

DIME – DIPARTIMENTO DI INGEGNERIA MECCANICA, ENERGETICA, GESTIONALE E DEI TRASPORTI

**CORSO DI LAUREA MAGISTRALE IN
SAFE TRANSPORT AND LOGISTICS ENGINEERING**

Classe: LM-26 R – Coorte: 2025/2026 – Sede: Genova

REGOLAMENTO DIDATTICO

Deliberato dal Consiglio di Corso di Studio del 06/05/2025

Approvato nel Consiglio di Dipartimento del 21/05/2025

Descrizione del funzionamento del Corso di Laurea Magistrale

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Art. 1 – Premessa e ambito di competenza

Il presente Regolamento, in conformità allo Statuto e al Regolamento Didattico di Ateneo, (parte generale e parte speciale), disciplina gli aspetti organizzativi dell'attività didattica del corso di laurea magistrale (CLM) in *Safe Transport and Logistics Engineering*, nonché ogni diversa materia ad esso devoluta da altre fonti legislative e regolamentari.

Il Regolamento didattico del corso di laurea magistrale in *Safe Transport and Logistics Engineering* è deliberato, ai sensi dell'articolo 25, commi 1 e 4 del Regolamento Didattico di Ateneo, parte generale, dal Consiglio di Corso di Studio (CCS) in Safety Engineering a maggioranza dei componenti e sottoposto all'approvazione del Consiglio di Dipartimento di Ingegneria Meccanica, Energetica, Gestionale e dei Trasporti (DIME), sentita la Scuola Politecnica, previo parere favorevole della Commissione Paritetica di Scuola.

Le delibere del CCS possono essere assunte anche in modalità telematica ai sensi dei sovraordinati regolamenti e, in particolare, dell'articolo 14 "Riunioni con modalità telematiche" del vigente Regolamento Generale di Ateneo (in vigore dal 19/12/2018) e del successivo D.R. n. 5725 del 23.12.2022 "Disposizioni regolamentari per lo svolgimento delle adunanze degli organi collegiali con l'utilizzo di modalità telematiche".

Art. 2 – Requisiti di ammissione e modalità di verifica della preparazione individuale

L'ammissione al corso di laurea magistrale in *Safe Transport and Logistics Engineering* è subordinata al possesso di specifici requisiti curriculari e di adeguatezza della preparazione personale. Per l'accesso sono richieste conoscenze equivalenti a quelle previste dagli obiettivi formativi generali di tutte le lauree triennali nelle classi di Ingegneria Civile e Ambientale, Ingegneria dell'Informazione, Ingegneria Industriale (classi L-7, L-8 e L-9 del DM 270/2004 e del DM 1648/2023).

Sono richiesti infatti tutti i seguenti **requisiti curriculari**:

- possesso di laurea, laurea specialistica o laurea magistrale (di cui al DM 509/1999 o DM 270/2004) conseguita presso una università italiana oppure una laurea quinquennale (ante DM 509/1999) conseguita presso una università italiana o titoli equivalenti;
- possesso di almeno 36 CFU, o conoscenze equivalenti, acquisiti in un qualunque corso universitario (laurea, laurea specialistica, laurea magistrale, master universitari di primo e secondo livello) nei settori scientifico disciplinari indicati per le attività formative di base delle lauree delle classi L-7, L-8 e L-9 del DM 270/2004 e del DM 1648/2023;
- possesso di almeno 45 CFU, o conoscenze equivalenti, acquisiti in un qualunque corso universitario (laurea, laurea specialistica, laurea magistrale, master universitari di primo e secondo livello) nei settori scientifico disciplinari indicati per le attività formative caratterizzanti delle classi di laurea L-7, L-8, L-9 del DM 270/2004 e del DM 1648/2023;
- conoscenza della lingua inglese, equivalente almeno al livello europeo B2.

I requisiti curriculari devono essere posseduti prima della verifica della preparazione individuale.

Verifica della preparazione individuale: Ai fini dell'ammissione al corso di laurea magistrale gli studenti in possesso dei requisiti curriculari dovranno sostenere con esito positivo una prova per la verifica della preparazione personale.

La prova di verifica sarà sostenuta davanti ad una Commissione nominata dal CCS e composta da docenti afferenti al CCS, sarà svolta sotto forma di test scritto o di colloquio pubblico e sarà finalizzata ad accertare la preparazione generale dello studente con particolare riferimento alla conoscenza di nozioni fondamentali nelle materie di base (quali, ad esempio, matematica e fisica), nonché di aspetti applicativi e professionali relativi alle tematiche proprie dell'ingegneria.

Ai fini della valutazione dello studente, la Commissione d'esame tiene conto anche del curriculum ottenuto nel percorso di laurea triennale. L'esito della prova prevede la sola dicitura "superato" o "non

superato". Nel bando per l'ammissione ai corsi di laurea magistrale della Scuola Politecnica e sul sito web del corso di laurea magistrale sono indicati: la composizione della Commissione d'esame, le modalità della prova, il luogo e la data, gli argomenti oggetto d'esame, i criteri di valutazione dei candidati. L'adeguatezza della preparazione personale è automaticamente verificata per coloro che hanno conseguito la laurea triennale italiana con una votazione finale di almeno 9/10 del voto massimo previsto dalla propria laurea. L'adeguatezza della preparazione personale è verificata per coloro che hanno conseguito la laurea triennale non italiana, o titolo giudicato equivalente, direttamente in fase di valutazione dei requisiti curriculari e sulla base della documentazione fornita dal candidato.

Conoscenza della lingua inglese: La conoscenza della lingua inglese pari al livello B2 o superiore è verificata tramite certificazione in possesso dello studente, o, in assenza di essa, tramite superamento del test B2 erogato dal Centro Linguistico di Ateneo. Le certificazioni riconosciute sono quelle riportate sul sito web di Ateneo all'indirizzo <https://clat.unige.it/en/CertificazioniRiconosciute>. Il requisito della conoscenza linguistica è altresì soddisfatto se lo studente è in possesso di un titolo di laurea in lingua inglese, da certificarsi tramite documento ufficiale o lettera dell'università che abbia erogato tale titolo, da cui si evinca che gli studi si sono svolti in lingua inglese. Se nessuna delle precedenti condizioni è soddisfatta, la conoscenza linguistica deve essere verificata durante la prova di verifica della preparazione personale da parte della relativa Commissione d'esame. In quest'ultimo caso, costituisce quindi oggetto della verifica della preparazione personale anche la capacità di utilizzare fluentemente la lingua inglese.

Per gli studenti di nazionalità extra-UE, con residenza e titolo di studio esteri, la procedura di presentazione della propria candidatura ai fini della verifica dell'ammissibilità ad un corso di laurea magistrale in inglese deve passare attraverso un portale web dedicato, selezionato dall'Ateneo e adeguatamente pubblicizzato. A seguito del caricamento della documentazione nel portale viene effettuata la verifica della completezza dei documenti. I candidati che superano questa verifica passano alla fase successiva, relativa alla valutazione dei titoli e alla valutazione finale del candidato, a valle della quale lo studente verrà ritenuto ammissibile, ammissibile sotto condizione (attribuzione di carriere ponte) o non ammissibile.

