Diploma supplement

Master of Science MSc in Mechanical Engineering
with : Management, Technology and Entrepreneurship minor

Section :

Mechanical Engineering

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international «transparency» and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1. Information concerning the holder of the diploma

1.1	Family name(s)	**Thammisetty**
1.2	First name	**Devakumar**
1.3	Date of birth	**March 17th, 1991**
1.4	Federal registration number	**18804948**

2. Information concerning the diploma

2.1 Type of qualification and title conferred with official abbreviation (in original language)

Qualification	**Master of Science MSc**
MSc Title	**Master of Science MSc in Mechanical Engineering**
Swiss Professional title	**Ingénieur mécanicien (ing. méc. dipl. EPF)**

2.2 Main fields of study covered by the qualification

Aero- and Hydrodynamics, Control and Mechatronics, Design and Production, Energy, Mechanics of Solids and Structures, Biomechanics

A mechanical engineer is proficient in analysis, conceptual modelling and synthesis, in the design of products and of technological services. A solid understanding of fundamental mathematical and physical principles, as well as of the available engineering tools, is necessary to ensure that his skills are kept up-to-date in a rapidly-evolving technological world. Industrial and services companies, as well as private and public organisations rely on the competencies of mechanical engineers. A mechanical engineer can hold a whole range of positions such as scientific or technical expert or manager in different company sectors, including R&D, production & logistics, marketing & sales, etc.

2.3 Name and status of the awarding institution (in original language)

École polytechnique fédérale de Lausanne, Suisse (EPFL)

EPFL - Foundation and Development

Created in 1853 as the École Spéciale de Lausanne, the institution became the Swiss Federal Institute of Technology Lausanne in 1969. EPFL has kept evolving, restructuring its programs and creating new curricula, thus anticipating the scientific and technological developments. Today, EPFL is among the world's top technological universities and a strategic center of innovation in Switzerland.

At a national level, EPFL is expanding by establishing specialized research centers, including outposts in Neuchatel (Microcity), Sion (Energypolis), Geneva (Campus Biotech), and Fribourg (Smart Living Lab). Each of these research centers is active in a field that is of particular importance to the region where it is located.

EPFL has positioned itself as a research-intensive university of technology, where science and engineering come together to benefit education as well as fundamental and applied research.

EPFL Facts - 2019

- 11'449 students, including 2'199 doctoral students, representing over 120 nationalities
- 6'134 employees, including 344 faculty members and 3'653 scientific collaborators
- 1'033 Master and 424 Doctorate degrees were delivered in 2019
- 371 laboratories
- 116 Start-ups, 25 Corporate companies, 8 SME and 17 Service providers at EPFL Innovation Park
- 1 million visitors to the Library, collections with 260'000 volumes; campus-wide online access to 40 databases, over 22'000 scientific journals and over 110'000 ebooks
- a total budget close to CHF 1 billion

Study Programs

- Architecture; Civil Engineering; Environmental Sciences & Engineering
- Electrical & Electronics Engineering; Mechanical Engineering; Materials Science & Engineering; Microengineering; Robotics; Energy Science and Technology
- Computer Science; Communication Systems; Data Science; Cyber Security
- Physics; Applied Physics, Mathematics; Applied mathematics; Molecular and biological chemistry ; Chemical Engineering & Biotechnology, Computational Science & Engineering; Nuclear Engineering
- Life Sciences Engineering
- Management, Technology & Entrepreneurship; Financial Engineering
- Digital Humanities

The EPFL programs are certified by the Center of Accreditation and Quality Assurance of the Swiss Universities (OAQ), and those in engineering have also been certified by the French Commission des Titres d'Ingénieur (CTI). Thanks to this double certification, EPFL degrees receive the label EUR-ACE and are recognized throughout Europe.

Technology transfer

EPFL acts as a start-up incubator to assure the technology transfer from academic results into industrial development. During the last decade, EPFL scientists have created an average of one new business every month. The EPFL Innovation Park hosts 170 companies including 25 large international groups and over 140 start-ups, SME and service companies.

