

## BSME Technical Elective Courses

Students must select at least three (3) courses from **Group 1** and may select at most one (1) course from **Group 2**.

### Group 1\*

Course #	Course Name	CR	Pre & Co-Requisite
ME 42100	Heating and Air Conditioning I	3	P: ME 32100
ME 42400	Design and Optimization of Thermal Systems	3	P: ME 30100, ME 32100
ME 42500	Intermediate Heat Transfer: Theory and Applications	3	P: ME 32100
ME 42700	Sustainable Energy Sources and Systems	3	P: ME 30100, ME 32100
ME 43200	Manufacturing Processes	3	P: ME 30300
ME 44500	Biomaterials	3	P: ME 30300, BIOL 20300
ME 45400	Intermediate Dynamics with Computer Applications	3	P: ME 33100
ME 47100	Vibration Analysis	3	P: ME 25100
ME 48000	Finite Element Analysis	3	C: ME 32100, ME 36900
ME 50500	Intermediate Heat Transfer	3	P: ME 32100
ME 50900	Intermediate Fluid Mechanics	3	P: ME 31800
ME 54400	Modeling and Simulation of Mech. Engr. Systems	3	P: graduate or instructor's permission
ME 54500	Finite Element Analysis: Adv. Theory & Applications	3	P: graduate standing or ME 48000
ME 54600	CAD/CAM Theory and Advanced Application	3	P: graduate standing or ME 36100
ME 54700	Mechatronics, Robotics, and Automation	3	P: graduate standing or ME 36100
ME 55000	Advanced Stress Analysis	3	P: MA 36300, ME 25200, ME 30300
ECE 48300	Digital Control Systems: Analysis and Design	3	P: ME 33100

\* Other 5xxxx-level courses offered by the CME Department may be included in Group 1 with approval.

### Group 2\*

Course #	Course Name	CR	Pre & Co-Requisite
ME 49800	Research in Mechanical Engineering	3	P: honors classification
MET 33500	Basic Machining	3	P: ME 16000, ME 30300
ECE 25500	Introduction to Electronic Analysis and Design	3	P: ECE 20100
SE 52000	Engineering Economics	3	P: senior or graduate standing
SE 53000	Systems Engineering Management	3	P: senior or graduate standing
SE 55000	Advanced Manufacturing Systems & Processes	3	P: senior or graduate standing
CS 32100	Computer Graphics	3	P: CS 26000 (or CS permission)
CS 38400	Numerical Analysis	3	P: CS 16000, MA 16600
MA 51000	Vector Calculus	3	P: MA 26100
MA 51100	Linear Algebra with Applications	3	P: MA 35100
MA 52300	Introduction to Partial Differential Equations	3	P: MA 26100, 36300
MA 52500	Introduction to Complex Analysis	3	P: MA 26300, 44100, or 51000
STAT 51100	Statistical Methods	3	P: 2 semesters of calculus
CHM 37100	Physical Chemistry	3	P: CHM 11600
PHYS 32200	Optics	3	P: PHYS 25100
PHYS 34200	Modern Physics	3	P: PHYS 25100

\* Other 5xxxx-level courses offered by the CME, Math, or Physics Departments may be included in Group 2 with approval.

For information about the combined BSME/MSE degree contact Dr. Hosni Abu-Mulaweh ([mulaweh@pfw.edu](mailto:mulaweh@pfw.edu)).  
For information about the Advanced Manufacturing Engineering certificate program and Bio-Mechanical Engineering certificate, contact Dr. Don Mueller ([don.mueller@pfw.edu](mailto:don.mueller@pfw.edu))