Il numero massimo ammissibile di studenti iscritti provenienti da paesi non appartenenti all'Unione Europea viene stabilito annualmente dal CCS, comunicato al Settore Welcome Office – Accoglienza Studenti e Utenti Internazionali e pubblicato sul sito University.

Art. 3 – Attività formative

L'elenco degli insegnamenti e delle altre attività formative attivabili nella coorte 2025/2026, è riportato nell'apposito allegato 1 che costituisce parte integrante del presente regolamento. Per ogni insegnamento vi è individuato un docente responsabile. È docente responsabile di un insegnamento chi ne sia titolare a norma di legge, ovvero colui al quale il Consiglio del Dipartimento di afferenza abbia attribuito la responsabilità stessa in sede di affidamento dei compiti didattici ai docenti.

La lingua usata per erogare le attività formative (lezioni, esercitazioni, laboratori) è l'inglese.

Art. 4 – Iscrizione a singole attività formative

In conformità con l'articolo 5 del Regolamento di Ateneo per gli studenti, per iscriversi a singole attività formative occorre possedere un titolo di studio che permetta l'accesso all'Università. Considerate le caratteristiche dell'organizzazione didattica teorico-pratica, le istanze di iscrizione a singole attività formative afferenti al corso di studio possono essere accettate solo dopo valutazione del CCS necessaria al corretto svolgimento dei corsi stessi.

Art. 5 – Curricula

Il corso di laurea magistrale in *Safe Transport and Logistics Engineering* non è articolato in curricula.

Art. 6 – Impegno orario complessivo

La definizione del numero di ore dedicate a lezioni teorico-pratiche (didattica frontale, esercitazioni, laboratorio) o altre attività didattiche equivalenti per ogni CFU è stabilita, per ogni insegnamento, dal CCS e specificata nella parte speciale del Regolamento. In ogni caso, salvo eccezioni, si assumono i seguenti intervalli di variabilità della corrispondenza ore/CFU:

- didattica frontale: ore/CFU: $8 \div 10$
- esercitazioni: ore/CFU: $10 \div 12$
- laboratorio: ore/CFU: $8 \div 12$
- altre attività didattiche equivalenti: ore/CFU: $8 \div 12$

La definizione dell'impegno orario complessivo presunto, riservato allo studio personale o ad altre attività formative di tipo individuale, è stabilito, per ogni insegnamento, nell'allegato 1 del presente regolamento.

Il Direttore del Dipartimento di Ingegneria Meccanica, Energetica, Gestionale e dei Trasporti (DIME) e il Coordinatore del CCS sono incaricati di verificare il rispetto delle predette prescrizioni.

Art. 7 – Piani di studio e propedeuticità

Gli studenti possono iscriversi a tempo pieno o a tempo parziale; per le due tipologie d'iscrizione sono previsti differenti diritti e doveri. Per maggiori dettagli consulta l'art 12 del Regolamento per la contribuzione studentesca di Ateneo.

Lo studente sceglie la tipologia di iscrizione contestualmente alla presentazione del piano di studi. Lo studente a tempo pieno svolge la propria attività formativa tenendo conto del piano di studio predisposto dal corso di laurea magistrale, distinto per anni di corso e pubblicato nel Manifesto degli studi. Il piano di studio formulato dallo studente deve contenere l'indicazione delle attività formative, con i relativi crediti che intende conseguire, previsti dal piano di studio ufficiale per tale periodo didattico, fino ad un massimo di 65 crediti previsti in ogni anno.

Lo studente a tempo parziale è tenuto a presentare un piano di studio individuale specificando il numero di crediti che intende inserire secondo quanto disposto dal Regolamento per la contribuzione studentesca di Ateneo.

L'iscrizione degli studenti a tempo pieno e a tempo parziale è disciplinata dal regolamento di Ateneo per gli studenti tenuto conto delle disposizioni operative deliberate dagli Organi centrali di governo ed indicate nella Guida dello studente (pubblicata annualmente sul sito web dell'Università).

Il percorso formativo dello studente è stato organizzato secondo criteri di propedeuticità, indicate nella parte speciale del presente regolamento (allegato 1).

Il corso di laurea, con esplicita e motivata deliberazione, può autorizzare gli studenti che nell'anno accademico precedente abbiano dimostrato un rendimento negli studi particolarmente elevato ad inserire nel proprio piano di studio un numero di crediti superiore a 65, ma in ogni caso non superiore a 75. Per "rendimento particolarmente elevato" si intende che lo studente abbia superato tutti gli esami del proprio piano di studio entro il mese di settembre.

Il piano di studio articolato su una durata più breve rispetto a quella normale è approvato dal CCS. La modalità e il termine per la presentazione del piano di studio sono stabiliti annualmente dalla Scuola Politecnica e riportate sul sito web di Ateneo, accessibile da quello del CdS.

Art. 8 – Frequenza e modalità di svolgimento delle attività didattiche

Gli insegnamenti si sviluppano in forma di: (a) lezioni, eventualmente anche a distanza mediante mezzi telematici in casi particolari in relazione alle indicazioni dell'Ateneo; (b) esercitazioni pratiche; (c) esercitazioni in laboratorio; (d) seminari tematici.

Il profilo articolato e la natura impegnativa delle lezioni tenute nell'ambito del corso di studio rendono

la frequenza alle attività formative fortemente consigliata per una adeguata comprensione degli argomenti e quindi per una buona riuscita negli esami.

Il calendario delle lezioni è articolato in semestri. Di norma, il semestre è suddiviso in almeno 12 settimane di lezione più almeno 4 settimane complessive per prove di verifica ed esami di profitto.

Il periodo destinato agli esami di profitto termina con l'inizio delle lezioni del semestre successivo. A metà semestre, la normale attività didattica (lezioni, esercitazioni, laboratori, seminari tematici) può essere interrotta per lo svolgimento di esami di laurea.

L'orario delle lezioni per l'intero anno accademico è pubblicato sul sito web di Ateneo e accessibile da quello del CdS prima dell'inizio delle lezioni dell'anno accademico. L'orario delle lezioni garantisce la possibilità di frequenza per anni di corso previsti dal vigente Manifesto degli studi del corso di laurea magistrale.

Per ragioni pratiche non è garantita la compatibilità dell'orario per tutte le scelte formalmente possibili degli insegnamenti opzionali. Gli studenti devono quindi formulare il proprio piano di studio tenendo conto dell'orario delle lezioni.

Art. 9 – Esami e altre verifiche del profitto

Gli esami di profitto possono essere svolti in forma scritta, orale o scritta e orale, secondo le modalità indicate nelle schede di ciascun insegnamento pubblicate sul sito web di Ateneo e accessibili da quello del CLM.

A richiesta, possono essere previste specifiche modalità di verifica dell'apprendimento che tengano conto delle esigenze di studenti disabili e di studenti con disturbi specifici dell'apprendimento (D.S.A.), in conformità all'art. 20 comma 4 del Regolamento didattico di Ateneo.