International Relations

While preserving the coherence of rigorous scientific training, EPFL offers its students exchange possibilities thanks to agreements with more than 200 carefully selected partner universities worldwide. EPFL is also a member of several academic networks, such as EuroTech, RESCIF, CLUSTER and CESAER, which promote scientific collaborations as well as student and faculty mobility.

2.4 Name and status of institution (if different from 2.3) administering studies

Some courses in complementary fields can be chosen at the University of Lausanne

2.5 Languages of instruction/examination

Mainly in English.

3. Information concerning the level of qualification

3.1 Level of qualification

Master : Academic degree obtained after the second cycle of studies.

3.2 Official duration of studies

The Master comprises two stages :
a. Master cycle of 3 semesters = 90 ECTS credits
b. Master project of 1 semester = 30 ECTS credits

1 credit = 25-30 hours of workload

3.3 Admission requirements

Bachelor's Degree in the corresponding field of studies awarded by a Swiss University or an École Polytechnique Fédérale (EPF) or according to qualifications, for other diplomas considered equivalent.

4. Information concerning programme content and results gained

4.1 Mode of study

Full-time

4.2 Programme requirements

The Master project is carried out after the 90 ECTS credits have been obtained in the Master.

An engineering internship in industry of a minimum length of 8 weeks is an integral part of the Master. However, if the Master project is of 25 weeks in length in industry, this 8 week internship can be dispensed with.

4.3 Programme details and individual grades/marks/credits obtained

The marks and the credits obtained appear in the grade sheet.

4.4 Grading system and if available information concerning allocation of grades

Marking system EPFL

Excellent	6.0
Very good	5.5
Good	5.0
Satisfactory	4.5
Pass	4.0
Fail	3.5
Poor	3.0
Poor to very poor	2.5
Very poor	2.0
Not measurable	1.0

4.5 Overall classification of the qualification

Final Master grade : 5.51 / 6

5. Information concerning the function of the qualification

5.1 Acces to further studies

Allows application for specialised Master and other higher education programmes, in particular Doctoral programmes.

5.2 Professional status

There are no specific regulations bound to this profession

6. Additional information

6.1 Additional details on the individual course of the studies:

Minor :	**Management, Technology and Entrepreneurship minor**
Engineering Internship :	**Analyse vision et éclairage / Vision analysis and illumination, Asyril SA, 1690 Villaz-St-Pierre, Suisse, from 1 July 2019 to 30 September 2019**
Title of the Master project in the original language :	**Development of a Multi-phase Optimal Control Software for Aerospace applications (MPOPT) from 17 February 2020 to 19 June 2020**
Students representative during :	**2 semesters**

6.2 Others sources of information

Mechanical Engineering Section
EPFL Faculté STI
Bâtiment ME
Station 9
CH-1015 Lausanne
Tél : + 41 (0)21 6932947
Website : http://sgm.epfl.ch/
E-mail : sgm@epfl.ch

Registrar's office
EPFL DAF/SAC
BP - Ecublens
Station 16
CH-1015 Lausanne
Tél : + 41 (0)21 693 43 45
Website : http://sac.epfl.ch
E-mail : student.services@epfl.ch

Naric network : http://www.crus.ch
Swissuniversity : http://www.swissuniversity.ch

