

Pre-Engineering Transfer Courses

Key Courses for BSME Program at California State University, Fresno Updated 01 June 2024			Clovis Community College	College of Sequoias	Fresno City College	Reedley College	College-Lemoore (Lemoore College)	Madera Community College	Merced College	Modesto Junior College	Bakersfield College	
Fundamentals Core	Notes	GE Area										
Written Communication (3 semester units)		GE A2 Written Comm	ENGL 1A - Reading and Composition (4)	ENGL 1 College Reading and Composition (4)	ENGL 1A Reading and Composition (4)	ENGL 1A - Reading and Composition (4)	ENG 1A Composition and Reading (3)		ENGL -1A College Composition and Reading (4)	ENGL 101 Composition and Reading (3) or ENGL 100 Intensive Reading, Writing, and Reasoning (5)	ENGL B1A Expository Composition (3)	
Oral Communication (3 semester units)		GE A1 Oral Com	COMM 1 Public Speaking (3) or COMM 4 Persuasion (3) or COMM 8 Group Comm (3)	COMM 1 Fundamentals of Public Speaking (3) or COMM 7 Persuasion (3) or COMM 8 Group Communication (3)	COMM 1 Introduction to Public Speaking (3) or COMM 4 Persuasion (3) or COMM 8 Group Communication (3)	COMM 1 Public Speaking (3) or COMM 8 Group Communication (3)	COM 1 Elements of Public Speaking (3) or COM 4 Small Group Dynamics and Presentation (3)		COMM -1 Fundamentals of Speech (3)	COMM 100 Fundamentals of Public Speaking (3) or COMM 110 Persuasion (3)	COMM B1 Public Speaking (3) or COMM B4 Persuasive (3) or COMM B8 Small Group Communication (3)	
MATH 75 Calculus 1 (4 semester units)	C or better	GE B4 Quant Reason	MATH 5A Math Analysis I (5)	MATH 065 Calculus 1 (4)	MATH 5A Mathematical Analysis I (5)	MATH 5A Calculus I (5)	MATH 001A Introduction to Calculus (5)		MATH 5A Calculus I (5)	MATH 4A Calculus I (4)	MATH 171 Calculus: First Course (4)	MATH B6A Analytic Geometry/Calculus I (4)
MATH 76 Calculus 2 (4 semester units)	C or better		MATH 5B Math Analysis II (4)	MATH 065 Calculus 2 (4 semester units)	MATH 5B Mathematical Analysis II (4)	MATH 5B Calculus II (4)	MATH 001B Calculus with Applications (5)		MATH 5B Calculus II (4)	MATH 4B Calculus II (4)	MATH 172 Calculus: Second Course (4)	MATH B6B Analytic Geometry/Calculus II (4)
MATH 77 Calculus 3 (4 semester units)	C or better		MATH 6 Math Analysis III (4)	MATH 067 Calculus 3 (5)	MATH 6 Mathematical Analysis III (4)	MATH 6 Calculus III (5)	MATH 002A Multivariate Calculus (4)		MATH 6 Calculus III (5)	MATH 4C Multivariable Calculus (4)	MATH 173 Calculus: Third Course (4)	MATH B6C Calculus III (4)
MATH 81 Elementary Differential Equations with Linear Algebra (3 semester units)	C or better		MATH 17 Differential Equations and Linear Algebra (5)	MATH 81 Differential Equations (5)	MATH 7 Introduction to Differential Equations (4)	MATH 17 Differential Equations and Linear Algebra (5)	MATH 002B Differential Equations (4)		MATH 17 Differential Equations and Linear Algebra (5)	MATH 6 Elementary Differential Equations (3) and MATH-8 Linear Algebra (3)	MATH 193 Ordinary Differential Equations (3)	MATH B6D Ordinary Differential Equations (3)
PHYS 4A Mechanics and Wave Motion (3 semester units)	C or better		PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 055 Physics 1: Mechanics & Waves	PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYSICS 004A Classical Mechanics (4) (3 Lect+1 Lab)		PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS-4A Physics I (4) (3 Lect + 1 Lab)	PHYS 101 Gen Physics: Mechanics (4) and PHYS 102 & Gen Physics: Waves, Thermo & Optics (4) and PHYS 103 Gen Physics: Elect, Mag, & Mod Physics (4)	PHYS B4A Mechanics and Wave Motion (4) (3 lec + 1 lab)