Nel caso di insegnamenti strutturati in moduli con più docenti, questi partecipano collegialmente alla valutazione complessiva del profitto dello studente che non può, comunque, essere frazionata in valutazioni separate sui singoli moduli.

Il calendario degli esami di profitto è stabilito entro la scadenza ministeriale per l'anno accademico successivo e viene pubblicato sul sito web di Ateneo, accessibile da quello del CLM.

Gli esami si svolgono nei periodi di interruzione delle lezioni. Possono essere previsti appelli durante il periodo delle lezioni soltanto per gli studenti che, nell'anno accademico in corso, non abbiano inserito attività formative nel proprio piano di studio.

Tutte le verifiche del profitto relative alle attività formative debbono essere superate dallo studente entro la scadenza prevista dalla segreteria studenti della Scuola Politecnica in vista della prova finale, come indicato nel "promemoria" pubblicato sul sito web di Ateneo e accessibile da quello del CLM.

L'esito dell'esame, con la votazione conseguita, è verbalizzato secondo quanto previsto all'art. 20 del Regolamento didattico di Ateneo.

Le commissioni di esame di profitto sono nominate dal Direttore del dipartimento o, su sua delega, dal Coordinatore del corso di studio e sono composte da almeno due componenti. Ad ogni sessione di esame saranno presenti almeno due membri. Il docente responsabile dell'insegnamento è membro con funzione di presidente. Possono essere componenti della commissione cultori della materia individuati dal consiglio di corso di studio sulla base di criteri che assicurino il possesso di requisiti scientifici, didattici o professionali; tali requisiti si possono presumere posseduti da parte di docenti universitari a riposo.

Art. 10 – Riconoscimento di crediti

Il Consiglio del Corso di Studi delibera sull'approvazione delle domande di passaggio o trasferimento

da un altro corso di laurea dell'Ateneo o di altre Università secondo le norme previste dall'art. 18 del Regolamento didattico di Ateneo.

Art. 11 – Mobilità, studi compiuti all'estero, scambi internazionali

Il CCS incoraggia fortemente le attività di internazionalizzazione, in particolare la partecipazione degli studenti ai programmi di mobilità e di scambi internazionali. A tal fine garantisce, secondo le modalità previste dalle norme vigenti, il riconoscimento dei crediti formativi conseguiti all'interno di tali programmi, e organizza le attività didattiche opportunamente in modo da rendere agevoli ed efficaci gli scambi internazionali.

Il CCS riconosce agli studenti iscritti, che abbiano regolarmente svolto e completato un periodo di studi all'estero, gli esami sostenuti fuori sede e riconosce inoltre il conseguimento dei crediti degli esami del proprio piano di studi che lo studente intende sostituire con i corsi sostenuti fuori sede.

Ai fini dei riconoscimenti di tali esami, lo studente, all'atto della compilazione del piano delle attività formative che intende seguire all'estero, dovrà produrre idonea documentazione comprovante l'equivalenza dei contenuti tra l'insegnamento impartito all'estero e l'insegnamento che intende sostituire, impartito nel corso di laurea magistrale in *Safe Transport and Logistics Engineering*. L'equivalenza è valutata dal CCS. La conversione dei voti avverrà secondo criteri approvati dal CCS, congruenti con il sistema europeo ECTS.

Per periodi di studio dedicati alla preparazione della prova finale, il numero di crediti riconosciuto, relativi a tale fattispecie, è messo in relazione alla durata del periodo svolto all'estero.

Art. 12 – Modalità della prova finale

La prova finale consiste nella presentazione e discussione di un elaborato finale, di fronte ad apposita commissione, tendente ad accertare la preparazione tecnico-scientifica e professionale del candidato.

Ai fini del conseguimento della laurea magistrale, l'elaborato finale consiste nella redazione di una tesi, elaborata dallo studente in modo originale sotto la guida di uno o più relatori, su un argomento definito attinente agli obiettivi formativi del corso di studio. In ogni caso tra i relatori deve essere presente almeno un docente della Scuola Politecnica o del corso di studio.

La tesi deve essere redatta in lingua inglese. In caso di utilizzo di altra lingua della UE è necessaria l'autorizzazione del CCS.

La tesi dovrà rivelare le capacità dello studente nell'affrontare tematiche di ricerca e/o di tipo applicativo. La tesi dovrà essere costituita da un progetto e/o dallo sviluppo di un'applicazione che proponga soluzioni innovative rispetto allo stato dell'arte e dimostri le capacità di analisi e di progetto dello studente.

La tesi di laurea può avere natura sperimentale, numerica o teorica ed essere eventualmente svolta presso aziende od enti esterni, pubblici o privati.

La tesi dovrà altresì rivelare:

- capacità di affrontare problemi complessi con approccio multidisciplinare;
- corretto uso delle fonti e della bibliografia;
- capacità sistematiche e argomentative;
- chiarezza nell'esposizione;
- capacità progettuale e sperimentale;
- capacità critica.

La commissione per la prova finale è composta da almeno cinque componenti compreso il Presidente ed è nominata dal Direttore del Dipartimento di Ingegneria Meccanica, Energetica, Gestionale e dei Trasporti.

Le modalità di svolgimento della prova finale consistono nella presentazione orale della tesi di laurea

da parte dello studente alla commissione per la prova finale, seguita da una discussione sulle questioni eventualmente poste dai componenti della commissione.

La valutazione della prova finale da parte della commissione avviene, in caso di superamento della stessa, attribuendo un punteggio costituito dalla somma di:

- media ponderata, arrotondata al valore intero più vicino (per difetto nel caso di medie con le prime tre cifre decimali comprese tra 0 e 499 e per eccesso nel caso di medie con le prime tre cifre decimali comprese tra 500 e 999), dei voti riportati nelle prove di verifica relative ad attività formative che prevedono una votazione finale, assumendo come peso il numero di crediti associati alla singola attività formativa;
- punteggio di tesi, assegnato dalla commissione, anche su proposta del relatore o dei relatori, costituito da un numero intero compreso tra 0 e 4 per le tesi di tipo “Standard” e di tipo “Libero” ovvero da un numero intero compreso tra 0 e 6 per le tesi di tipo “Ricerca”.

Nel caso di tesi di tipo “Ricerca” è richiesto che il relatore trasmetti alla commissione, almeno una settimana prima della laurea, una lettera redatta su apposito template predisposto dal CCS in cui vengono brevemente illustrati gli aspetti innovativi e di ricerca del lavoro di tesi.

Può inoltre essere attribuita la dignità di stampa a tesi per le quali il relatore abbia inviato alla commissione, almeno una settimana prima della laurea, un articolo scientifico in formato camera-ready, con indicazione del convegno o della rivista al quale è stato o verrà sottomesso.

