TWO DEGREES, ONE PATH

TRANSFER PATHWAY GUIDE
2022-2023

Associate of Applied Science in Engineering and Electronics Technology – Robotics and Automation Track to Bachelor of Science in Mechatronics Engineering Technology

Overview

Completion of the following curriculum will satisfy the requirements for the Associate of Applied Science (AAS) in Engineering and Electronics Technology-Robotics and Automation Track degree at a Kentucky Community and Technical College System (KCTCS) institution and leads to the Bachelor of Science (BS) in Mechatronics Engineering Technology degree at Northern Kentucky University (NKU).

Applying to the KCTCS2NKU Program

Students can apply to participate in the pathway program by completing the online application on the NKU transfer webpage. Students must be enrolled in at least six credit hours at their KCTCS institution, enrolled in an associate degree program, plan to transfer to NKU, and maintain a minimum 2.0 cumulative GPA at their KCTCS institution.

Degree Requirements for KCTCS

1) Minimum cumulative GPA 2.0, 2) minimum of 25 percent of credit hours required for the degree earned at the institution awarding the degree, and 3) demonstration of digital literacy.

Admission Requirements to NKU

Students completing an associate degree with a cumulative GPA of 2.0 or higher will be accepted into NKU.

This bachelor's degree program is designed to provide students with the knowledge and skills needed to succeed in today's highly integrated computer controlled manufacturing. Throughout their curriculum, students are required to take cooperative education ("co-op") in industry in their second or third year of the program, which often continues and leads to full-time employment. Graduates with a rigorous theoretical education and multidisciplinary technical skills are well prepared for engineering and technology positions in applied design, development, implementation, or oversight and maintenance of electromechanical systems and processes.

Degree Requirements for NKU

To earn a bachelor's degree at NKU, students must complete a minimum of 120 credit hours with at least 45 credit hours numbered 300 and above. In addition, at least 25% of the credit hours required for the degree and the last 30 credit hours must be completed at NKU. Students must have an overall GPA of 2.0 and meet all prerequisites for courses and requirements for the major. A minor is not required for this major.

General Transfer Information

Students must complete the online application to NKU. There is no application fee for students who are transferring from a KCTCS institution.

KCTCS Scholars Award: Students who are KY residents transferring directly from a KCTCS institution with at least 36 hours from that institution and minimum GPA of 3.0, were never enrolled as a degree-seeking student at NKU, and will be enrolled in at least 12 credit hours both fall and spring semester are eligible for a limited number of $2,500 annual scholarships ($1,250 per fall and spring). Students must gain admission to NKU by June 15 for fall and November 1 for spring to be eligible for a possible scholarship. Online accelerated programs are not eligible for the KCTCS Scholars Award.

KCTCS AAS IN ENGINEERING AND ELECTRONICS TECHNOLOGY – ROBOTICS AND AUTOMATION TRACK TO NKU BS IN MECHATRONICS ENGINEERING TECHNOLOGY CHECKLIST

Kentucky Community and Technical College System

Category 1: KCTCS General Education Requirements

KCTCS Course	Course or Category	Credits	NKU Course	Completed
ENG 101	Writing I (WC)	3	ENG 101	
TBS XXX	Oral Communication (OC)	3	TBD XXX	
MAT 150 or MAT 126 or TBS XXX	College Algebra (QR) or Technical Algebra and Trigonometry (QR) or Higher Level (QR) Course	3	(MAT 102 or MAT 103) + MAT 100T MAT 100T TBD XXX	
SOC 101	Introduction to Sociology (SB)	3	SOC 100	
TBS XXX	Arts & Humanities (AH) - Heritage or Humanities	3	TBD XXX	
PHY 171 or PHY 201/202 or TBS XXX	Applied Physics (NS) or College Physics I and Lab (SL) or Natural Science with consent of program coordinator (NS)	3-5	PHY 110 PHY 211/200T TBD XXX	
	Subtotal General Education Courses	**18-20**		

TBS XXX means to be selected by KCTCS student.
TBD XXX means to be determined by NKU based on course selected.

A grade of A or B in MAT 150 equates to MAT 103 + MAT 100T. Grade of C or D in MAT 150 equates to MAT 102 + MAT 100T.

