an Overview of Tools and Techniques, Steven Struhl, 2017
8. Artificial Intelligence, Michael Woolridge, 2018
9. Artificial Intelligence: a Modern Approach, Stuart Russel, 2014
10. Introduction to Artificial Intelligence and Expert Systems, Dan W Patterson, 2018
11. Arming without Aiming: India's Military Modernization, Stephen P Cohen, 2010
12. Artificial Intelligence: an Introduction, Alan Garnham, 1988
13. Artificial Intelligence and the Future of Power: 5 Battlegrounds, Rajiv Malhotra, 2021
14. Artificial Intelligence in Military Operations: a Raging Debate and Way Forward for the Indian Armed Forces, RS Panwar, 2018.
15. War Fighting and Disruptive Technologies Disguising Information, Terry C Pierce, 2005.

Course Outcomes.

1. Gained knowledge to understand the need of Data Analytics and various techniques by which Data Analytics can be carried out.
2. Learned the importance of Artificial Intelligence and its uses in the maritime operations.
3. Developed understanding of Disruptive Technology and importance of Innovation.

MAMMSSAP: Strength Area Paper including Research Methodology and Field Visit
(148 Hours, 08 Credits)

Course Objectives.

1. To deliberate upon a topic which is the course participant's area of work dealing with in the Indian Navy.
2. Inculcate the habit of Reading, Understanding and inferring information.
3. The participants will be taken on field visit to various defence establishments. The field visit will give an opportunity for the participants to gather information to produce a detailed Strength Area Paper.
4. The Participant will be given an overview of Research Methodology to assist them in writing the SAP and final Trimester Dissertation.

Syllabus.

| <u>Unit</u> | <u>Course Content</u> | <u>Hours</u> |
|--------------------|--|---------------------|
| 1. | Introduction to Research Methodology Defining Research Problem Research Design Methods of Data Collection Sampling Fundamentals Research Hypothesis Interpretation and Report Writing | 32 |
| 2. | Field Visit | 32 |
| 3. | Preparation of Strength Area Paper selected from one of the following area of subject:- (a) Maritime Operation Studies/ Management (b) Maritime Strategy Studies/ Management (c) Maritime Logistics Management (d) Maritime Resource Management (e) Naval Technical Resource Management (f) Maritime Infrastructure Studies/ Management (g) Shipbuilding and Maintenance Studies/ Management (h) Naval Aviation Studies and Management (i) Maritime History Studies (j) Naval Technology Development Studies (k) Maritime Medicine and Personnel Health Studies (l) General Maritime Studies (m) Topic as suggested for analysis by Service Headquarters/ Naval War College | 84 |
| | Total | 148 |

Note: Condensed syllabus from CEMAS/ M.A. (Maritime Studies) subject code MMS103

Recommended Books (Latest Editions):

1. Research Methodology Methods and Techniques by C.R.Kothari, Gaurav Garg, New Age International Publishers.
2. Methodology of Research in Social Science by O.R. Krishnaswami and M. Ranganathan, Himalaya Publishing House

Course Outcomes.

1. Gained expertise to identify research problem, formulation of hypothesis, carryout data analysis using systematic and scientific methods.
2. Acquired knowledge to formulate the Research Process and arrive at the conclusion and recommendations in a logical manner.
3. Developed understanding on the need of Proper Research Writing.
4. Will be able to carry out a systematic and logical Research.
5. Assimilated area of strength of the individual and bring about views/ suggestions based on knowledge gained through on-hands experience in the field of research.
6. Gained understanding to bring out suggestions and inputs to assist the policy makers.

Additional Course work to be completed in Semester III for award of Post Graduate Diploma in Management Studies through JBIMS, UoM (372 hours, 21 Credits)

Course Objectives.

1. Acquaint learners about Management Concepts in the contemporary period.
2. Impart knowledge on basics of individual Management Concepts.
3. Familiarise learners to the prevailing important of effective management of resource, material, human resource, project management and other techniques which could be effectively implemented in the maritime domain.

Syllabus. The Course would be conducted through structured lectures by visiting faculty of Jamnalal Bajaj Institute of Management Studies, Mumbai, Department of Management Studies, other Guest Speakers, Case Studies, Interactive Sessions and Project Work. Each Session will be for two hours each. The syllabus for the PGDM is as under:-

| <u>Ser</u> | <u>Subject Code</u> | <u>Subject with Sub Topics</u> | <u>No of Session</u> | <u>Credits</u> | <u>Exam Marks</u> |
|-------------------|----------------------------|---|-----------------------------|-----------------------|--------------------------|
| (a) | PGDMS101 | Human Resources Management to include Innovation and Creativity Management/ Problem solving and Decision Making, Management Behaviour - Perception and personality development ,Group Dynamics and perception of Development/ Transactional Analysis, Conflict management/ Interpersonal Relations/ Negotiation Skills, Motivation and Leadership development, Professional Management Challenges, Global HRD Perspectives/ Role of HRS Mangers/ HRD, Self/ Group and Team Development, Behaviour Dynamics and Organisationa Development, Leadership Development | 18 | 02 | 100 |
| (b) | PGDMS102 | Industrial Relations to include IR Scenario, Industrial Conflict Management, Management of Industrial Discipline , Wage Policies and Compensation, Joint Consultative Machinery and Participative Management in PSUs, HR Organisation of Industries. | 18 | 02 | 100 |
| (c) | PGDMS103 | Material Management to include Overview of Material Management in the current Business scenario/ emerging philosophies and techniques, Inventory Management /Importance of Inventory /Working Capital Management /Impact of Logistics Function on Inventory, Store Management/ The Latest Practices/ | 09 | 01 | 50 |

