



CSUN[®]

CALIFORNIA
STATE UNIVERSITY
NORTHRIDGE



MASTER OF SCIENCE

ENGINEERING MANAGEMENT

Manage and Innovate with Impact





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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.

Source: economicmodeling.com



Program Overview

CSUN's online Master of Science in Engineering Management prepares you to manage teams, projects and resources in technical and engineering settings.

Through this program, you will learn how to

- Manage projects
- Lead technical teams
- Introduce sustainable innovations
- Reduce project risks
- Think as an entrepreneur
- Optimize production, manufacturing and more

The Blueprint for 21st Century Leadership

In 2019, the average engineering manager made more than \$144,830, according to the U.S. Department of Labor. That same year, California employed more engineering managers than anywhere else in the nation. And with a mean wage of \$179,860, it paid more too.

In a market driven by technology and fierce international competition, it is no longer enough to repeat the same best practices, nor to rely solely on technical knowledge. That is why innovation and entrepreneurship are so vital to this degree's curriculum. All content is designed to get you to think outside the box, embrace global change and take smart risks for huge returns.

Viewing the industry through a fresh, creative lens allows you to see typical engineering challenges in a valuable new light. From routine daily decisions, such as personnel management, to major global choices, like changes in a supply chain, you will know how to produce the optimal outcome. That means, among many things, better design, increased efficiency and higher revenue, all made possible by your powerful new perspective.

Such thinking is especially important considering that firms now depend on versatile, business-minded engineers to manage how – and where – their resources, personnel and data are used. This includes tech giants, like Alphabet, Amazon and Facebook, as well as global leaders in manufacturing, finance, telecommunications and more.

With this degree, you can be that person – the modern, tech-savvy leader, still capable of doing the math, but empowered, like few others in the field, with a sharp image of the big picture.



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.

Building a global perspective

With deep international experience across varied nations and sectors, the program's faculty understand the importance of a global perspective. Their long list of international credentials is more than a brag sheet – it is a promise. A promise of what you can expect.

Which, in this case, means firsthand knowledge of the practices, behaviors and opportunities of the global business environment. 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.

Certificate in Entrepreneurship and Innovation Management

Upon graduating with your master's degree, you will also receive the CSUN University Certificate in Entrepreneurship and Innovation Management. This is a built-in benefit, requiring no additional classes or course work. Which means the entire program teaches the innovative, out-of-the-box thinking needed to build an entrepreneurial mindset.

So, along with gaining global perspective, you will learn to

- See value where others cannot
- Take calculated risks and understand rate of return
- Approach problems with fresh perspectives
- Stay a step ahead of the global market

This applies to new business ventures as well as established firms. That is because longstanding businesses now rely on smart entrepreneurial thinkers to help them see new and exciting opportunities. This certificate lets you be the entrepreneur within the firm, or intrapreneur, guiding the organization's innovative spirit.

Whether you are launching a high-tech startup, leading an entrepreneurial unit from within, or working in a senior position in a mid-size or large engineering firm, this program gives you the knowledge, practices and potential to take the next step – to learn, to lead, to move ahead.



"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



Program Educational Advantages

As you progress through the program, you will:

- Develop project management skills and the ability to respond successfully to the challenges of managing technical projects.
- Learn how to effectively lead and manage diverse teams of engineers and technical professionals.
- Hone analytic, communication, and organizational skills.
- Acquire practical solutions to the challenges of working in a global business environment, including issues of economic feasibility, project marketing, scheduling and budgeting.
- Learn about the dynamics of innovation and solution design.
- Gain a mastery of supply chain management, quality management and sustainability.

Advantages of the Program's Design

This fully-online program gives you the flexibility to continue working full-time as you earn your degree.

With CSUN's cohort format, you will progress with other students in a strong learning community. The university's graduate programs often produce on-time graduation rates of 85% or higher, with some exceeding 95%.

Courses feature workshops and assignments with immediate real-world applications. Through carefully chosen case studies, you will gain an inside look at the successes, shortfalls and methods of major businesses. Applying those lessons to your own work is surprisingly simple.

In fact, what you learn in class can be applied on the job the very next day. Each lesson is a new tool, a powerful method, a priceless insight. And it's all usable immediately.



Excellence in education starts with you in mind

CSUN's design experts work closely with faculty to integrate course content with the university's distinct "student-first" philosophy. Which means services to support your success, in both education and beyond. And the curriculum to help get you there.

- **Fully online** – Taught by the same faculty as CSUN's award-winning on-campus engineering management program, this online option is the same great education, offered where and when you want it. That way, you can keep working full-time as you earn your degree.
- **Cohort learning** – Under this format, you will proceed with the same classmates from the start of the program to the finish. This allows you to build professional relationships with peers and leads to on-time graduation rates of more than 85 percent.
- **The support to finish** – A personal program manager is assigned to you on day one. These specialists keep you on track with dedicated, one-on-one support and enroll you in all required courses.
- **Structured learning** – Regular assignments, activities and due dates allow you to orchestrate your degree's progression.
- **Scheduled group discussions** – Scheduled course activities provide opportunities for student interaction in real time.
- **Guaranteed enrollment** – Students admitted into the program are guaranteed enrollment in all required courses.
- **Federal financial aid** – Many of our students use financial aid to help pay for their education. A team of financial-aid specialists, dedicated specifically to our professional students, is available to help process applications and distribute funding for those who qualify.

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

Source: payscale.com

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

Source: 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



CSUN Alumni

When you graduate from CSUN, you join an extensive network of over 330,000 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.