Category 2: KCTCS Technical Core Requirements for the AAS in Engineering and Electronics Technology

KCTCS Course	Course or Category	Credits	NKU Course	Completed
ELT 110 or IMT 110 and IMT 111	Circuits I (preferred) or Industrial Maintenance Electrical Principles and Lab	5	EGT 161 or EGT 100T and EGT 100T	
ELT 114	Circuits II	5	EGT 243	
ELT 120	Digital I	3	EGT 300T	
ELT 210	Devices I	4	EGT 300T	
ELT 289	Engineering and Electronics Technology Capstone Course	1	UND 100T	
CAD 100 or BRX 120 or TBS XXX	Introduction to Computer Aided Design or CAD Fundamentals or Basic Blueprint Reading or Equivalent course with consent of program coordinator	3-4	EGT 212 or UND 200T or TBD XXX	
TBS XXX	Digital Literacy (If took CAD 100, need additional elective credit not in selected track)	3	TBD XXX	
	Subtotal Technical Core Courses	**24-25**		

Category 3: KCTCS AAS Requirements for Engineering and Electronics Technology-Robotics and Automation Track

KCTCS Course	Course or Category	Credits	NKU Course	Completed
ELT 244 or EET 270 and EET 271	Electrical Machinery and Controls (preferred) or Electrical Motor Controls I and Lab	4	ELT 244 + ELT 250 = EGT 386 + EGT 300T or EGT 200T	
ELT 250 or EET 276 and EET 277	Programmable Logic Controllers (preferred) or Programmable Logic Controllers and Lab	4	ELT 244 + ELT 250 = EGT 386 + EGT 300T or UND 200T	
ELT 260	Robotics and Industrial Automation	5	EGT 320	
ELT 265 or FPX 100 and FPX 101	Applied Fluid Power or Fluid Power and Lab (preferred)	3	UND 100T or EGT 361 + EGT 300T	
TBS XXX	Technical Electives Possible Technical Electives ELT 201 (ELT 201 = EGT 300) ELT 220 (ELT 120 + ELT 220 = EGT 245 + EGT 300T) ELT 214 (ELT 210 + ELT 214 = EGT 344 + EGT 300T) CMM 110 (CMM 110 = EGT 265)	 4 (4) (3) (3)	 EGT 300 EGT 245 EGT 344 EGT 265	
	Subtotal AAS Degree Requirement Courses	**19-22**		
	Total Associate Degree Hours	**61-65**		

Note: The following courses have equivalencies to courses required in the Mechatronics Engineering Technology major at NKU. By selecting these courses, a student will reduce the total credit hours for the BS in Mechatronics Engineering Technology degree: MAT 150, PHY 201 and PHY 202, CAD 100, CMM 110, ELT 110, ELT 201, ELT 220, ELT 244, ELT 250, FPX 100 and FPX 101.

Northern Kentucky University

Category 4: NKU Additional General Education Courses

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
TBS XXX	Self and Society	6		
TBS XXX	Culture and Creativity	3		
TBS XXX	Global Viewpoints	3		
	Subtotal General Education Credit Hours	**12**		

Category 5: NKU Major Requirements for BS in Mechatronics Engineering Technology

NKU Course	Course	Credits	KCTCS Course	Taken at KCTCS
EGT 116	Intro to Manufacturing	3	WLD 152	
EGT 161	D.C. Circuit Analysis	3	ELT 110	x
EGT 212	Computer-Aided Drafting and Design	3	CAD 100	x
EGT 243	A.C. Circuit Analysis	3	ELT 114	x
EGT 245	Digital Electronics	3	ELT 120 + ELT 220 = EGT 245 + EGT 300T	x note below category 3 table
EGT 261	Engineering Materials	3		
EGT 267	Programming for Engineering Applications	3		
EGT 300	Statics and Strength of Materials	3	ELT 201	
EGT 301	Cooperative Education in Engineering Technology	3		
EGT 310	Project Management and Problem Solving	3		
EGT 340	Applied Dynamics	3		
EGT 361	Fluid Power	3	FPX 100/101	x
EGT 367	Microprocessors	3		
EGT 386	Electromechanical Instrumentation and Control	3	ELT 244 + ELT 250 = EGT 386 + EGT 300T	x
EGT 402	Control Systems	3		
EGT 408	Mechatronics Topics	3		
EGT 416	Capstone I	1		
EGT 417	Capstone II	3		
CHE 130/130L	Chemistry: An Engineering Approach	4		
MAT 119	Precalculus Mathematics	3	MAT 160 or MAT 171	
MAT 129	Calculus I	4	MAT 175	
STA 205	Statistical Methods	3	STA 220 or (MAT 151 or STA 151 or	

