

Program Name: Mechanical Engineering
Qualification Level: Bachelor of Science Degree
Department: Mechanical Engineering
College: Engineering
Institution: Jouf University

Program Study Plan (Regular Track)

مسار التدريب الميداني

Year	Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Co-Requisite Courses	Credit Hours (LT, LB, TU)	Type of requirements (Institution, College or Department)
First Year	Level 1	ENGL 001	English Language (1)	Required	-		6 (5,5,10)	University
		MTH 101	Introductory Mathematics	Required	-		3 (2,0,2)	College
		CIS 101	Computer Skills	Required	-		3 (2,2,0)	University
		EDU 101	University Life Skills	Required	-		2 (2,0,0)	University
		Total Credit Hours					14 (11,5,12)	
	Level 2	ENGL 002	English Language (2)	Required	ENGL 001		6 (5,5,10)	University
		MTH 102	Differential Calculus	Required	MTH 101		3 (2,0,2)	College
		CHM 103	Chemistry	Required	-		3 (2,2,0)	College
		CIS 102	Problem Solving and Programming	Required	CIS 101		3 (2,2,0)	College
		Total Credit Hours					15 (11,9,12)	
Second Year	Level 3	ISL 103	Islamic Economic System	Required	-		2 (2,0,0)	University
		ARB 100	Arabic language skills	Required	-		2 (2,0,0)	University
		MEC 101	Engineering Drawing	Required	-		2 (1,2,0)	College
		MEC 102	Engineering Design (1)	Required	-		3 (2,2,0)	College
		MEC 103	Engineering Economy	Required	MTH 102		2 (2,0,0)	College
		MTH 203	Integral Calculus	Required	MTH 102		3 (2,0,2)	College
		PHS 101	General Physics (1)	Required	-		4 (3,2,0)	College
		Total Credit Hours					18 (14,6,2)	
	Level 4	ISL 107	Professional Ethics	Required	-		2 (2,0,0)	University
		MEC 104	Engineering Design (2)	Required	MEC 102		2 (1,2,0)	College
		MEC 105	Basics of Engineering Technology	Required	MEC 101		2 (1,2,0)	College
		MTH 204	Advanced Calculus	Required	MTH 203		3 (2,0,2)	College
		MTH 281	Statistics and Probability	Required	MTH 203		3 (2,0,2)	College
		PHS 202	General Physics (2)	Required	PHS 101		4 (3,2,0)	College
		Total Credit Hours					16 (11,6,4)	
Third Year	Level 5	ARB 102	Writing Skills	Required	-		2 (2,0,0)	University
		ELE 261	Elect. & Electronic Circuits	Required	PHS 202		2 (2,0,1)	Department
		ISL 10x	University Elective (1)	Elective	-		2 (2,0,0)	University
		MEC 211	Materials Engineering	Required	PHS 202		3 (2,0,2)	Department
		MEC 212	Materials Engineering Lab	Required	-	MEC 211	1 (0,2,0)	Department
		MEC 231	Statics	Required	MTH 203		3 (2,0,2)	Department
		MTH 305	Differential Equations	Required	MTH 204		3 (2,0,2)	College
		Total Credit Hours					16 (12,2,7)	
	Level 6	ISL 10x	University Elective (2)	Elective	-		2 (2,0,0)	University
		MEC 213	ME Drawing & Graphics	Required	MEC 101		3 (2,2,0)	Department
		MEC 214	Mechanics of Materials	Required	MEC 231		3 (2,0,2)	Department
		MEC 215	Mech. of Materials Lab	Required	-	MEC 214	1 (0,2,0)	Department
		MEC 221	Thermodynamics (1)	Required	PHS 202		3 (2,0,2)	Department
		MEC 232	Dynamics	Required	MEC 231		3 (2,0,2)	Department
		MTH 382	Numerical Methods	Required	MTH 305		3 (2,0,2)	College
		Total Credit Hours					18 (12,4,8)	
Fourth Year	Level 7	MEC 321	Heat Transfer	Required	-	MEC 341	3 (2,0,2)	Department
		MEC 322	Thermodynamics (2)	Required	MEC 221		3 (2,0,2)	Department
		MEC 331	Mechanics of Machines	Required	MEC 232		4 (2,2,2)	Department
		MEC 332	Mechanical Vibration	Required	MEC 232		3 (2,0,2)	Department
		MEC 341	Fluid Mechanics	Required	MEC 232 MEC 221		3 (2,0,2)	Department
		MEC 342	Thermo-fluid lab (1)	Required	MEC 221	MEC 341	1 (0,2,0)	Department
		Total Credit Hours					17 (10,4,10)	