Art. 13 – Orientamento e tutorato

La Scuola Politecnica, di concerto con il Dipartimento di Ingegneria Meccanica, Energetica, Gestionale e dei Trasporti, organizza e gestisce un servizio di orientamento e il sostegno degli studenti, al fine di prevenire la dispersione e il ritardo negli studi e di promuovere una proficua partecipazione attiva alla vita universitaria in tutte le sue forme.

Art. 14 – Verifica dell'obsolescenza dei crediti

I crediti formativi universitari acquisiti nell'ambito del corso di laurea possono essere sottoposti a verifica di obsolescenza dopo sei anni. Qualora il CCS riconosca l'obsolescenza anche di una sola parte dei relativi contenuti formativi, lo stesso CCS stabilisce le prove integrative che dovranno essere sostenute dallo studente, definendo gli argomenti delle stesse, le modalità di verifica, la composizione della commissione di esame.

Una volta superate le verifiche previste, il CCS convalida i crediti acquisiti con apposita delibera. Qualora la relativa attività formativa preveda una votazione, la stessa potrà essere variata rispetto a quella precedentemente ottenuta, su proposta della commissione d'esame che ha proceduto alla verifica.

Art. 15 – Manifesto degli Studi

Il Dipartimento di Ingegneria Meccanica, Energetica, Gestionale e dei Trasporti, sentita la Scuola, approva e pubblica annualmente il Manifesto degli studi sul sito web di Ateneo, accessibile da quello del CLM. Nel Manifesto sono indicate le principali disposizioni dell'ordinamento didattico e del regolamento didattico del corso di laurea, a cui eventualmente si aggiungono indicazioni integrative. Il Manifesto degli studi del corso di laurea magistrale contiene l'elenco degli insegnamenti attivati per l'anno accademico in questione. Le schede dei singoli insegnamenti sono pubblicate sul sito web di Ateneo e sono accessibili da quello del CLM.

DIME – DIPARTIMENTO DI INGEGNERIA MECCANICA, ENERGETICA, GESTIONALE E DEI TRASPORTI

**MASTER’S DEGREE PROGRAM IN
SAFE TRANSPORT AND LOGISTICS ENGINEERING**

Class: LM-26 R – 2025/2026 Intake – Location: Genoa

TEACHING REGULATIONS

Approved by the Council of the Course of Study on 06/05/2025

Approved by the Department Council on 21/05/2025

Description of the functioning of the Master’s Degree Program

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Art. 1 – Introduction and scope of application

These Teaching Regulations, in accordance with the Statute and Teaching Regulations of the University of Genoa (general part and special part), determine the organizational aspects of the teaching activity of the master's degree program, in Safe Transport and Logistics Engineering, as well as any other subject of relevance based on other legislative and regulatory sources.

The Teaching Regulations of the master's degree program in Safe Transport and Logistics Engineering are approved, pursuant to Article 25, paragraphs 1 and 4, of the Teaching Regulations of the University of Genoa (general part) by the majority of the members of the Council of the Course of Study (CCS) in Safety Engineering and are subject to the approval of the Council of the Department of Mechanical, Energy, Management, and Transportation Engineering (DIME), after consultation with the Polytechnic School, with the prior favorable opinion of the Teachers-Students Joint Committee of the Polytechnic School.

The resolutions of the CCS may also be taken in telematic mode according to the above-mentioned regulations, particularly Article 14 "Meetings via telematic means" of the current General Regulations of the University (effective from 19/12/2018) and Rector's Decree No. 5725 dated 23/12/2022 "Regulatory provisions for the execution of collegial body meetings via telematic means."

Art. 2 – Admission requirements and verification of individual preparation

Admission to the master's degree program in Safe Transport and Logistics Engineering is subject to the possession of specific curricular requirements and an adequate personal preparation. Applicants must demonstrate knowledge equivalent to those provided by the general training objectives required for all bachelor's degrees in the fields of Civil and Environmental Engineering, Information Engineering, and Industrial Engineering (classes L-7, L-8, and L-9 as per Ministerial Decree (DM) 270/2004 and DM 1648/2023).

Specifically, all following **curricular requirements** must be met:

- possession of a bachelor's degree or a master's degree (as per DM 509/1999 or DM 270/2004) awarded by an Italian university, or a five-year degree (prior to DM 509/1999), or an equivalent qualification;
- possession of at least 36 CFU (Italian university educational credits, equivalent to the credits of the European Credit Transfer and Accumulation System, ECTS), or equivalent knowledge, acquired in any university degree course (bachelor's, master's, five-year master's, first and second level "Master Universitario") within the scientific-disciplinary sectors (SSD) indicated for the basic educational activities of the classes L-7, L-8, and L-9 as per DM 270/2004 and DM 1648/2023;
- possession of at least 45 CFU, or equivalent knowledge, acquired in any university degree course (bachelor's, master's, five-year master's, first and second level "Master Universitario") within the scientific-disciplinary sectors (SSD) indicated for the educational activities characterizing the classes L-7, L-8, and L-9 as per DM 270/2004 and DM 1648/2023;
- knowledge of the English language at a level equivalent to at least B2 of the Common European Framework of Reference (CEFR).

The curricular requirements must be satisfied before proceeding to the verification of individual preparation.

Verification of Individual Preparation: To be admitted to the master's degree program, students who meet the curricular requirements must successfully pass an assessment aimed at verifying their personal preparation.

The assessment will be conducted by a Commission appointed by the CCS and composed of faculty members of the CCS. It will consist of either a written test or a public interview, aimed at verifying the

student's general preparation, with particular reference to fundamental knowledge in basic subjects (e.g., mathematics and physics), as well as applicative and professional aspects related to engineering topics.

In assessing the student, the Commission will also consider the student's undergraduate academic record. The outcome of the assessment will be either "passed" or "not passed". Details regarding the composition of the Examination Commission, the assessment methods, location and dates, topics covered, and evaluation criteria will be published in the call for admission to the master's degree programs of the Polytechnic School, and on the official website of the master's degree program. Personal preparation will be considered automatically verified for candidates holding an Italian bachelor's degree awarded with a final mark of at least 9/10 of the maximum possible score. For candidates with a non-Italian bachelor's degree or equivalent qualification, the adequacy of preparation will be assessed during the evaluation of curricular requirements, based on the documentation provided.

English Language Knowledge: Proficiency in English at B2 level or higher must be demonstrated either through possession of an accepted language certificate, or by passing the B2 level test organized by the Language Centre of the University of Genoa. The recognized language certificates are those listed on the University's official website (<https://clat.unige.it/en/CertificazioniRiconosciute>). The language requirement is also considered fulfilled if the applicant holds a degree entirely taught in English, certified by an official document or a letter issued by the awarding institution. If none of the above conditions are met, the student's English proficiency will be assessed during the individual preparation assessment; in this last case, the ability to use English language fluently is included in the subjects of the assessment.

For non-EU citizens with residence abroad and foreign degree, applications for admission to English-taught master's degree programs ("international master's degree programs") must be submitted through a dedicated online platform, designated and adequately publicized by the University. After the documentation is uploaded, a check is made about its completeness. Candidates passing this step will proceed to the next stage concerning the assessment of the qualifications and the final evaluation, resulting in one of the following outcomes: "accepted", "conditionally accepted" (requiring a bridging program), or "rejected".