PHY 4AL Laboratory in Mechanics and Wave Motion (1 semester units)	C or better		PHYS 055 Physics 1: Mechanics & Waves (4) (3 Lect+1 Lab)	PHYS 055 Physics 1: Mechanics & Waves	PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYSICS 004A Classical Mechanics (4) (3 Lect+1 Lab)		PHYS 4A Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS -4A Physics I (4) (4)	PHYS 101 Gen Physics: Mech (4) and PHYS 102 & Gen Physics: Waves, Thermo & Optics (4) and PHYS 103 Gen Physics: Elect, Mag, & Mod Physics (4)	PHYS B4A Mechanics and Wave Motion (4) (3 lec + 1 lab)
PHY 4B Electricity, Magnetism, and Heat (3 semester units)	C or better		PHYS 4B Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 056 Physics 2: E&M and Heat (4)	PHYS 4B Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 4B Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYSICS 004B Electricity, Magnetism and Waves (4) AND PHYSICS 004C Thermodynamics, Optics and Modern Physics (4)		PHYS 4B Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS-4B & Physics II (4) and PHYS-4C Physics III (4)	PHYS 101 Gen Physics: Mech (4) and PHYS 102 & Gen Physics: Waves, Thermo & Optics (4) and PHYS 103 Gen Physics: Elect, Mag, & Mod Physics (4)	PHYS B4B Heat, Electricity and Magnetism (4)
PHY 4C Light and Modern Physics (3 semester units)	C or better		PHYS 4C Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 057 Physics 3: Modern Physics (5)	PHYS 4C Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS 4C Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYSICS 004B Electricity, Magnetism and Waves (4) and PHYSICS 004C Thermodynamics, Optics and Modern Physics (4)		PHYS 4C Physics for Scientists and Engineers (4) (3 Lect+1 Lab)	PHYS-4B & Physics II (4) and PHYS-4C Physics III (4)	PHYS 101 Gen Physics: Mech (4) and PHYS 102 & Gen Physics: Waves, Thermo & Optics (4) and PHYS 103 Gen Physics: Elect, Mag, & Mod Physics (4)	PHYS B4C Optics and Modern Physics (4)
CHEM 1A General Chemistry 1A (3 semester units)	C or better	GE B1 Phys Science	CHEM 1A General Chemistry I (5) AND CHEM 1B General Chemistry II	CHEM 001 General Chemistry 1 (5)	CHEM 1A General Chemistry (5)	CHEM 1A General Chemistry (5)	CHEM 1A General Chemistry I (5)		CHEM 1A General Chemistry (5)	CHEM-4A General Chemistry I (5)	CHEM 101 General Chemistry 1 (5)	CHEM B1A General Chemistry I (5)
CHEM 1AL General Chemistry Laboratory 1A (2 semester units)	C or better	GE B3 Lab	CHEM 1A General Chemistry (5)	CHEM 001 General Chemistry 1 (5)	CHEM 1A General Chemistry (5)	CHEM 1A General Chemistry (5)	CHEM 1A General Chemistry I (5)		CHEM 1A General Chemistry (5)	CHEM-4A General Chemistry I (5)	CHEM 101 General Chemistry 1 (5)	CHEM B1A General Chemistry I (5)
Life Science (3 semester units)	C or better	GE B2 Life Science	BIOL 3 Introduction to Life Science (4)	BIOL 20 Frontiers in Biology (4)	BIOL 3 Introduction to Life Science (4)	BIOL 3 Introduction to Life Science (4)	BIO 15 Biology for Education (3)		BIOL-4A Fundamentals of Biology: The Cell and Evolution (4) OR BIOL-1 General Biology for Non-Majors (4)	BIO 111 General Biology (4)	BIOL B11 Concepts of Biology (4)	
Humanities (3 semester units) PHIL 20 Moral Questions		GE C2 Humanities	PHIL 1C Ethics (3) or PHIL 1CH Honors Ethic	PHIL 005 Introduction to Ethics (3)	PHIL 1C Ethics (3) OR PHIL 1CH Honors Ethics	PHIL 1C Ethics (3)	PHIL 003 Ethics (3)		PHIL 1C Ethics (3) OR PHIL 1CH Honors Ethics	PHIL -5 Contemporary Ethical Issues (3)	PHILO 111 Ethics: Theory and Application (3)	PHIL B10 Introduction to Ethics (3)