Year	Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Co-Requisite Courses	Credit Hours (LT, LB, TU)	Type of requirements (Institution, College or Department)
	Level 8	MEC 311	Mech. Eng. Design (1)	Required	MEC 214 MEC 331		3 (2,0,2)	Department
		MEC 323	Special Topics in Mech. Eng.	Required	Dept. Approval		3 (2,0,2)	Department
		MEC 324	Air Conditioning	Required	MEC 321		3 (2,0,2)	Department
		MEC 333	Manufacturing Processes	Required	MEC 214 MEC 211		4 (2,2,2)	Department
		MEC 334	Automatic Control	Required	MTH 305		3 (2,0,2)	Department
		MEC 335	Control and dynamic systems Lab.	Required	-	MEC 334	1 (0,2,0)	Department
		MEC 343	Thermo-fluids Lab (2)	Required	MEC 322 MEC 342		1 (0,2,0)	Department
		Total Credit Hours					18 (10,6,10)	
Fifth Year	Level 9	ELE 461	Electrical Machines	Required	ELE 261		2 (1,0,2)	Department
		MEC 411	Mech. Eng. Design (2)	Required	MEC 311		3 (2,0,2)	Department
		MEC 451	Graduation Project	Required	Pass 110 Credits		4 (2,4,0)	Department
		MEC 4xx	Elective Course (1)	Elective				Department
		MEC 4xx	Elective Course (2)	Elective				Department
		Total Credit Hours					15	
	Level 10	EDU 102 / BUS 101	University Elective (3)	Elective	-		2 (2,0,0)	University
		MEC 412	Computer Aided Design	Required	MEC 311		3 (2,2,0)	Department
		MEC 452	Engineering Projects Management	Required	Pass 120 Credits		2 (2,0,1)	Department
		MEC 453	Field Training*	Required	Pass 110 Credits		2	Department
		MEC 462	Mechatronics	Required	MEC 334		3 (2,0,2)	Department
		MEC 4xx	Elective Course (3)	Elective				Department
		Total Credit Hours					15	

*The student must perform a field training (2 credit hours) for 8 weeks after successfully completing 110 credits

Program Study Plan (Cooperative Track)