CSUN: A Leader in Online Graduate Education

CSUN is a model institution for cultural diversity and rigorous scholarship in Greater Los Angeles and beyond. Here, students combine academic pursuits with hands-on experience to assemble the robust skills needed to thrive in today’s global economy.

Each year, CSUN’s 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.

Faculty receive individualized training and ongoing support to ensure smooth and effective use of online educational technology. CSUN’s professional distance-learning staff also provides training and start-to-finish technical support to students in online degree programs.

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. In 2012, the WASC Commission stated, “The Commission commends CSUN for becoming a model learning organization characterized by collaborative and evidence-based planning, decision making and problem solving. Among its accomplishments during this review are its deep understanding of the characteristics and needs of CSUN students, which has led to programs and activities that promote student success. As noted by the team, the foundation at CSUN could not be stronger.” Visit the University Accreditation web page for more information.

Advantages of Student-Centric Curriculum

CSUN's Master of Science in Engineering Management features a carefully-crafted curriculum, specifically designed to meet the career development needs of current or aspiring engineering management professionals.

In addition to teaching, most faculty work in the field – often within top positions – for a diverse range of clients and organizations. Through the study of real-world cases, the program uses an evidence-based approach to learning and problem solving. The faculty's combination of traditional scholarship and applied research gives you the practice-oriented education to bring immediate, concrete knowledge to modern organizations, systems and professionals.

The curriculum for this program consists of 11 three-unit courses:

- MSE 600 | Decision Tools for Engineering Managers
- MSE 604 | Engineering Economy and Financial Analysis
- MSE 608B | Leadership of Engineering Professionals and High-Tech Firms
- GBUS 593 | Management/Marketing Seminar
- MSE 602 | Entrepreneurship and Innovation for Engineering Professionals
- MSE 402 | Engineering Project Management
- MSE 606 | Production and Operations Management for Engineers
- MSE 617 | Seminar in Quality Management
- MSE 540 | Sustainability for Engineers
- MSE 610 | Engineering Supply-Chain Systems
- 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).

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



Course Descriptions

The goal of the Master of Science in Engineering Management program is to help you transition into managerial roles and effectively manage projects within leadership positions. To accomplish this, the program instills decision-making skills and teaches concepts – such as supply chain management, quality management and sustainability – that you will encounter in the day-to-day execution of your job. Additionally, the program cultivates a comprehensive understanding of the financial complexities of project management. Along with skills and knowledge, you will also learn to apply an entrepreneurial mindset to engineering-related tasks.

The program begins with MSE 600, a course on decision tools for engineering managers, which are essential in the management of diverse project elements. From there, you will engage in an engineering economics and financial analysis course, which gives you tools to address a project's economics and financial concerns. This is followed by a course on leadership and marketing. After that, you will take a course on

innovation and entrepreneurship, which focuses on developing entrepreneurial skills and the creation of an entrepreneurial mindset.

Further courses address the topics of project management, operations management and quality management. You will gain a deep familiarity with these topics and know how to apply them. Lastly, you will receive instruction on sustainability and supply chain management – both crucial components of the modern engineering industry. Since these two factors give engineering projects a major competitive advantage, they are a must-know.

For the degree's culminating experience, you will use the program's principles to conduct a real-life case study/project. This final component instills the selectivity you need to choose the right skills for any job or project you encounter.

MSE 600: Decision Tools for Engineering Managers

In this introductory course, you will undertake data collection and learn to utilize appropriate statistical, forecasting, optimization and simulation tools to make and analyze engineering

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

Source: best-engineering-colleges.com

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 you to use an engineering mindset to evaluate a project's economic feasibility. You will 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.

MSE 608B: Leadership for Engineering Professionals

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



GBUS 593: Management/Marketing Seminar

This seminar integrates the fields of marketing and management and draws on previous coursework to give you a basic understanding of business strategy. You will also receive an overview of marketing, management and business strategy theory. The course uses real-world cases and simulations to help you synthesize the seminar's concepts with earlier coursework.

MSE 602: Entrepreneurship and Engineering Innovation Management

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



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. You will learn to use appropriate project-management software. This course also counts for PDUs toward PMI tests.

MSE 606: Production and Operations Management for Engineers

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

MSE 617: Seminar in Quality Management

This seminar uses case studies to provide a comprehensive overview of quality management concepts needed by engineering managers. You will learn how to apply your theoretical knowledge to the current technical business environment, as well as how to use surveys

to gain insight into customer experience and expectations. The course also teaches you to implement Quality Function Deployment (QFD) in high-tech firms.

MSE 540: Sustainability for Engineers

You will explore and construct innovative methods to achieve sustainability in the engineering field by examining the economic, environmental and social components of contemporary industry. Also included in the course is a detailed explanation of sustainability models and best practices for the modern engineer.

MSE 610: Engineering Supply-Chain Systems

In this course, you will examine supply chain design and distribution networks, with a focus on coordination and communication in the global environment, as well as sourcing, pricing, promotion and supplier qualification.

MSE 697: 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

*Source: 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.

Source: 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.
- Bruce Davis, Ph.D.
- Dale S Deardorff, Ph.D., M.S., M.A
- Gus H. Elias, M.S.
- Dennis M. Gawlik, M.S.
- Sean Keyani, MBA, M.S.
- Ahmad Sarfaraz, Ph.D.
- Maryam Tabibzadeh, Ph.D.
- Scott Wainess, M.S.

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.

Source: 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.

Source: 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 Master of Science in Engineering Management 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.

English Proficiency Requirements

For Non-U.S. Degree and International Students Only

If a graduate applicant has earned a bachelor's or master's degree from a college or university outside the U.S., then an English language proficiency exam may be required.

For more information, please visit [Admission Requirements](#) web page.