



CSUN

CALIFORNIA
STATE UNIVERSITY
NORTHRIDGE

MASTER OF SCIENCE

ENGINEERING MANAGEMENT

Manage and Innovate with Impact

**BEST
ENGINEERING
MANAGEMENT
ONLINE MASTER'S
PROGRAMS**

 **Online
Master's
Degrees**
2022



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From January 2019 till May 2020 there were 213,501 unique job postings for Engineering Managers in U.S. with 44,039 postings in California alone.

economicmodeling.com



You've got the technical. Now get the rest.

This master's program provides you with the leadership training and technical expertise to manage high-level engineering projects, teams and resources. In addition to robust technical and management training, the program also includes advanced study of data analytics, which improves your ability to use data in a variety of contexts – a skill desired by employers nationwide.

Here, you're not just an engineer. You're a leader.

Our program prepares you for the top leadership roles in everything from major manufacturing to big tech. From day one, we'll help you integrate your technical skills with the foundations of business and management, empowering you to lead anywhere you go.

When you finish, not only will you know how to enter new jobs and markets – you'll know how to excel once you get there.

Leadership, powered by data.

In this program, we equip you with powerful tools to help you make better, more profitable decisions – all backed by data. You'll explore visualization and dashboard design, all while studying real-world examples of how businesses use data to optimize systems and increase efficiency.

From consumer habits to industrial manufacturing and supply chains, you'll learn how to interpret trends, predict failure and capitalize on new opportunities.



CSUN is one of the founding members of the White House Maker Faire initiative, launched by former President Barack Obama in June 2014, to emphasize advanced manufacturing.

Solve the world's toughest challenges.

Whether it's the human factor or big data, our program prepares you for the complexities of modern engineering – and everything in between.

You'll learn how to:

- Manage diverse engineering projects
- Lead technical teams
- Analyze and use data of all sizes
- Introduce sustainable innovations
- Optimize production, manufacturing and more

Why you'll love us.

NO TEMPLATES, EVER.

At CSUN, we don't fill courses. We build them, entirely from scratch, each and every time we launch a program. This leads to a unique education, with real and lasting outcomes in your career.

EXPERT INSTRUCTION AND DESIGN.

Our world-class faculty design and teach all courses, helping you gain today's most in-demand skills – and bringing the industry directly to you.

GROUP-POWERED LEARNING.

When you enroll, we place you in a small, interactive group of peers from diverse organizations and industries. And from day one to graduation, you'll learn and grow together.

VIP SUPPORT.

As you earn your education, we'll stay with you every step of the way, offering close, personal support when and where you need it.

Build a global perspective.

With deep international experience across varied nations and sectors, the program's faculty understand the importance of a global perspective. All projects and assignments are designed to mold you into a global thinker, capable of understanding how resources, systems and organizations behave on the international level.

Why data?

How data analysis is transforming the field of engineering management.


As a discipline, engineering management involves designing, operating and continuously improving high-tech enterprises through technical and management knowledge. Beyond achieving a project's desired goals, such as completion, engineering management is equally focused on quality, sustainability, efficiency and – now more than ever – data.

With the development of the Internet of Things (IoT), as well as the incorporation of 5G in various engineering technologies, the amount of data from engineering systems is staggering – and, as importantly, increasing by the second. For engineering firms, this massive trove of data has led to improvements in product design, manufacturing, maintenance and operations.

But in order to capitalize on this opportunity, the industry needs smart engineering managers who can use data to continuously improve modern engineering operations. That's where CSUN's Master of Science in Engineering Management comes in.

This program explores Russ Ackoff's well-known model: Data, Information, Knowledge & Wisdom (DIKW). This model is ideally suited for engineering management students, as it ties in with managing and supervising data-driven technical projects. The acronym, DIKW, is the thrust of the model, with data leading to information which then leads to knowledge and, finally, to wisdom. This is where the engineering manager's technical expertise comes into play, marrying new skills and data with time-tested practical abilities.

In this program, students will acquire both, gaining a mastery of data as well as an expansive skillset of technical and managerial capabilities – a perfect match for today's industry.



"A common disease that afflicts management and government administration the world over is the impression that 'Our problems are different.' They are different, to be sure, but the principles that will help to improve quality of product and of service are universal in nature."

—W. Edwards Deming





Average salary for a worker with a Master of Science in Engineering Management: \$114,000

Average salary for a worker with a Bachelor of Science in Engineering Management: \$72,881

payscale.com



Job Outlook

A booming field, engineering management is at the forefront of many emerging markets – from big tech to major manufacturing. Coming as no surprise, companies are aggressively recruiting and compensating well-educated engineering managers.