مسار التدريب التعاوني

Year	Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Co-Requisite Courses	Credit Hours (LT, LB, TU)	Type of requirements (Institution, College or Department)
First Year	Level 1	ENGL 001	English Language (1)	Required	-		6 (5,5,10)	University
		MTH 101	Introductory Mathematics	Required	-		3 (2,0,2)	College
		CIS 101	Computer Skills	Required	-		3 (2,2,0)	University
		EDU 101	University Life Skills	Required	-		2 (2,0,0)	University
		Total Credit Hours					14 (11,5,12)	
	Level 2	ENGL 002	English Language (2)	Required	ENGL 001		6 (5,5,10)	University
		MTH 102	Differential Calculus	Required	MTH 101		3 (2,0,2)	College
		CHM 103	Chemistry	Required	-		3 (2,2,0)	College
		CIS 102	Problem Solving and Programming	Required	CIS 101		3 (2,2,0)	College
		Total Credit Hours					15 (11,9,12)	
Second Year	Level 3	ISL 103	Islamic Economic System	Required	-		2 (2,0,0)	University
		ARB 100	Arabic language skills	Required	-		2 (2,0,0)	University
		MEC 101	Engineering Drawing	Required	-		2 (1,2,0)	College
		MEC 102	Engineering Design (1)	Required	-		3 (2,2,0)	College
		MEC 103	Engineering Economy	Required	MTH 102		2 (2,0,0)	College
		MTH 203	Integral Calculus	Required	MTH 102		3 (2,0,2)	College
		PHS 101	General Physics (1)	Required	-		4 (3,2,0)	College
		Total Credit Hours					18 (14,6,2)	
	Level 4	ISL 107	Professional Ethics	Required	-		2 (2,0,0)	University
		MEC 104	Engineering Design (2)	Required	MEC 102		2 (1,2,0)	College
		MEC 105	Basics of Engineering Technology	Required	MEC 101		2 (1,2,0)	College
		MTH 204	Advanced Calculus	Required	MTH 203		3 (2,0,2)	College
		MTH 281	Statistics and Probability	Required	MTH 203		3 (2,0,2)	College
		PHS 202	General Physics (2)	Required	PHS 101		4 (3,2,0)	College
		Total Credit Hours					16 (11,6,4)	
Third Year	Level 5	ARB 102	Writing Skills	Required	-		2 (2,0,0)	University
		ELE 261	Elect. & Electronic Circuits	Required	PHS 202		2 (2,0,1)	Department
		ISL 10x	University Elective (1)	Elective	-		2 (2,0,0)	University
		MEC 211	Materials Engineering	Required	PHS 202		3 (2,0,2)	Department
		MEC 212	Materials Engineering Lab	Required	-	MEC 211	1 (0,2,0)	Department
		MEC 231	Statics	Required	MTH 203		3 (2,0,2)	Department
		MTH 305	Differential Equations	Required	MTH 204		3 (2,0,2)	College
		Total Credit Hours					16 (12,2,7)	
	Level 6	ISL 10x	University Elective (2)	Elective	-		2 (2,0,0)	University
		MEC 213	ME Drawing & Graphics	Required	MEC 101		3 (2,2,0)	Department
		MEC 214	Mechanics of Materials	Required	MEC 231		3 (2,0,2)	Department
		MEC 215	Mech. of Materials Lab	Required	-	MEC 214	1 (0,2,0)	Department
		MEC 221	Thermodynamics (1)	Required	PHS 202		3 (2,0,2)	Department
		MEC 232	Dynamics	Required	MEC 231		3 (2,0,2)	Department
		MTH 382	Numerical Methods	Required	MTH 305		3 (2,0,2)	College
		Total Credit Hours					18 (12,4,8)	
Fourth Year	Level 7	MEC 321	Heat Transfer	Required	-	MEC 341	3 (2,0,2)	Department
		MEC 322	Thermodynamics (2)	Required	MEC 221		3 (2,0,2)	Department
		MEC 331	Mechanics of Machines	Required	MEC 232		4 (2,2,2)	Department
		MEC 332	Mechanical Vibration	Required	MEC 232		3 (2,0,2)	Department
		MEC 341	Fluid Mechanics	Required	MEC 232		3 (2,0,2)	Department
		MEC 342	Thermo-fluid lab (1)	Required	MEC 221	MEC 341	1 (0,2,0)	Department
		Total Credit Hours					17 (10,4,10)	