The maximum number of non-EU students allowed to enrol is determined annually by the CCS, communicated to the University Welcome Office, and published on the University website.

Art. 3 – Educational activities

The list of courses and other educational activities available for the 2025/2026 intake is provided in Annex 1, which shall be considered an integral part of these Regulations. For each course, a responsible lecturer is designated. The responsible lecturer is whoever is charged of teaching in accordance with the law, that is, the academic to whom the responsibility has been assigned by the Department Council during the allocation of teaching duties.

The language of all educational activities (lectures, exercises, laboratory works, workshops) is English.

Art. 4 – Enrolment in single educational activities

In accordance with Article 5 of the Regulations of the University of Genoa for students, enrolment in individual educational activities requires possession of a qualification granting university access. Considering the specific organization of the theoretical-practical educational offer, enrolment applications for single educational activities belonging to the degree program may be accepted only after evaluation by the CCS, ensuring the proper functioning of the courses.

Art. 5 – Curricula

The master's degree program in Safe Transport and Logistics Engineering is not divided into separate curricula.

Art. 6 – Overall time commitment

The definition of the number of hours dedicated to theoretical and practical lessons (frontal teaching, exercises, laboratory works) or other equivalent teaching activities, per CFU, is defined, for each course, by the CCS and specified in the special part of these Regulations (Annex 1). In any case, unless otherwise indicated, the following ranges for the ratio "number of hours per CFU" are adopted:

- frontal teaching: hours/CFU: $8 \div 10$
- exercises: hours/CFU: $10 \div 12$
- laboratory: hours/CFU: $8 \div 12$
- other equivalent teaching activities: hours/CFU: $8 \div 12$

The estimated workload (overall time commitment) reserved for personal study or individual training activities for each course is reported in the special part of these Regulations (Annex 1).

The Director of the Department and the Coordinator of the master's degree program are responsible for ensuring compliance with these specifications.

Art. 7 – Study plans and prerequisites

Students may enrol either full-time or part-time, with different rights and obligations applicable to each status. Further details are available in Article 12 of the *Student Contribution Regulations* of the University of Genoa.

The type of enrolment must be selected when submitting the study plan. Full-time students must structure their educational activities according to the official study plan defined by the Council of the Course of Study, which is organized by academic year and published in the course catalogue of the master's degree program. The study plan formulated by the student must contain the list of the educational activities, along with the related CFUs (provided by the official study plan), that he/she intends to achieve, up to 65 CFU per academic year.

Part-time students must submit an individual study plan, specifying the number of CFUs to be taken, according to the *Student Contribution Regulations* of the University of Genoa.

The enrolment of full-time and part-time students is regulated by the *Regulations of the University of Genoa for Students* considering the operational provisions approved by the University government bodies and reported in the Student's Guide (which is published annually on the official website of the University of Genoa).

The study plan of students must adhere to established prerequisites, outlined in the special section of these Regulations (Annex 1).

Students who have demonstrated particularly outstanding academic performance in the previous academic year may be authorized by the Council of the Course of Study to include in their study plan up to 75 CFUs per year. "Outstanding performance" refers to students who have passed all their scheduled exams by September.

Students wishing to complete the program in a shorter time than standard must have their study plan approved by the CCS. Deadlines and procedures for submitting study plans are established annually by the Polytechnic School and published on the University website (that can be reached from the website of the master's degree program).

Art. 8 – Attendance and teaching methods

Courses are delivered through: (a) Lectures (also remotely via telematic means in specific cases authorized by the University); (b) practical exercises; (c) laboratory exercises (d) thematic seminars.

Given the complexity and demanding nature of the educational activities delivered in the master's degree program, regular attendance is strongly recommended to ensure thorough understanding of topics and successful performance in exams.

The academic calendar is divided into semesters. As a rule, each semester includes at least 12 weeks of teaching, and a minimum of 4 weeks reserved for assessments and exams.

Examination periods end with the beginning of the next semester's lectures. Regular teaching activities (lectures, practical and laboratory exercises, seminars) are generally interrupted by mid-semester breaks according to the indications provided by the Polytechnics School. The breaks may be used for graduation sessions, examinations for non-attending students, seminars, tutoring activities, and make-up lectures.

The class schedule for the entire academic year is published, before the start of classes, on the website of the University of Genoa and is also made available through the degree program's official website. The class schedule guarantees the possibility of attending each year of the course as planned in the current course catalogue of the master's degree program.

Due to organizational constraints, full compatibility between elective courses cannot always be guaranteed. Students should therefore carefully plan their study choices based on the published timetable of classes.

Art. 9 – Examinations and other assessments

Examinations may be carried out in written, oral, or combined written and oral formats, as detailed in each course syllabus available on the University website (that can be reached from the website of the master's degree program).

Upon request, specific assessment methods are provided for students with disabilities or specific learning disorders (D.S.A.), in accordance with Article 20, paragraph 4, of the Teaching Regulations of the University of Genoa.

In case of courses structured in modules with several lecturers, assessments are collegial, and no partial evaluations are issued. Under no circumstances may the overall assessment be divided into separate evaluations for the individual modules.

The examination calendar is published annually within the official deadlines (defined by the Ministry) on the University and degree program websites.

Examinations are generally held during breaks between semesters. Exams during the teaching period are only allowed for students with no active coursework or other education activity (in their study plan) during that period.

Before taking the final exam to graduate, students must pass the examinations of all courses by the deadline defined by the Student Office of the Polytechnic School and published in the "Graduation Guidelines" that are available on the University and degree program websites.

The result of each exam is recorded with the mark obtained, in accordance with Article 20 of the Teaching Regulations of the University of Genoa.

Examination commissions are appointed by the Director of DIME or, on his behalf, by the Coordinator of the master's degree program. For each course, the examination commission is composed of at least two members. For each exam session, at least two members participate. The lecturer responsible of a course is the president of the related examination commission. Commissions may include experts ("Cultori della Materia") recognized and nominated by the CCS for their scientific, didactic, or professional qualifications. These qualifications are automatically held by retired faculty lecturers.

Art. 10 – Acknowledgement of credits

The CCS decides on the approval of applications for transfers or changes of degree program (from another degree program of the University of Genoa or from other universities), in accordance with Article 18 of the Teaching Regulations of the University of Genoa.

Art. 11 – Mobility, studies abroad, and international exchanges

The CCS strongly encourages internationalization activities, in particular student participation in mobility and international exchange programs. To this end, it shall ensure, in accordance with the rules in force, the approval of the educational credits earned abroad and shall appropriately organise the educational activities to make these exchange programs efficient and effective.

The CCS grants recognition to enrolled students who have regularly undertaken and completed a period of study abroad, by acknowledging the examinations passed at the host institution. Furthermore, it recognizes the acquisition of the credits corresponding to the exams included in the student's study plan, which the student intends to replace with the courses completed abroad.

