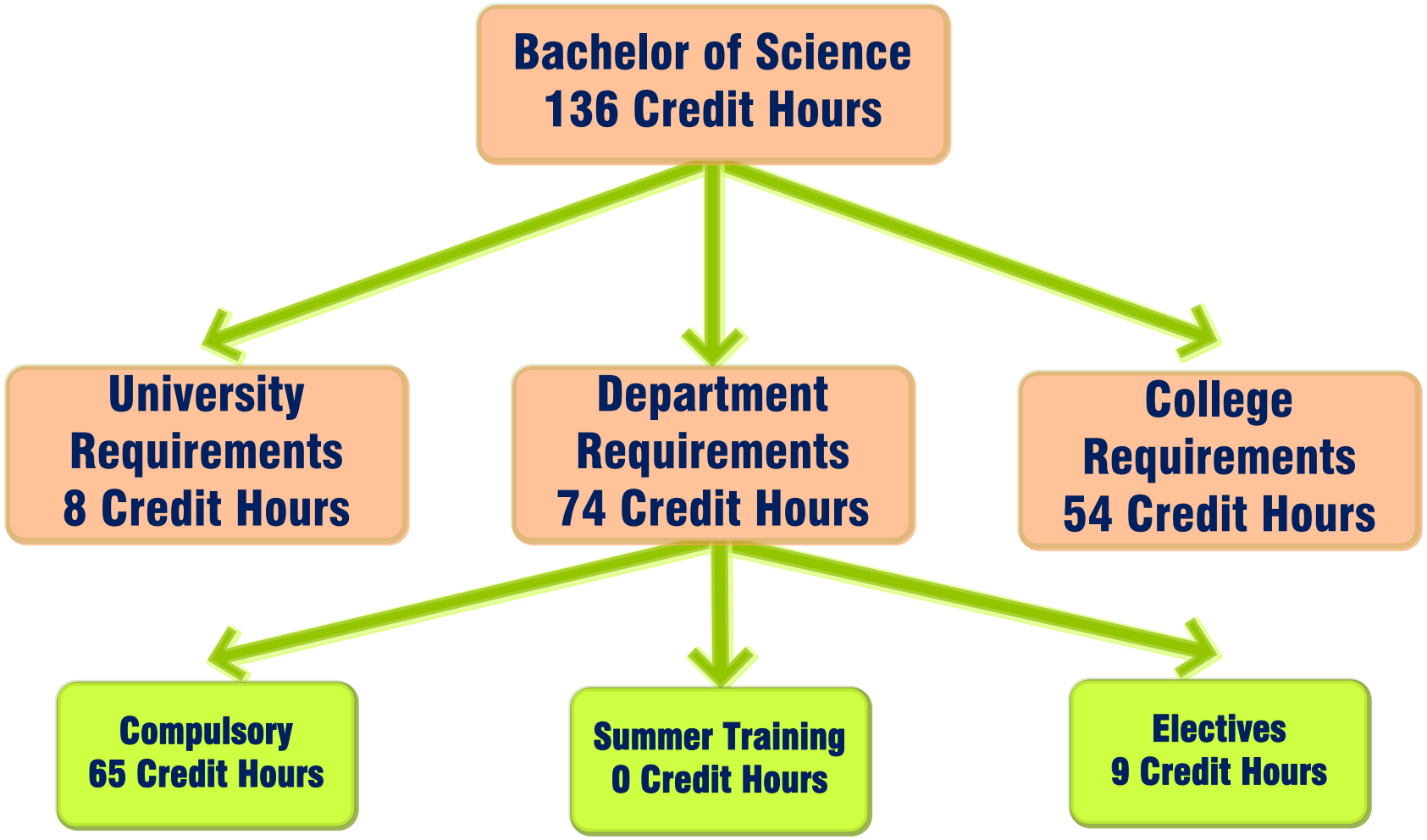
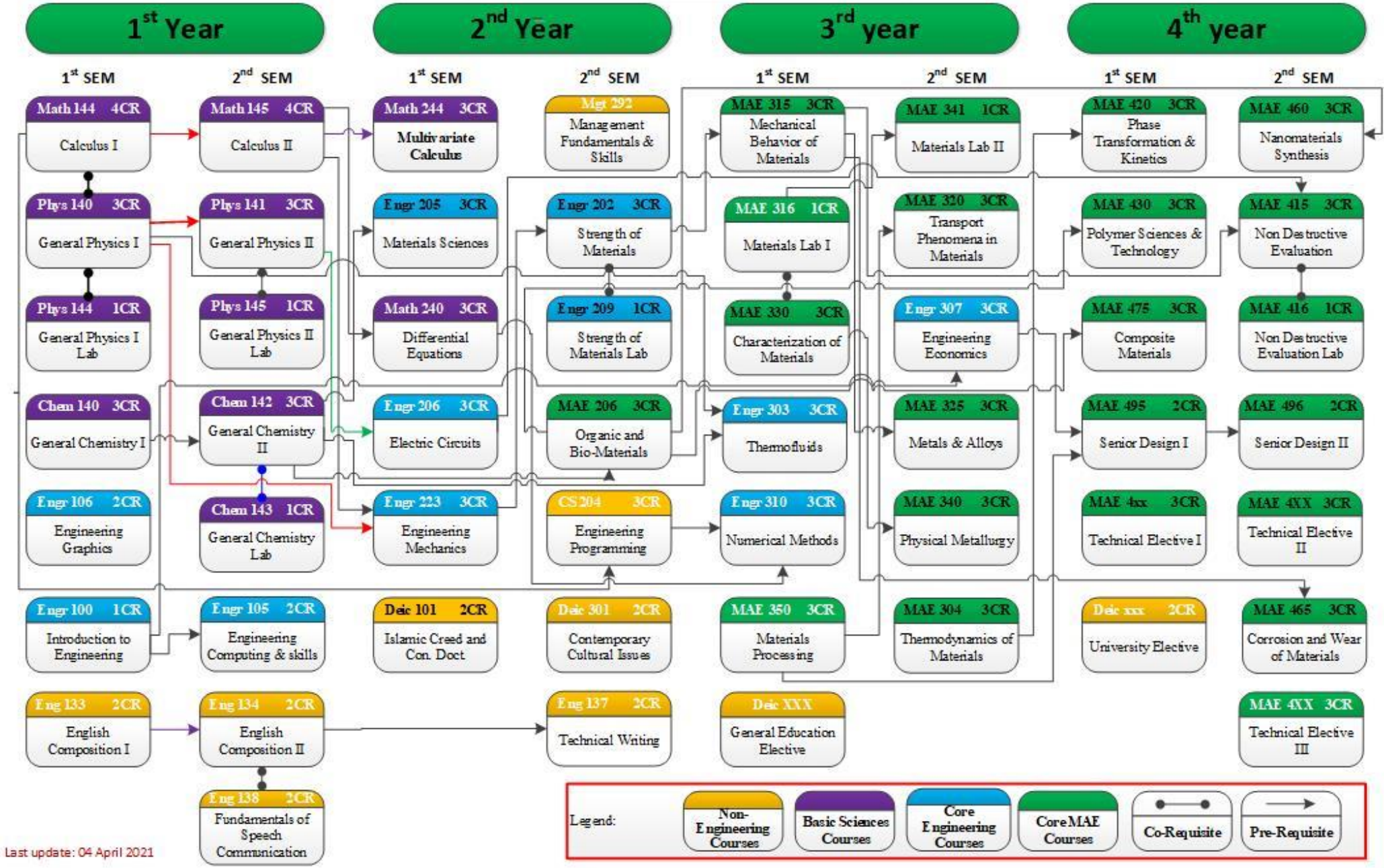
Curriculum Structure