Over the last two years, the job market for engineering management grew significantly, in both size and pay:

- MEM ranks 4th among the Top 30 Highest Paying Masters Degrees for 2022 ([edsmart](#))
- Median salary for Engineer Managers is \$155,000
- Demand for Engineer Managers grew by 58% between 2020 and 2022
- A master's degree in engineering can increase an individual's earning potential by 50%. ([Rice University](#))

We design with you in mind.

Your future matters to us – and so does your present. That's why our online programs, including this one, give you the maximum flexibility to continue working as you earn your degree.

Plus, with our cohort format, you'll progress with the same peers from start to finish, helping you build a powerful professional network. Thanks to this approach, the university's graduate programs often produce on-time graduation rates of 85% or higher, with some exceeding 95%.



“The aim of leadership should be to improve the performance of man and machine, to improve quality, to increase output, and simultaneously to bring pride of workmanship to people.”

—W. Edwards Deming



You're ready to advance. We can help.

Understanding that working professionals have special needs, we're committed to providing you with the highest level of technology, support and care. What you can expect:

- **Work-friendly scheduling** – This online program will give you significant flexibility to complete course work at times and in places that work best for you.
- **Technical assistance** – Our distance-learning team provides technical training and support before your program even begins. Available on evenings and weekends, this team can help you troubleshoot issues, access content, interact with classmates and faculty, plus much more.

In addition to premium, one-on-one support, you'll also have:

- Interactive courses that engage you in active learning
- 24/7 library resources
- Remarkable flexibility of time and location
- Ease of communication with program faculty and colleagues

Managers with business and advanced technology skills were expected to have an advantage over their counterparts in the job market.

learn.org





“The aim of leadership should be to improve the performance of man and machine, to improve quality, to increase output, and simultaneously to bring pride of workmanship to people.”

—W. Edwards Deming



Join our global alumni network.

When you graduate from CSUN, you join an extensive network of over 375,000 alumni – in California, across the nation and around the globe – who thrive on helping Matadors find personal and professional success.

CSUN students have successful careers in these organizations and many others:





CSUN Engineering students often take home top awards in national competitions. Recent success include the Grand Prize in the 2016 Small Manufacturer Institute Manufacturing Challenge Contest for their “CSUN CloudPonics” project, First place at the 2015 Small Manufacturers’ Institute Product and Manufacturing System Design Contest for a hybrid layered manufacturing 3-D printer, and First place in the AeroDef Manufacturing Challenge in 2013.

Over two decades in online learning – and we’re just getting started.

As one of the nation’s early providers of online education, we possess the experience and technology to deliver courses and programs to professionals all over the world.

Each year, our online programs receive national recognition for their innovative curriculum, instruction and methods. All online curriculum is designed by the same distinguished faculty and leading practitioners as on-campus programs. This approach ensures that each course, whether on campus or online, is held to the same high standards of academic excellence and student achievement.

CSUN’s award-winning online programs are developed through a strong collaboration between faculty, instructional design teams and technical professionals. This partnership creates an engaged online learning community and adds enormous flexibility to the demanding personal and professional lives of participants.

Education-technology specialists, assigned to each online program and cohort, develop strong working relationships with those enrolled. This real-world support comes from actual people on the CSUN campus, and not just at a “virtual help desk,” who remain fully committed to student success from day one until graduation.

Distinction in Accreditation

California State University, Northridge is accredited by The Western Association of Schools and Colleges (WASC), a regional institutional accrediting body, recognized by the U.S. Council of Higher Education and Accreditation.

Advantages of Student-Centric Curriculum

This master's program features a curriculum designed to meet the career development needs of midcareer professionals. The following courses have been created and sequenced to form an integrated program of study. Later courses build on earlier ones to provide a powerful, cumulative learning experience.

Course List (11 courses, 33 units)

MSE 600 | Decision Tools for Engineering Managers

MSE 604 | Engineering Economy and Financial Analysis

MSE 608B | Leadership of Engineering Professionals and High-Tech Firms

MSE 606 | Production and Operations Management for Engineers

MSE 602 | Entrepreneurship and Innovation for Engineering Professionals

MSE 402 | Engineering Project Management

MSE 562 | Introduction to Data Analytics for Engineering Managers

MSE 564 | Knowledge Discovery from Databases and Data Visualization for Engineering Managers

MSE 617 | Engineering Quality Management & Analytics

MSE 515 | Engineering Supply-Chain Systems & Analytics

MSE 697MGT | Engineering Management Directed Comprehensive Studies

Median annual wage for science, technology, engineering and math occupations (STEM) is \$86,980, 127% more than that of non-stem (\$38,160).

U.S. Department of Labor, Bureau of Labor Statistics



Course Descriptions

MSE 600: Decision Tools for Engineering Managers

In this introductory course, students undertake data collection and learn to utilize appropriate statistical, forecasting, optimization, and simulation tools to make and analyze engineering management decisions. The focus is on formal quantitative modeling, with a strong recognition of the behavioral and political contexts of decision making in complex organizations. The course uses appropriate software to teach spreadsheet modeling.