Year	Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Co-Requisite Courses	Credit Hours (LT, LB, TU)	Type of requirements (Institution, College or Department)
	Level 8	MEC 311	Mech. Eng. Design (1)	Required	MEC 214 MEC 331		3 (2,0,2)	Department
		MEC 323	Special Topics in Mech. Eng.	Required	Dept. Approval		3 (2,0,2)	Department
		MEC 324	Air Conditioning	Required	MEC 321		3 (2,0,2)	Department
		MEC 333	Manufacturing Processes	Required	MEC 214 MEC 211		4 (2,2,2)	Department
		MEC 334	Automatic Control	Required	MTH 305		3 (2,0,2)	Department
		MEC 335	Control and dynamic systems Lab.	Required	-	MEC 334	1 (0,2,0)	Department
		MEC 343	Thermo-fluids Lab (2)	Required	MEC 322 MEC 342		1 (0,2,0)	Department
		Total Credit Hours					18 (10,6,10)	
Fifth Year	Level 9	MEC 451	Graduation Project	Required	Pass 110 Credits		4 (2,4,0)	Department
		MEC 454	Cooperative Training**	Required	Pass 110 Credits		8	Department
		Total Credit Hours					12	
	Level 10	EDU 102 / BUS 101	University Elective (3)	Elective	-		2 (2,0,0)	University
		ELE 461	Electrical Machines	Required	ELE 261		2 (1,0,2)	Department
		MEC 411	Mech. Eng. Design (2)	Required	MEC 311		3 (2,0,2)	Department
		MEC 412	Computer Aided Design	Required	MEC 311		3 (2,2,0)	Department
		MEC 452	Engineering Projects Management	Required	Pass 120 Credits		2 (2,0,1)	Department
		MEC 462	Mechatronics	Required	MEC 334		3 (2,0,2)	Department
		MEC 4xx	Elective Course (1)	Elective				Department
		Total Credit Hours					18	

**The student must perform a cooperative training (8 credit hours) for 24 weeks after successfully completing 110 credits

List of Department Elective Courses:

Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours (LT, LB, TU)	Total Contact Hours	Type of requirements (Institution, College or Department)
MEC 413	Tribology	Elective	MEC 211 MEC 214	3 (2,0,2)	4	Department
MEC 414	Aircraft Design	Elective	MEC 411	3 (2,0,2)	4	Department
MEC 415	Measurements and Instrumentation	Elective	MEC 341	3 (2,0,2)	4	Department
MEC 421	Power Plants	Elective	MEC 322 MEC 321	3 (2,0,2)	4	Department
MEC 422	Internal Combustion Engines	Elective	MEC 322 MEC 341	3 (2,0,2)	4	Department
MEC 423	Design of Power Systems	Elective	MEC 341 MEC 321	3 (2,0,2)	4	Department
MEC 424	Refrigeration Engineering	Elective	MEC 321	3 (2,0,2)	4	Department
MEC 425	Desalination Processes	Elective	MEC 321 MEC 322	3 (2,0,2)	4	Department
MEC 431	Numerical Control Systems	Elective	MEC 333	3 (2,0,2)	4	Department
MEC 432	Advanced Machining Technology	Elective	MEC 333	3 (2,0,2)	4	Department
MEC 441	Gas Dynamics	Elective	MEC 341 MEC 322	3 (2,0,2)	4	Department
MEC 442	Turbo Machinery	Elective	MEC 322 MEC 341	3 (2,0,2)	4	Department
MEC 443	Renewable Energy	Elective	MEC 341 MEC 321	3 (2,0,2)	4	Department
MEC 444	Solar Energy	Elective	MEC 321 MEC 341	3 (2,0,2)	4	Department
MEC 455	Quality Control	Elective	MEC 333	3 (2,0,2)	4	Department
MEC 456	Industrial Safety	Elective	MEC 321 MEC 335	3 (2,0,2)	4	Department
MEC 463	Robotics	Elective	MEC 334	3 (2,0,2)	4	Department

List of University Elective Courses:

Course Code	Course Title		LT	LB	TU	Credit Hours	Prerequisites
University Elective (1&2)	ISL 101	Fundamentals of Islamic Culture	2	0	0	4	
	ISL 105	Human Rights	2	0	0		
	ISL 108	Contemporary Issues	2	0	0		
University Elective (3)	EDU 102	Volunteer Work	2	0	0	2	
	BUS 101	Entrepreneurship	2	0	0		