Materials Engineering Program



Last update: 04 April 2021

Bachelor of Science in Materials Engineering

Preparatory Year (Intensive English/ Math /Computer Skills /Study Skills /etc.)								
First Year								
First Semester		**Credit Hours**			**Second Semester**		**Credit Hours**	
Engr	100	Introduction to Engineering	1		Engr	105	Eng Computing & Skills	2
Engr	106	Engineering Graphics	2		Eng	138	Fund of Speech Communication	2
Eng	133	English Composition I	2		Eng	134	English Composition II	2
Math	144	Calculus I	4		Math	145	Calculus II	4
Phys	140	General Physics I	3		Phys	141	General Physics II	3
Phys	144	General Physics I Lab	1		Phys	145	General Physics II Lab	1
Chem	140	General Chemistry I	3		Chem	142	General Chemistry II	3
					Chem	143	General Chemistry Lab	1
		Total	16				Total	18
Second Year								
Third Semester		**Credit Hours**			**Fourth Semester**		**Credit Hours**	
Deic	101	Islamic Creed & Con. Doct.	2		Eng	137	Technical Writing	2
Engr	205	Materials Science	3		Engr	202	Strength of Materials	3
Engr	206	Electric Circuits	3		MAE	206	Organic & Biomaterials Chem.	3
Math	240	Differential Equations	3		Engr	209	Strength of Materials Lab	1
Math	244	Multivariate Calculus	3		CS	204	Engineering Programming	3
Engr	223	Engineering Mechanics	3		Mgt	292	Management Fundamental & Skills	3
					Deic	301	Contemporary Cultural Issues	2
		Total	17				Total	17

Third Year

	Fifth Semester	Credit Hours			Sixth Semester	Credit Hours	
Deic	xxx	General Education Elective	2	MAE	304	Thermodynamics of Materials	3
Engr	303	Thermo Fluid	3	Engr	307	Engineering Economics	3
Engr	310	Numerical Methods	3	MAE	320	Transport Phenomena in materials	3
MAE	315	Mechanical Behavior of Materials	3	MAE	325	Metals & Alloys	3
MAE	316	Materials Lab I	1	MAE	340	Physical Metallurgy	3
MAE	330	Characterization of Materials	3	MAE	341	Materials Lab II	1
MAE	350	Materials Processing	3				
		Total	18			Total	16

Summer Semester- Engr 399 Engineering Training (00 Credit Hours)

Fourth Year

	Seventh Semester	Credit Hours			Eighth Semester	Credit Hours	
Deic	xxx	General Education Elective	2	MAE	460	Nanomaterials Synthesis	3
MAE	495	Senior Design I	2	MAE	415	Non Destructive Evaluation	3
MAE	420	Phase Transformation & Kinetics	3	MAE	416	Non Destructive Evaluation Lab	1
MAE	430	Polymer Science & Technology	3	MAE	465	Corrosion and Wear of Materials	3
MAE	475	Composite Materials	3	MAE	496	Senior Design II	2
MAE	4XX	Technical Elective I	3	MAE	4XX	Technical Elective II	3
				MAE	4XX	Technical Elective III	3
		Total	16			Total	18

Total Credits: 136

Materials Engineering Technical Electives

Elective Courses **(As offered by field Specialist Faculty)**	**1) MAE 404 Ceramic Materials** **2) MAE 407 Electronic, Optical, and Magnetic Prop of Mat** **3) MAE 409 Welding and Joining Processes** **4) MAE 440 Metal Forming** **5) MAE 472 Biomaterials** **6) MAE 480 Glass Science and Technology** **7) MAE 483 Materials Selection Engineering** **8) MAE 485 Concrete Materials** **9) MAE 488 Asphalt Materials** **10) MAE 408 Materials Processing Safety**