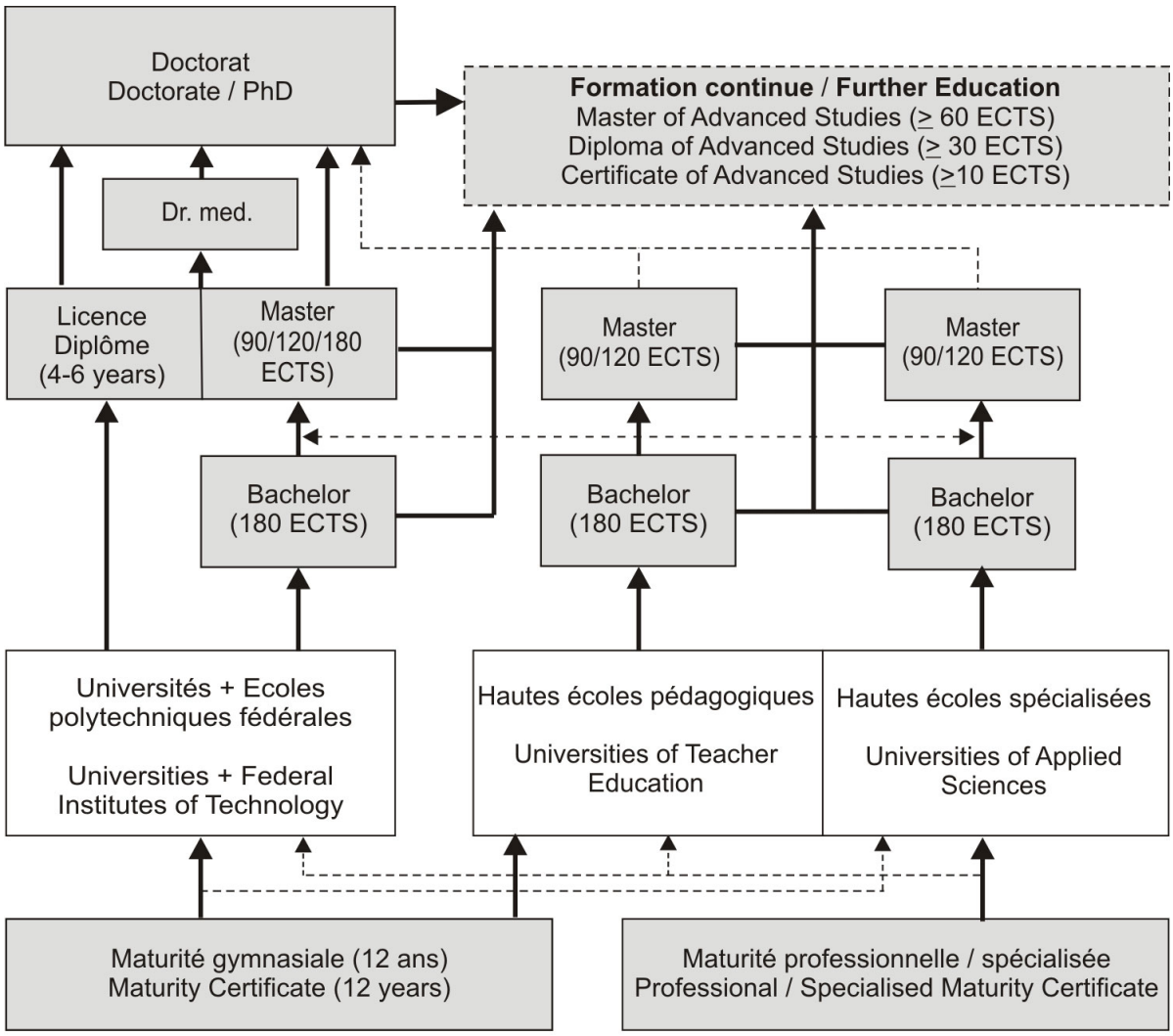
7. Endorsement of the Diploma Supplement

July 20th, 2020

Vice President for Education

Professor Pierre Vandergheynst

8. Information on the Swiss education system



Parcours normal
Normal path

Conditions supplémentaires requises
Additional achievement required

9.Description of courses attended

CS-487 Industrial automation
ECTS Credits : 3.
Lecturers : Pignolet-Oswald Yvonne Anne, Tournier Jean-Charles. Semester : 2018-2019 Master semester 2
This course consists of two parts: 1) architecture of control systems, hands-on lab 2) handling of faults and failures in real-time systems, including fault-tolerant computing