Breadth/US History (3 semester units)		GE D1 Breadth/US History	HIST 11 History of the US to 1877 (3) or HIST 12 History of the US from 1877 (3)	HIST 17 People of the US to 1877 or HIST 18 People of the US from 1877 (3)	HIST 11 History of the US to 1877 or HIST 12 History of the US from 1877	HIST 11 History of the US to 1877 (3) or HIST 12 History of the US from 1877 (3)	HIST 17A History of the US 1492-1877 or HIST 17B History of the US 1865 to Present (3)		HIST -17A United States History and United States Constitution (3) or HIST -17B United States History and California State and Local Government (3)	HIST 101 History of the United States to 1877 (3) or HIST 102 History of the United States Since 1865 (3)	HIST B17A History of the United States (3) or HIST B17B History of the United States Since 1870 (3)	
Breadth/US Government (3 semester units) PLSI 2 American Government and Institutions		GE D2 Breadth/US Government	POLSCI 2 American Government (3) OR POLSCI 2H Honors American Government	POLS 5 Federal, State and Local Government (3)	POLSCI 2 American Government (3)	POLSCI 2 American Government (3) OR POLSCI 2H Honors American Government (3)	POLSCI 001 American Government (3)		POLSCI 2 American Government (3) OR POLSCI 2H Honors American Government (3)	POSC-1 Essentials of the American Political System (3)	POLSC 101 American Politics (3)	POLS B1 American Government: National, State and Local (3)
Breadth/Social Sciences (3 semester hours)		GE D3 Breadth/Social Sciences	ECON 1B Microeconomics (3) or ECON 1A Macroeconomics (3)	ECON 40 Principles of Micro Econ or ECON50 Principles of Macro Econ	ECON 40 Introduction to Microeconomics or ECON 50 Introduction to Macroeconomics (3)	ECON 1B Microeconomics (3) or ECON 1A Macroeconomics (3)	ECON 1B Microeconomics (3) or ECON 1A Macroeconomics (3)		ECON-1 Introduction to Microeconomics (3) or ECON-2 Introduction to Macroeconomics (3)	ECON 102 Principles of Microeconomics (3) or ECON 101 Principles of Macroeconomics (3)	ECON B1 Principles of Economics-Micro (3) OR ECON B2 Principles of Economics-Macro (3)	
Multicultural/International (3 semester units)		M/I Multicultural/International										
Upper Division Writing Skills (0-3 semester units)												

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<b>Engineering Core</b>	<b>Notes</b>									
ME 01 Introduction to Mechanical Engineering(1 semester unit) OR ENGR 01 Introduction to Engineering (1 semester unit)	C or better	ENGR 10 Introduction to Engineering (2)	CSCI 020 MATLAB Programming (3) OR ENGR 020 MATLAB Programming (3)	ENGR 10 Introduction to Engineering (2)	ENGR 10 Introduction to Engineering (2)	ENGR 010 Introduction to Engineering (1)	ENGR 10 introduction to Engineering			ENGR B47 Introduction to Engineering and Design (2)
ME 02 Computer Applications in Mechanical Engineering Lab (1 semester unit)	C or better	ENGR 5 Programming and Problem-Solving in MATLAB	ENGR 001 Engineering Graphics (3)	ENGR 5 Programming and Problem Solving in MATLAB (3)	ENGR 5 Programming and Problem Solving in MATLAB (3)	CIS 7 Computer Concepts (3)				
ME 26 Introduction to Graphics (3 semester units)	C or better	ENGR 2 Engineering Graphics (4)	ENGR 003 Materials Science & Engineering (4) (3 Lect +1 Lab)	ENGR 2 Engineering Graphics (4)	ENGR 2 Engineering Graphics (4) (2 Lecture + 6 Lab)	ENGR 020 Engineering Graphics (3)	ENGR 2 Engineering Graphics (4)	ENGR-35 Engineering Graphics (3)	ENGR 127 Engineering Graphics (4)	ENGR B24 Engineering Graphics with Solidworks
ME 31 Engineering Materials (3 semester units)	C or better	ENGR 4 Engineering Materials (3)	ENGR 003 Materials Science & Engineering (4) (3 Lect +1 Lab)	ENGR 4 Engineering Materials (3)	ENGR 4 Engineering Materials (3 )	ENGR 031 Engineering Materials (3)	ENGR 4 Engineering Materials (3)	ENGR-45 Engineering Materials (4)	ENGR 130 Properties of Materials (4)	ENGR B45 Properties of Materials (4)
ME 32 Engineering Materials Laboratory (1 semester units)	C or better		ENGR 003 Materials Science & Engineering (4) (3 Lect +1 Lab)	ENGR 4L Engineering Materials Laboratory (1)	ENGR 4L Engineering Materials Lab (1)		ENGR 4L Engineering Materials Laboratory (1)	ENGR-45 Engineering Materials (4)	ENGR 130 Properties of Materials (4)	ENGR B45 Properties of Materials (3)