MSE 604: Engineering Economy and Financial Analysis

This course enables students to use an engineering mindset to evaluate a project's economic feasibility. Students learn to compare, analyze, and apply economic alternatives while studying the implications of depreciation, inflation, currency-exchange rates, and taxation on project profitability. The course also provides a review of cost estimation, accounting, and essential financial statements, including income, cash flow, and balance sheets. Additional financial decision-making applications are also briefly covered.

▶ [Watch MSE 604 overview](#)

MSE 608B: Leadership of Engineering Professionals and High-Tech Firms

Students study the leadership attributes, theories, and concepts needed to succeed in today's rapidly changing, high-tech workplace. They also examine the field's unique management considerations, including employee selection, performance evaluation, conflict resolution, and termination.

▶ [Watch MSE 608B overview](#)

MSE 606: Production and Operations Management for Engineers

In this course, students explore a variety of production and operations management topics, including production planning and systems management. The course also outlines specific strategies to help students gain a competitive edge in the manufacturing and service industries.

▶ [Watch MSE 606 overview](#)

MSE 602: Entrepreneurship and Innovation for Engineering Professionals

In this course, students gain the entrepreneurial competencies necessary to approach the engineering discipline with a fresh, innovative mindset. The class seeks to instill within students an entrepreneurial thought process so that, upon course completion, concepts, theories, and principles remain practice-ready. As a final course component, students will write a business plan for a new or existing company.

▶ [Watch MSE 602 overview](#)

MSE 402: Engineering Project Management

This overview of the engineering project management process—from the feasibility stage through close out—covers project initiation, screening, and selection. It also examines organizational and project structure, time-and-cost estimation, budgeting, work-plan development, and resources scheduling. This course provides additional insight into risk management, work tracking, team management, partnering projects, and close out. Students learn to use appropriate project-management software. This course provides the necessary hours of project management education to be completed in order for students to be eligible to sit for the Project Management Institute (PMI) CAPM certification exam.

▶ [Watch MSE 402 overview](#)

***College of Engineering and
Computer Science ranked in the top
10 of engineering colleges in California:
14th out of 160.***

best-engineering-colleges.com

MSE 562: Introduction to Data Analytics for Engineering Managers

This course provides a comprehensive overview of the fundamental concepts and tools of data analytics for improving decision-making for engineering management and overall organizational performance. It makes the fundamental topics in data analytics approachable and relevant by using real-world examples and prompts learners to think critically about applying this new knowledge and understanding to the real world from an engineering management perspective. An overview of data analytics is covered, including an introduction to data quality, prediction, causality, visualization, data wrangling, privacy, and ethics. The major topics discussed are: the process of data analytics in engineering, the core concepts of big data and its application for improved decisions, the principles of data visualization and dashboard design, and the methods, tools, and approaches for data analytics.



MSE 564: Knowledge Discovery from Databases and Data Visualization for Engineering Managers

This course provides an overview of how manufacturing and other engineering organizations are infusing their business practices with data analytics led by engineering teams to improve business efficiency. Through case studies and assignments, engineering managers will learn how to interact with their organizations' data and have knowledge discovery through databases and visualize their findings through Tableau software. This knowledge discovery will help engineering managers make technical decisions and consider technical changes as well as various business options for engineering organizations.

MSE 617: Seminar in Quality Management

Comprehensive overview of quality management needed by engineering managers, including case studies for understanding the application of theory into the current dynamic technical business environment. Includes tools and techniques for data analytics, as guided by past, present concepts and strategies, including a proposal for a future concept and strategy for quality management.

MSE 515: Engineering Supply Chain Systems

In this course, engineering management students examine the technical aspects of supply chain design and integrated distribution networks, with a data analytics and system's coordinated approach in the global environment. While using systems engineering practices to focus support on channel alignment within operations and supply management, an emphasis is placed on the planning, modeling, and analysis of integrated engineering supply chain systems through design, sourcing, machine learning, digital transformation, location modeling, risk pooling, and the 'internet of things' (IoT), along with sustainability and social justice aspects of modern supply chain management (SCM).

MSE 697MGT: Engineering Management Directed Comprehensive Studies

Both preparation for and completion of written comprehensive case studies as well as successful completion of the program's Comprehensive Examination are required to earn CSUN's Master of Science in Engineering Management.