EE-585 Space mission design and operations
ECTS Credits : 2.
Lecturers : Nicollier Claude. Semester : 2018-2019 Master semester 2
This course is a "concepts" course. It introduces a variety of concepts in use in the design of a space mission, manned or unmanned, and in space operations. it is at least partly based on the practical space experience of the lecturer

ENV-542 Advanced satellite positioning
ECTS Credits : 4.
Lecturers : Botteron Cyril, Skaloud Jan. Semester : 2018-2019 Master semester 2
All fundamental principles behind modern satellite positioning to acquire, track and evaluate direct and indirect satellite signals and process them in relation to example applications: Earth monitoring (landslides,...), high precision positioning (automated driving, robots,...) and time transfer.

FIN-523 Global business environment
ECTS Credits : 4.
Lecturers : Lambertini Luisa. Semester : 2018-2019 Master semester 1
This course provides students with the framework and decision tools needed for taking financial decisions and evaluating investment opportunities in a global economy. We use an integrated model of exchange rate and output determination to analyze the effects of monetary and fiscal policies.

HUM-440(a) Global perspectives, local realities I
ECTS Credits : 3.
Lecturers : Hoesli Eric, Laperrouza Marc. Semester : 2018-2019 Master semester 1
The course addresses current issues through the lenses of history, political economy, technology or geopolitics. It fosters students' critical thinking on the globalisation process by integrating different levels of analysis as well as questions of alterity and geographic diversity.

HUM-440(b) Global perspectives, local realities II
ECTS Credits : 3.
Lecturers : Hoesli Eric, Laperrouza Marc. Semester : 2018-2019 Master semester 2
The course addresses current issues through the lenses of history, political economy, technology or geopolitics. It fosters students' critical thinking on the globalisation process by integrating different levels of analysis as well as questions of alterity and geographic diversity.

ME-401 Mechanical engineering project I
ECTS Credits : 10.
Lecturers : Ijspeert Auke. Semester : 2018-2019 Master semester 2
The student applies the acquired skills to an academic or industrial projects.

ME-402 Mechanical engineering project II
ECTS Credits : 10.
Lecturers : Jones Colin Neil. Semester : 2019-2020 Master semester 3
The student applies the acquired skills to an academic or industrial projects.

ME-413 Introduction to additive manufacturing
ECTS Credits : 3.
Lecturers : Boillat Eric, Brugger Jürgen, Moser Christophe. Semester : 2018-2019 Master semester 1
The state of the art in the domain of additive production processes (the part is built by material addition without use of a shape tool) will be presented. The main application/benefits/shortcomings of the common additive processes as well as technological and economical issues will be discussed.

ME-421 System identification
ECTS Credits : 3.
Lecturers : Karimi Alireza. Semester : 2018-2019 Master semester 1
Identification of discrete-time linear models using experimental data is studied. The correlation method and spectral analysis are used to identify nonparametric models and the subspace and prediction error methods to estimate the plant and noise model parameters. Hands-on labs are included.

ME-422 Multivariable control
ECTS Credits : 3.
Lecturers : Ferrari Trecate Giancarlo. Semester : 2019-2020 Master semester 3
This course covers methods for the analysis and control of systems with multiple inputs and outputs, which are ubiquitous in modern technology and industry. Special emphasis will be given to discrete-time systems, due to their relevance for digital and embedded control architectures.

ME-425 Model predictive control
ECTS Credits : 3.
Lecturers : Jones Colin Neil. Semester : 2019-2020 Master semester 3
Provide an introduction to the theory and practice of Model Predictive Control (MPC). Main benefits of MPC: flexible specification of time-domain objectives, performance optimization of highly complex multivariable systems and ability to explicitly enforce constraints on system behavior.

ME-427 Networked control systems
ECTS Credits : 3.
Lecturers : Ferrari Trecate Giancarlo. Semester : 2018-2019 Master semester 1
This course offers an introduction to control systems using communication networks for interfacing sensors, actuators, controllers, and processes. Challenges due to network non-idealities and opportunities offered by communication will be analyzed.