For the recognition of such examinations, the student, when completing the learning agreement regarding the academic activities to be undertaken abroad, shall provide appropriate documentation demonstrating the equivalence of the content between the course delivered abroad and the corresponding course offered within the master's degree program in Safe Transport and Logistics Engineering. The equivalence is evaluated by the CCS. The conversion of the marks shall be carried out according to criteria approved by the CCS, in compliance with the European ECTS system.

Concerning periods spent abroad and dedicated to the preparation of the thesis, the number of credits recognized is proportional to the duration of the period spent abroad.

Art. 12 – Final examination procedures

The final examination consists of the presentation and discussion of a written dissertation before a designated commission, aimed at verifying the candidate's technical, scientific, and professional preparation.

For the purposes of obtaining the master's degree, the final examination consists of the writing of a dissertation. The dissertation must be an original work, developed under the supervision of one or more academic supervisors, and must pertain to topics related to the educational objectives of the master's degree program. Among the supervisors there must be at least one lecturer of the Polytechnic School or of the master's degree program.

The dissertation must be written in English. Use of another EU language requires prior authorization of the CCS.

The master's thesis shall demonstrate the student's ability to address research and/or application-oriented topics. It shall consist of a project and/or the development of an application that presents innovative solutions in comparison to the current state of the art, and that evidences the student's analytical and design capabilities.

The master's thesis may be of an experimental, numerical, or theoretical nature and may, where appropriate, be carried out in collaboration with external organizations or institutions, either public or private.

The thesis shall also demonstrate:

- the ability to address complex problems through a multidisciplinary approach;
- appropriate use of sources and bibliographic references;
- systematic and argumentative skills;
- clarity of presentation;
- design and experimental capabilities;
- critical thinking skills.

The final examination committee is composed of at least five members (including the Chair) and is appointed by the Director of DIME.

The final examination consists of an oral presentation of the master's thesis by the student before the final examination committee, followed by a discussion on any questions raised by the committee members.

The evaluation of the final examination by the committee, in the event of its successful completion, is carried out by assigning a mark composed of the sum of:

- weighted average, rounded to the nearest integer (rounded down in the case of averages with the first three decimal digits between 0 and 499, and rounded up in the case of averages with the first three decimal digits between 500 and 999), of the marks obtained in the examinations of the educational activities that require a final mark, assuming the number of CFUs associated with each individual educational activity as the weight;
- thesis score, assigned by the final examination committee, also based on the proposal of the thesis supervisor(s), consisting of an integer value between 0 and 4 for standard-type ("standard") and free-type ("free") theses, or an integer value between 0 and 6 for research-type ("research") theses.

In the case of a "research" thesis, it is required that the thesis supervisor submits to the final examination committee, at least one week before the graduation, a letter drafted using a specific template provided by the CCS, in which the innovative and research aspects of the thesis work are briefly outlined.

It is also possible to confer the "dignity of press" ("dignità di stampa") to theses for which the thesis supervisor has submitted to the final examination committee, at least one week before the graduation, a camera-ready scientific article, indicating the conference or journal to which it has been or will be submitted.

Art. 13 – Orientation and tutoring

The Polytechnic School, in agreement with DIME, organizes and manages orientation and tutoring services for students, aiming at preventing dropout and delays in studies, at improving academic performance, and at encouraging active student participation in university life in all its forms.

Art. 14 – Verification of the obsolescence of credits

CFU earned in the master's degree program may be subject to obsolescence verification after six years. If any educational content is deemed obsolete, the CCS establishes the additional examinations or assessments that must be taken by the student, defines the topics, the verification modalities, and the composition of the examination commission.

Upon successful completion of such assessments, the credits will be officially validated by the CCS. If the educational activity provides for a mark, this mark may update the one previously obtained by the student, upon proposal from the examination commission that carried out the verification.

Art. 15 – Course catalogue

The Department of Mechanical, Energy, Management, and Transportation Engineering, after consulting the Polytechnic School, annually approves and publishes the course catalogue ("manifesto degli studi") on the University website (that can be reached from the website of the master's degree program). The catalogue outlines the main academic regulations for teaching, including those provided by the master's degree program as well as any additional supplementary ones. The course catalog contains the list of courses activated for the academic year, along with detailed course syllabi accessible through the University and degree program websites.

Anno	Codice	Nome_ins	CFU	SSD	Tipologia	Ambito	Obiettivi formativi inglese	Ore frontali	Ore studio
1	90446	TRANSPORT SYSTEMS PLANNING	9	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The aim of the course is to provide the tools and capabilities for analysing and designing transport systems across different geographic and temporal scales. Specifically, the first part of the course focuses on the analysis phase and provides the student with the skills to define models of transport infrastructures and services, articulate models of mobility demand, and state and solve assignment problems. The second part of the course focuses on the design phase and provides the student with the skills to collect and use field data for customizing, calibrating, and enhancing supply and demand models. Therefore, in the second part, the aim is to provide the students with the capability to state and solve transport systems design problems and define and compare different alternatives both in terms of performance and costs.	90	135
1	101499	SAFE AND RELIABLE TRANSPORT SYSTEMS AND NETWORKS	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The goal of the course consists of providing the basic knowledge about methodologies and technologies for safety in transport systems and networks, and the methodological tools for assessing reliability. At the end of the course, the student will be able to discuss safety/security and reliability principles and standards and to apply methods and models for the assessment of safety and reliability in the context of transport systems and networks.	45	80
1	118186	MODELS FOR TRANSPORT AND LOGISTICS	10				The objective of the course is to provide students with knowledge of mathematical models that can be used to represent the functioning of transport and logistics systems. This objective is pursued through two teaching modules: Traffic Flow Theory and Methods and Models for Logistics. The first module aims to provide students with a general understanding of the physical phenomena that govern traffic flows in transport systems, as well as the mathematical models used to represent these phenomena. The second module aims to provide the basic elements of logistics and integrated inventory management techniques, as well as to develop and use logical-mathematical models for the analysis and planning of logistics systems.	0	0
1	98954	METHODS AND MODELS FOR LOGISTICS	5	ING-INF/04	CARATTERIZZANTI	Ingegneria della sicurezza e protezione dell'informazione	The course aims to provide the basic elements of logistics and integrated inventory management techniques, as well as to develop and use logical-mathematical models for the analysis and planning of logistics systems (issues related to sustainability will be considered within the proposed methods and applications). This objective allows students to acquire methodological and practical knowledge (also through the use of software tools) to model and manage logistics systems.	45	80
1	118187	TRAFFIC FLOW THEORY	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The course aims to provide students with a general understanding of the physical phenomena that govern traffic flows in transport systems, as well as the mathematical models used to represent these phenomena. This objective allows students to acquire both theoretical and practical knowledge to represent traffic dynamics in transport networks using appropriate models (macroscopic, mesoscopic, microscopic, queue-based). More generally, the course aims to develop competencies in the planning and management of the mobility of people and goods through knowledge of the fundamental elements of transport and logistics systems.	45	80
1	118189	TERRITORIAL PLANNING	5	ICAR/20	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The course aims to provide a wide and updated knowledge and, even if synthetic, of the types of plans and their relationship with other planning tools in light of current choices and of guidelines of the (international and national) legislation and of trends. Particular attention will be given to the topic of sustainable mobility systems, from an environmental, social and economic point of view in order to develop knowledge for correct governance.	45	80
1	118194	TRANSPORT ECONOMICS AND POLICIES	11				The objective of the course is to provide students with knowledge of regulatory, social, and economic aspects related to transport and logistics engineering, with particular attention to issues of safety and sustainability. This objective is pursued through two teaching modules: Transport Economics and Organisational Design and Change Issues in Energy Business and Environmental Transition. The first module aims to provide key competences for performing economic appraisal and planning in the mobility, logistics, and transport sectors, linking social science issues to engineering competences. The second module aims to provide cognitive and interpretative tools to address organizational design and organizational change issues, with a focus on identifying the most suitable structures for each organization in the different contexts in which it operates.	0	0
1	108168	ORGANISATIONAL DESIGN AND CHANGE ISSUES IN ENERGY BUSINESS AND ENVIRONMENTAL TRANSITION	6	SECS-P/10	CARATTERIZZANTI	Aspetti normativi, sociali ed economici in materia di sicurezza	The course aims to provide cognitive and interpretative tools for organizational design and organizational change issues relating to the environmental transition, with particular attention to the energy sector. The objectives and the organizational design path are studied, the various steps in which it is divided into the perspective of identifying the most suitable structures for each organization in the different contexts in which the company operates are presented; organizational change is examined as a process to be implemented and managed, deepening its various steps, goals and difficulties. The course combines theoretical and practical study, through lectures and cases and testimonies.	48	102
1	118193	TRANSPORT ECONOMICS	5	SECS-P/06	AFFINI O INTEGRATIVI	Attività formative affini o integrative	The course provides key competences for performing economic appraisal and planning in the mobility, logistics, and transport sectors. Moreover, local economic impacts and performance indicators will be presented and discussed so to provide key tools for performing assessment and evaluations, linking social science issues to engineering competences. In order to achieve its aim, the course provides knowledge of specific features related to different transport modes, competition elements, and industrial organization features within the markets where the different private and public bodies operate.	45	80