NKU Course	Course	Credits	KCTCS Course	Taken at KCTCS
			MAT 161) + STA 251	
PHY 211	General Physics with Laboratory I	4	PHY 201/202	x note below category 3 table
PHY 213	General Physics with Laboratory II	4	PHY 203/204	
SOC 100	Introduction to Sociology	3	SOC 101	x
	Choose one track: Automated Systems Track Alternative Energy Track Laser Technology Track Computer Science Track (Required courses for each track are listed in Categories 6-9 tables below.)	18		0-3 hours complete (see tables below)
	Subtotal Major Credit Hours at NKU	**70-73**		
	Subtotal Major Credit Hours KCTCS	**22-25**		
	Total Major Credit Hours	**95**		
	Minimum Baccalaureate Degree Credit Hours	**144-149**		

Students must choose one of the following tracks: Automated Systems Track, Alternative Energy Track, Laser Technology Track or Computer Science Track. Credits hours for the tracks and bachelor degree can vary based on the courses taken at KCTCS. The total credit hours for each track are based on the student completing the recommended courses while at KCTCS. Some courses in the Alternative Energy Track and the Laser Technology track will be taken at Cincinnati State Technical and Community College.

Category 6: NKU Requirements for the Automated Systems Track

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
EGT 265	Manufacturing Processes and Metrology	3	CMM 110	Note below category 3 table
EGT 320	Robotic Systems and Material Handling	3	ELT 260	x
EGT 365	CNC & Manufacturing Process Planning	3		
EGT 465	Automated Manufacturing Systems	3		
EGT 480	Machine Design	3		
EGT XXX	Select 3 additional credit hours of EGT courses at NKU	3		
	Additional Track Credit Hours	**15**		

Category 7: NKU Requirements for the Alternative Energy Track

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
Take at CState (equates to EGT 140)	Power Systems Foundations (PSET 140 at Cincinnati State)	1		
Take at CState (equates to EGT 151)	Introduction to Controls and Robotics (EMET 150 at Cincinnati State)	2		
Take at CState (equates to EGT 210)	Energy Efficiency and Audits (EMET 210 at Cincinnati State)	3		
Take at CState (equates to EGT 325)	Solar and Renewable Energy (EMET 225 at Cincinnati State)	3		
EGT 450	Thermodynamics and Heat Transfer	3		
EGT XXX	Select 6 additional credit hours of EGT courses	6	ELT 260 = EGT 320	x (3 cr.)
	Additional Track Credit Hours	**15**		

Category 8: NKU Requirements for the Laser Technology Track

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
Take at CState (equates to EGT 151)	Introduction to Controls and Robotics (EMET 150 at Cincinnati State)	2		
Take at CState (equates to EGT 293)	Laser 1 (EMET 245 at Cincinnati State)	3		
Take at CState (equates to EGT 294)	Electric Drive Mechanisms (EMET 275 at Cincinnati State)	4		
Take at CState (equates to EGT 395)	Laser 2 (EMET 246 at Cincinnati State)	3		
EGT XXX	Select 6 additional credit hours of EGT courses	6	ELT 260 = EGT 320	x (3 cr.)
	Additional Track Credit Hours	**15**		

Category 9: NKU Requirements for the Computer Science Track

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
CSC 260	Object Oriented Programming I	3	CIT 149 + CIT 249 = CSC 260 + CSC 360	
CSC 360	Object Oriented Programming II	3	CIT 149 + CIT 249 =	

NKU Course	Course or Category	Credits	KCTCS Course	Taken at KCTCS
			CSC 260 + CSC 360	
CSC 362	Computer Systems	3		
CSC 407	Concepts of Programming Languages	3		
CSC 462	Computer Architecture	3		
INF 120	Elementary Programming	3	CIT 141 – CIT 148	
	Additional Track Credit Hours	**18**		

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