ME-446 Two-phase flows and heat transfer
ECTS Credits : 3.
Lecturers : Gallaire François. Semester : 2019-2020 Master semester 3
This course covers the theoretical and practical analysis of two-phase flow and applications. Fundamental two-phase heat transfer in the form of condensation and boiling are studied in detail. Advanced topics such as microchannel two-phase flow, microfinned tubes and oil effects are also handled.

ME-466 Instability
ECTS Credits : 3.
Lecturers : Gallaire François. Semester : 2019-2020 Master semester 3
This course focuses on the physical mechanisms at the origin of the transition of a flow from laminar to turbulent using the hydrodynamic instability theory.

ME-524 Advanced control systems
ECTS Credits : 3.
Lecturers : Karimi Alireza. Semester : 2018-2019 Master semester 2
This course covers some theoretical and practical aspects of robust and adaptive control. Robust controller design with H-infinity performance, digital controller design with pole placement technique, direct, indirect and switching adaptive control are studied and implemented in a hands-on lab.

ME-597 Engineering internship credited with master project(master in Mechanical engineering)
ECTS Credits : 0.
Lecturers : Gautsch Sebastian, Prenleloup Alain Michel. Semester : 2019-2020 Master semester 3
The student does an industrial internship in a domain where mechanical engineering skills are brought out.

ME-599 Master project in Mechanical Engineering
ECTS Credits : 30.
Lecturers : Jones Colin Neil. Semester : 2019-2020 Master Project spring
The student applies the acquired skills to an academic or industrial project.

MGT-432 Data science for business
ECTS Credits : 6.
Lecturers : Younge Kenneth. Semester : 2019-2020 Master semester 3
The course introduces students to the methods and tools used by data scientists to model prediction problems for business. Students will also learn how to apply these concepts to real programming problems.

MGT-453 Industry dynamics, models & trends
ECTS Credits : 4.
Lecturers : Finger Matthias. Semester : 2018-2019 Master semester 2
The course introduces the participants to industry analysis. Participants will learn how to identify and analyze industries with a particular focus on how industries evolve thanks to technological developments, in particular digitalization, and regulatory constraints.

MGT-482 Principles of finance
ECTS Credits : 4.
Lecturers : Morellec Erwan. Semester : 2018-2019 Master semester 1

This course is intended to provide a market-oriented framework for analyzing the major of financial decisions made by corporations. Lectures and readings will provide an introduction to present value techniques, capital budgeting, asset valuation, the financial decisions of firms, and derivatives.

MGT-483 Optimal decision making
ECTS Credits : 4.
Lecturers : Kuhn Daniel. Semester : 2018-2019 Master semester 2
This course introduces the theory and applications of optimization. We develop tools and concepts of optimization and decision analysis that enable managers in manufacturing, service operations, marketing, transportation and finance to transform data into insights for making better decisions.

MGT-484 Applied probability & stochastic processes
ECTS Credits : 4.
Lecturers : Mohajerin Esfahani Peyman, Sutter Tobias. Semester : 2018-2019 Master semester 1
This course focuses on dynamic models of random phenomena, and in particular, the most popular classes of such models: Markov chains and Markov decision processes. We will also study applications in queuing theory, finance, project management, etc.

MGT-526 Supply chain management
ECTS Credits : 4.
Lecturers : Seifert Ralf. Semester : 2018-2019 Master semester 2
This course introduces key concepts in supply chain management. It uses a combination of case studies, simulation exercises, formal lectures and group discussions to illustrate how the various concepts can be successfully implemented in practice.

MICRO-455 Applied machine learning
ECTS Credits : 4.
Lecturers : Billard Aude, Polydoros Athanasios. Semester : 2018-2019 Master semester 1
Real-world engineering applications must cope with a large dataset of dynamic variables, which cannot be well approximated by classical or deterministic models. This course gives an overview of methods from Machine Learning for the analysis of non-linear, highly noisy and multi dimensional data.