ME 95 Product Development (2 semester units)	C or better			ENGR 11 Manufacturing Processes (3)						
CE 20 Engineering Mechanics: Statics (3 semester units)	C or better	ENGR 8 Statics (3 )	ENGR 002 Statics (3)	ENGR 8 Statics ( 3 )	ENGR 8 Statics (3)	ENGR 35 Vector Statics (3)	ENGR 8 Statics ( 3 )	ENGR-15 Elementary Mechanics (Statics) (3)	ENGR 135 Engineering Mechanics-Statics (3)	ENGR B36 Engineering Mechanics- Statics (3)
ECE 90 Principles of Electrical Circuits (3 semester units)	C or better	ENGR 6 Electric Circuit Analysis with Lab ( 4 ) (3 Lect + 1 Lab)	ENGR 004 Circuit Analysis (4) (3 Lect+1 Lab)	ENGR 6 Circuits with Lab (4 ) (3 Lec +1 Lab )	ENGR 6 Electric Circuit Analysis with Lab (4 ) (3 Lect + 1 Lab)	ENGR 025 Electrical Circuits ( 3 )	ENGR 6 Electric Circuits with Lab ( 4 ) (3 Lec +1 Lab )	ENGR-18 Electrical Circuits Analysis (4)	ENGR 141 Introduction to Circuit Analysis (with Lab) (4)	ENGR B17 Introduction to Electric Circuits (3)
ECE 90L Principles of Electrical Circuits Laboratory (1 semester units)	C or better	ENGR 6 Electric Circuit Analysis with Lab ( 4 ) (3 Lect + 1 Lab)	ENGR 004 Circuit Analysis (4) (3 Lect+1 Lab)	ENGR 6 Circuits with Lab (4 ) (3 Lec +1 Lab )	ENGR 6 Electric Circuit Analysis with Lab (4 ) (3 Lect + 1 Lab)		ENGR 6 Electric Circuits with Lab ( 4 ) (3 Lec +1 Lab )	ENGR-18 Electrical Circuits Analysis (4)	ENGR 141 Introduction to Circuit Analysis (with Lab) (4)	ENGR B17 Introduction to Electric Circuits (3)
ECE 71 Introduction to Computational Programming (3 semester units) OR CSCI40 Introduction to Programming and Problem Solving (4 semester hours)	C or better	CSCI 40 Programming Concepts and Methodology I (4) or ENGR 40 Programming for Scientists and Engineers (4)	CSCI 001 Programming Concepts/Method 1 (4)	CIT 66 Beginning Programming C++ (4) OR CSCI 40 Programming Concepts and Methodology I (4)	CSCI 40 Programming Concepts and Methodology I (4) or ENGR 40 Programming for Scientists and Engineers (4)	COMP 003A Introduction to Programming Concepts and Methodologies (3)	CSCI 40 Programming Concepts and Methodology I (4) or ENGR 40 Programming for Scientists and Engineers (4)	ENGR-14 C++ Programming (3) OR CPSC-14 ENGR-14 C++ Programming (3) or CPSC -6 - Programming Concepts and Methodology I (3)	CSCI 271 - Problem Solving and Programming 1 (3)	ENGR B19C Introduction to Programming Concepts and Methodologies for Engineers (4) OR COMP B11 Programming Concepts and Methodology I (3)
<b>Mechanical Engineering Core</b>	<b>Notes</b>									
ME 112 Eng Mech: Dynamics (3 semester units)	C or better									ENGR B37 Engineering Mechanics - Dynamics (3)
ME 115 Instr and Measurements (1 semester units)	C or better									
ME 136 Thermodynamics (3 semester units)	C or better									
ME 125 Eng Statistics & Experiment (3 semester units)	C or better									
CE 121 Eng Mech: Mech of Mat (3 semester units)	C or better									
ME 116 Fluid Mechanics (3 semester units)	C or better									
ME 118 Fluid Mechanics Lab (1 semester units)	C or better									
ME 134 Kinematics of Machinery (3 semester units)	C or better									
ME 140 Adv Eng Analysis (3 semester units)	C or better									
ME 145 Heat and Mass Transport (3 semester units)	C or better									
ME 156 Advanced Thermodynamics (3 semester units)	C or better									
ME 135 Sr Capstone Design 1 (3 semester units)	C or better									
ME 166 Energy Systems Design (3 semester units)	C or better									
ME 155 Sr Capstone Design 2 (3 semester units)	C or better									
Tech Elective 1 (3 units)	C or better									
Tech Elective 2 (3 units)	C or better									

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