| | | | | | |
|-----|-----------------|--|----|----|-----|
| | | Emerging techniques, Spare parts Management/ codification importance and techniques/ case study, Legal aspects of Material Management. | | | |
| (d) | PGDMS104 | Financial Management to include Basics of Balance Sheet and Profit and Loss Accounts, Budgeting and Profit Planning in the Defence, Break - Even Analysis and Applications, Budgeting with emphasis on Cash Budget, Indian Financial System and Relevance of Financial Effectiveness in Organisation, Methods of Financial Evaluation- Ratio Analysis/ Fund Flow Analysis/ Financial Benchmarking, Source of financial and their Costs- Working Capital Management/ Capital Budgeting/ Investment Valuations, Mutual Funds/Pension funds and Insurance, Stock Exchanges/ Money Markets, Macroeconomics. | 18 | 02 | 100 |
| (e) | PGDMS105 | Production Management/ Operations to include Role of IT in improving productivity, Productivity in Naval Dockyard, World Class Management System – Evolution and Growth, simplification/ Work Measurement Techniques/ Group Technology for Productivity. | 09 | 01 | 50 |
| (f) | PGDMS106 | Project Management to include Introduction to Project Management, Project Scheduling and Resource Planning, Project monitoring and Control, Quality Assurance in Project Management, Risk Management in Projects, Projects Financing, Demonstration of Prima Vera, Experience sharing with Senior Project Manager from Industry, Macro aspects of Refit Management and Future Dockyards. | 18 | 02 | 100 |
| (g) | PGDMS107 | Management in Indian Navy to include Leadership management interface, Staff Duties and Service Writing, Management of Naval Technical Works, Proactive Maintenance Strategy-Uniform and Civilian relationship, Attitude Engineering, Need for paradigm shift in management of dockyards, Perspective of Quality Assurance Organization of Indian Navy, Indian Ship Building and Ship repair industry, Financial Administration in the Navy, | 18 | 02 | 100 |

| | | | | | |
|-----|-----------------|--|------------|-----------|------------|
| | | Insight of Warship/ submarine design and production, Logistics planning at IHQ MoD(N)- Challenges and way ahead, Indegenisation and management of technology, Challenges before Dockyards, Acquisitions Process in the Navy. | | | |
| (h) | PGDMS108 | Management of Technology to include Modern trends in IT and Business Process Re-engineering, Technological Change and Time Scales, Investment for Technological Growth, Organisation for Technological Infrastructure and Technology Assessment | 18 | 02 | 100 |
| (k) | PGDMS109 | Quality Management to include Management of Productivity through facilities planning/ Plant layout/ Business Process Re-engineering with Industrial cases, Quality circles/ Kaizen/ Ishikawa/ problem solving techniques, ISO 9000 certification system/ TQM philosophies-Deming/ Juran Crosby. | 09 | 01 | 50 |
| (l) | PGDMSPW | Project Work with report | 51 | 06 | 150 |
| | | Total | 186 | 21 | 900 |

Note: Existing syllabus being followed as part of JBIMS programme at Naval War College

Course Outcomes:

1. Better informed and prepared to take up managerial assignments.
2. Will be ready to take up Staff appointments at various Headquarters.

Semester IV

MAMMSDP: Dissertation Based Project Work (25 Weeks, 24 Credits)

Course Objectives:

M.A. (Maritime and Management Studies) consists of Dissertation Based Research Project of 24 credits. Every student will have to complete a separate project with twenty four credits for a total of 600 marks. This Semester would be a non-contact phase with online contact modules as deemed necessary. Students have to prepare and submit a Master level thesis and the final evaluation will be done by a panel comprising of an External Examiner, Guide and a DS nominated by Naval War College, Goa on the bases of the quality of the thesis and Viva-Voce examination. The break down of marks is as follows:-

| | | |
|---------------------|---|---------------------------|
| (a) | Evaluation of Dissertation by Guide | - 150 marks |
| (b) | Evaluation of Dissertation by External Examiner | - 150 marks |
| (c) | Evaluation during Viva Voce | - 200 marks |
| (d) | Quality of presentation | - 100 marks |
| <u>Total</u> | | - <u>600 marks</u> |

Course Outcome:

After successful completion of **M.A. (Maritime and Management Studies) Dissertation Based Project Work** the learner can demonstrate, analyse, compare, evaluate subject data and can develop aptitude in field work, data collection, problem analysis and solving using technical and statistical concepts. The Learner will also be able to provide comprehensive recommendations which could aid the policy makers for incorporation and further ponder upon.