1	118195	ICT FOR TRANSPORT AND LOGISTICS	10		CARATTERIZZANTI	Ingegneria della sicurezza e protezione dell'informazione	The objective of the course is to provide students with a set of theoretical and practical ICT tools applicable to the field of transport and logistics engineering, with the aim of enhancing the safety and efficiency of such systems. This objective is pursued through two teaching modules: Principles of Data Processing and Analysis and Telecommunications for Transport and Logistics. The first module aims to provide students with the necessary IT tools to collect, store, manage, and analyze data to be used in the context of transport and logistics systems, with particular emphasis on the development of methodologies to make such systems more efficient, sustainable, and safe. The second module aims at providing the basics of radio communication principles and a functional description of latest generation radio mobile systems for supporting traffic in mobility with particular focus on their application in transport and logistics.	0	0
1	90452	TELECOMMUNICATIONS FOR TRANSPORT AND LOGISTICS	5	ING-INF/03	CARATTERIZZANTI	Ingegneria della sicurezza e protezione dell'informazione	The course aims at providing the basics of radio communication principles and a functional description of latest generation radio mobile systems for supporting traffic in mobility with particular focus on their application in transport and logistics. Localization technologies are investigated and compared, both terrestrial and satellite based. Students will be trained to evaluate and compare different sensors technologies choosing what is most suited for their application within specific complex system in smart mobility, transport infrastructure monitoring and management. Students will also learn the convenience to mix standard solutions for short-range communication like Bluetooth, and NFC with non-standard technologies like RFID, Lora and Sigfox. Through practical examples students will be trained to evaluate the different performances of technologies in terms of data transfer rate, security, range, energy consumption and cost.	45	80
1	98920	PRINCIPLES OF DATA PROCESSING AND ANALYSIS	5	ING-INF/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione dell'informazione	The course aims to provide students with the necessary IT tools to collect, store, manage, and analyze data to be used in the context of transport and logistics systems, with particular emphasis on the development of methodologies to make such systems more efficient, sustainable, and safe. This objective will be achieved by offering basic technological and methodological tools for writing simple scripts and using an information system. In particular, the course will address aspects related to the automation of data management and data warehousing systems, with a specific focus on scripting techniques and methods for querying structured text files and databases.	45	80
1	118196	OPERATIONS RESEARCH AND CONTROL METHODS	10				The objective of the course is to provide students with a set of fundamental skills to design and implement control systems and optimization models, with particular reference to transport and logistics systems. This objective is pursued through two teaching modules: Operations Research and Control of Traffic Systems. The first module aims to provide students with knowledge of a set of models and methods of Operations Research that will enable them to deal with the analysis and resolution of decision-making problems. The second module aims to provide students with basic and advanced skills on the properties and control of dynamic systems, with a focus on the control of traffic systems.	0	0
1	66204	OPERATIONS RESEARCH	5	MAT/09	AFFINI O INTEGRATIVE	Attività formative affini o integrative	This module aims to provide students with knowledge about a set of models and methods of Operations Research that will enable them to deal with decision problems. In particular, students will learn how to use mathematical linear programming models with continuous variables to formulate certain classes of decision problems, and they will learn how to find the optimal solution using the Simplex algorithm; in addition, students will learn how to perform sensitivity analysis and apply duality theory. A very important type of model that will be explained is the integer programming model that allows to face discrete decision problems; the branch and bound and cutting planes methods will be explained for this model. Finally, graph theory and network flow models will be presented; these classes of models are very important as they can model practical decision problems in telecommunications.	45	80
1	90443	CONTROL OF TRAFFIC SYSTEMS	5	ING-INF/04	CARATTERIZZANTI	Ingegneria della sicurezza e protezione dell'informazione	The course aims to provide students with basic and advanced skills on the properties and control of dynamic systems, with a focus on the control of traffic systems. Knowledge will be provided on the treatment of linear and non-linear systems, as well as on the concept of equilibrium point and stability. On the control side, optimisation-based controllers will be developed to minimise KPIs typical of the traffic networks domain, focusing on both complete and incomplete information problems.	45	80
2	90460	SEMINARS AND ORIENTATION	1		ALTRE ATTIVITA'	Altre conoscenze utili per l'inserimento nel mondo del lavoro	The course aims to involve students in activities organized by the degree program board (such as seminars, company visits, and career orientation initiatives) that may support them in choosing their post-graduation professional path.	0	25
2	90461	FINAL EXAM	12		PROVA FINALE	Per la prova finale	The final exam consists in the preparation and defense of a master's thesis, aimed at enhancing the skills acquired by the student during the study program, such as the capacity to analyze and solve complex engineering problems in transport and logistics. The thesis also aims to strengthen the student's abilities to prepare technical-scientific reports and professional or research projects, in view of his/her future career.	0	300
2	90872	ENVIRONMENTAL MITIGATION STRATEGIES FOR TRANSPORT INFRASTRUCTURE	5	ICAR/02	A SCELTA	A scelta dello studente	The course provides conceptual, technical and normative tools to design stormwater drainage systems, to mitigate the pollutant risk due to the oil spills in the marine environment, to mitigate the hydraulic and hydro-geological risk for inland transport infrastructure.	45	80