Architectural and engineering managers gain business management skills by completing a master's degree in engineering management

*U.S. Department of Labor,
Bureau of Labor Statistics*



Engineers with business management ability and strong communication skills will find the best opportunities. Along with engineering skills, these managers must apply knowledge of supervision, budgeting, hiring and other administrative procedures.

www.campusexplorer.com



Distinguished Faculty

The Master of Science in Engineering Management program is designed and taught by CSUN faculty members in collaboration with engineering management professionals who are leaders in their areas of specialization. This blend of practitioners with outstanding CSUN faculty ensures that you will graduate with a solid academic background and be well prepared for the realities of practice in the field. Faculty bios can be read on the [Faculty webpage](#).

- Bill Bellows, Ph.D.
- Dale S Deardorff, Ph.D., M.S., M.A
- Gus H. Elias, M.S.
- Brian Galli, Ph.D.
- Dennis M. Gawlik, M.S.
- Rashmi Jain, Ph.D.
- Maryam Tabibzadeh, Ph.D.
- Sina Talebian
- Shahriar Vazan

For its engineering management programs, College of Engineering and Computer Science ranked 3rd in California, 4th in the U.S. and in the top 20 of 133 of engineering management schools nationally.

best-engineering-colleges.com



Because these jobs are highly desirable, candidates can expect very strong competition for openings. Those with technical knowledge, strong communication skills, and years of related work experience will likely be in the best position to become managers.

*U.S. Department of Labor,
Occupational Outlook Handbook*

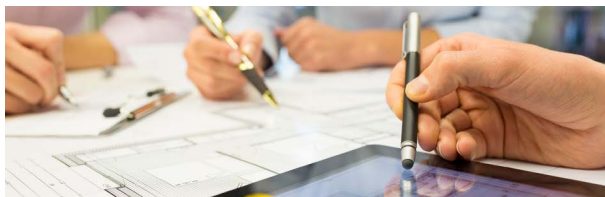


The Advantages of CSUN's Approach to Supporting the Educational Success of Working Professionals

At CSUN, we recognize the work-related constraints of midcareer professionals. Starting a new degree is a big step, but for you, the working adult, the pay-off is the program's completion. So, to get you there on time, with a diploma in hand, we offer a range of support services rare among public universities.

An assigned program coordinator will work with you from the time you apply to the time you graduate. This practice delivers ongoing, direct personal support from a real-world contact to guide you through the program without long lines or red tape. Coordinators play a proactive, hands-on part in the cohort experience by offering continuing information, regular reminders and steady, reliable encouragement.

CSUN's degree programs also assign you an academic lead, who coordinates the program's faculty and responds to questions beyond the scope of individual courses. Participants often develop close working relationships with their assigned leads. When you face an academic challenge, or hit a roadblock in your timetable, this person will steer you back on course. With this approach, CSUN graduate programs proudly achieve eighty-five to ninety-plus percent graduation rates.



***“To manage one must lead.
To lead, one must understand
the work that he and his people
are responsible for.”***

—W. Edwards Deming



For More Information
(818) 210-3063
programs@csun.edu

Learn More

Admission Requirements

To be admitted to the program, applicants must possess (at the time of enrollment):

- **Educational Background:** A bachelor's degree is required. A Bachelor of Science degree in an undergraduate engineering program or other technical fields from a regionally accredited institution is preferred. Qualified applicants with a baccalaureate degree in a different field to engineering may be considered for admission on a case-by-case basis. In such event, additional preparatory course work in engineering economics and writing should be anticipated.
- **Cumulative G.P.A.:** 2.5 or higher overall grade point average (GPA) is required. Applicants with a GPA below 2.5 will not be admitted.
- **Third Party Official Transcript Evaluation:** This admission requirement applies to applicants whose undergraduate (or other) institution does not report course grades in a letter format corresponding to a four-point numerical scale equivalent to the grading system used at CSUN (i.e. A = 4, B = 3, C = 2, D = 1, F = 0). Such individuals are required to submit the results of a third-party official transcript evaluation as the report of their official transcript. CSUN's Manufacturing Systems Engineering and Management Department only recognizes evaluations from organizations who are members of the National Association of Credential Evaluation Service (NACES)—an association of private educational credential evaluation services committed to formulating and maintaining ethical standards in the field of foreign educational evaluation. Visit the [NACES](#) home page to obtain a listing of member evaluation services. An example of an acceptable service would be World Education Services' (WES) ICAP report, which includes course-by-course evaluations.
- The Department may request additional supporting materials to assess an applicant's preparation and likelihood for academic success. The Admissions Committee reviews each application holistically and reserves the right to accept/reject applications to the M.S. Engineering Management program. Applications rulings rendered by the Admissions Committee are considered final.

Special Requirements

1. This program is intended primarily for students holding a B.S. in Engineering or other technical field. Prospective students who work or have experience in technical environments and hold degrees in non-technical fields should contact the Department to discuss additional pre-requisite courses with a faculty advisor.
2. No more than six (6) units of advisor-approved 400-level courses may be included in the graduate program of study.

For international applicants, please [visit our website](#) for additional information.