2	104794	RAIL AND MARITIME TRANSPORT SYSTEMS	10	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The objective of the course is to provide students with knowledge of two specific modes of transport that play a fundamental role in the mobility of people and goods: rail transport and maritime transport. These two modes are the focus of the two teaching modules, Rail Transport and Maritime Transport, through which the intended learning outcomes are pursued. The first module aims to provide basic knowledge on rail transport systems, both from a technical and functional point of view, framing them in both the European and global context. The second module aims to provide knowledge about the characteristics of maritime transport of goods and passengers, including the regulations established at a global level by the International Maritime Organisation (IMO).	0	0
2	90490	RAIL TRANSPORT	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The course provides basic knowledge on rail transport systems, both from a technical and functional point of view, framing them in both the European and global context. In particular, the course deals with the components of a rail transport network: infrastructures, lines, stations, rolling stock, signalling, and functional and operational processes. Particular attention is paid to the evolution induced in rail transport by the progressive introduction of aspects of digitalisation and automation.	45	80
2	101884	MARITIME TRANSPORT	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The course provides knowledge about the characteristics of maritime transport of goods and passengers, including the regulations established at a global level by the International Maritime Organisation (IMO). In particular, the course provides the fundamental notions regarding the elements of the maritime transport network: ports, sea routes, ships, and organizational and operational processes. Furthermore, the course introduces the research and innovation trends at a European and global level.	50	75
2	106881	SUSTAINABLE RAIL AND ROAD INFRASTRUCTURE	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The aim of the course is to provide knowledge regarding the management and maintenance of rail and road infrastructure with a particular reference to the application of innovative technologies and sustainability aspects. New trends such as automation and digitalisation are addressed focusing on users' perspective and acceptability.	45	80
2	106881	SUSTAINABLE RAIL AND ROAD INFRASTRUCTURE	5	ICAR/05	A SCELTA	A scelta dello studente	The aim of the course is to provide knowledge regarding the management and maintenance of rail and road infrastructure with a particular reference to the application of innovative technologies and sustainability aspects. New trends such as automation and digitalisation are addressed focusing on users' perspective and acceptability.	45	80
2	118190	SIMULATION OF TRANSPORT AND LOGISTIC SYSTEMS	9	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The course aims to provide students with the theoretical foundations and practical skills required to design and develop simulation models of transport and logistics systems. These models can be used to analyze the performance of existing systems, plan solutions to improve efficiency and safety in transport and logistics systems, compare alternative scenarios, and assess the impact of both planned and unexpected events. This objective is mainly pursued through practical lessons, during which students will use macroscopic, microscopic, and discrete-event simulation softwares to develop models of selected transport and logistics systems.	85	140
2	118191	SUSTAINABLE URBAN MOBILITY	5	ICAR/05	A SCELTA	A scelta dello studente	The objective of the course is to introduce the motivations and fundamental principles underlying sustainable urban mobility and to provide both theoretical and practical tools for the analysis and design of innovative solutions. This objective will be pursued by providing students with the knowledge to design and analyse public transport systems, electric mobility solutions, and pedestrian and bicycle mobility networks.	45	80
2	118191	SUSTAINABLE URBAN MOBILITY	5	ICAR/05	CARATTERIZZANTI	Ingegneria della sicurezza e protezione civile, ambientale e del territorio	The objective of the course is to introduce the motivations and fundamental principles underlying sustainable urban mobility and to provide both theoretical and practical tools for the analysis and design of innovative solutions. This objective will be pursued by providing students with the knowledge to design and analyse public transport systems, electric mobility solutions, and pedestrian and bicycle mobility networks.	45	80
2	118197	INDUSTRIAL LOGISTICS AND MACHINES	10				The objective of the course is to provide foundational knowledge on supply chain resilience and low environmental impact technologies for transport and logistics. This objective is pursued through two teaching modules: Supply Chain Management and Machines, Systems and Green Fuels for Transport and Logistics. The first module aims to provide students with an understanding of models for forecasting product demand, production planning, warehouse management and distribution of products between warehouses and distribution centers. The second module aims to provide knowledge on the main types of machines, with reference to those used in transport and logistic systems, as well as on energy systems and their environmental impact.	0	0
2	94848	MACHINES, SYSTEMS AND GREEN FUELS FOR TRANSPORT AND LOGISTICS	5	ING-IND/08	AFFINI O INTEGRATIVI	Attività formative affini o integrative	The course aims at providing the knowledge on the main types of machines, with reference to those used in transport and logistic systems, as well as on energy systems and their environmental impact. The main objectives are: to provide adequate and critical knowledge of the main design and operating aspects of internal combustion engines and gas turbines power plants; to analyse combustion processes and pollutant emissions formation, including the relevant technologies for their control; to define criteria for the comparison of alternative fuels and propulsion systems based on conventional, electric, and hybrid technologies.	45	80
2	118346	SUPPLY CHAIN MANAGEMENT	5	ING-IND/17	CARATTERIZZANTI	Ingegneria della sicurezza e protezione industriale	The course aims to make students understand the models for forecasting product demand, production planning, warehouse management and distribution of products between warehouses and distribution centers. Understanding these models allows students to acquire the theoretical and practical knowledge to plan, coordinate and manage efficient logistics systems that also guarantee a high level of customer service.	45	80
2	118347	INDUSTRIAL SAFETY AND PRODUCTION SUSTAINABILITY	5	ING-IND/17	A SCELTA	A scelta dello studente	The course aims to provide students with a systemic understanding of safety and sustainability in industrial production systems and plant engineering. The learning objectives include the identification and assessment of potential risk factors, the exploration of innovative approaches for industrial and transport applications, the analysis of environmental impacts in production processes including the use of Digital Twins and AI, operations management of production processes with a sustainability-oriented approach. Emphasis will be given to the integration between safety culture and sustainable innovation in industrial settings.	45	80

2	118451	SOFT SKILLS	3		ALTRE ATTIVITA'	Ulteriori conoscenze linguistiche	The course is intended to develop students' transversal competencies that are essential in both academic and professional environments. Core focus areas include effective communication, teamwork, problem solving, and time management. The objective is to strengthen students' ability to operate efficiently and adaptively within complex and dynamic professional contexts.	30	45
2	118454	ITALIAN LANGUAGE	3		ALTRE ATTIVITA'	Ulteriori conoscenze linguistiche	The course aims to provide students with basic knowledge of the Italian language. Specifically designed for international students, the course has the objective of facilitating the acquisition of fundamental language skills necessary to understand simple written texts and spoken dialogues, as well as to communicate in Italian using simple phrases and common expressions.	30	45