

# INTERNATIONAL COLLABORATIVE PROGRAM



BETWEEN THE UNIVERSITY OF NORTHERN IOWA  
(UNI) AND THE JAWAHARLAL NEHRU  
TECHNOLOGICAL UNIVERSITY KAKINADA (JNTUK)



3 + 1 Transfer program to earn a Bachelor of Science in Electrical Engineering Technology

## INFORMATION BOOKLET



Figure 1 Administrative building of JNTUK Kakinada

**Jawaharlal Nehru Technological University Kakinada Campus** is first established on 16th July 1946 as College of Engineering, Vizagapatam at Kakinada by the Government of Madras State. Later in the Year 1972, it has become an important constituent unit of Jawaharlal Nehru Technological University, Hyderabad which is established as the first Technology University in the Country after the name of first Prime Minister of India, Pundit Jawaharlal Nehru. It became a separate University in August 2008 by the Government of Andhra Pradesh. Over the years JNTUK Kakinada Campus has produced highly professional and competitive engineers by infusing greater quality and content into the curriculum and educating the students with appropriate skills suitable for the rapidly developing Industry in India in the fields of Engineering, Technology, Science, Pharmacy and Management. JNTU Kakinada campus has crossed several milestones in pursuits of academic excellence and has emerged as a trendsetter in the field of technical education. Its reputation for academic excellence attracts students across the Globe.

JNTUK moves forward with a motto of Excellence, inclusion and relevance in education such as

- To design an Industry relevant curriculum with outcome based learning approach
- To Promote quality education by embracing ICT delivery mechanism with continuous pedagogy
- To Spread across for industry collaborations with a focus to pre –training and placements
- To Establish Centers of Excellence to promote research and innovations in multidisciplinary areas
- To Promote International Collaborative for student outreach

- To Facilitate International students to study in JNTUK for encouraging cross/culture learning abilities.



### **University of Northern Iowa (UNI), Cedar Falls, Iowa**

Founded in 1876 as a college for teacher education, the institution has also gone by the names of the Iowa State Normal School, Iowa State Teachers College, State College of Iowa, and most recently, University of Northern Iowa. True to its roots, UNI continues to emphasize hands-on service learning and retains the proud distinction of leading Iowa's number-one teacher education program. Today's UNI also offers more than 90 majors to choose from, giving students the opportunity to explore a variety of interests and prepare for success after college. UNI is consistently recognized as one of the best public regional universities in the Midwest as well as receiving recognition for high graduation rates, environmental responsibility and as a best college for your money. The University of Northern Iowa's 380= hectare park-like campus features more than 65 major buildings including academic buildings, residence halls, recreation centers, extensive libraries; not to mention an observatory, greenhouse, television studios, metal casing center, bio preserve, entrepreneurial incubator and a newly renovated Applied Engineering Building. It only takes 10 to 15 minutes to walk across campus and you will feel at home as UNI has been recognized as one of the "Safest Campuses in America." Driven by innovation and a passion to shape their own future, students in the Department of Applied Engineering & Technical Management gain experience learning – and working – in some of the nation's fastest growing industries. Our programs are designed in collaboration with industry partners, and aligned with the latest standards – meaning you'll graduate with in-demand, employable skills. Working with state-of-the-art technology – some of which can only be found at UNI – we'll make sure you have the tools and experiences you need to make your mark.

# **Course Structure Framework at University of Northern Iowa for a 3+1 Electrical Engineering Technology (EET) Program with Jawaharlal Nehru Technical University at Kakinada, India**

## **Suggested credit hours at UNI: 33 credit hours.**

- The required credit hours for the Electrical Engineering Technology program is 120-credit hours at the University of Northern Iowa and the University policy requires at least 32 credit hours taken at UNI.
- Students from JNTU at Kakinada can finish all required credit hours in one year by taking 18 credit hours in Fall and 15 credit hours in Spring semester after transferring credits to UNI.

## **Courses taken at UNI (33 credit hours including minimum of 6 EET content required courses):**

### **EET major courses (18 credit hours):**

- TECH 3160 Computer-aided Instrumentation and Interfacing (3)
- TECH 4103 Electronic Communications (3)
- TECH 4104 Applied Digital Signal Processing (3)
- TECH 4165 Wireless Communication Networks (3)
- ENGR 4500 Senior Design (3)

### **Required Technical Writing (3 credit hours):**

- English 3772 Technical Writing for Engineering Technologists (3)

### **UNI Foundational Inquiry (UNIFI) General Education Courses (15 credit hours):**

- Oral Communications (3)
- Human Condition – Domestic (3)
- Human Expression (3)
- 2 Connect Courses (Elective) (6)
  - PHIL 1560 Science, Technology, and Ethics (STE) \* *Also required for the major*

**\*The above UNIFI evaluation is dependent on both the Constitution of India OR Essence of Indian Traditional Knowledge and Environmental Science courses receiving credit from the issuing institution to be given UNIFI credit. Please see the note in the transfer credit table.**

## **Plan of Study:**

### **Fall semester (18 credit hours):**

- TECH 4103 Electronic Communications (3)
- TECH 4165 Wireless Communication Networks (3)
- English 3772 Technical Writing for Engineering Technologists (3)
- UNIFI courses (9)

### **Spring semester (15 credit hours):**

- TECH 3160 Computer-aided Instrumentation and Interfacing (3)

- TECH 4104 Applied Digital Signal Processing (3)
- ENGR 4500 Senior Design (3)
- UNIFI course (6)

Courses transferred from **JNTU at Kakinada** that will substitute for the courses required by the **EET** program at UNI (at least **93** credit hours):

<b>Equivalency or Substitution</b>			
<b>JNTU at Kakinada</b>		<b>University of Northern Iowa</b>	
<b>Course No.</b>	<b>Course Name &amp; Credit Hours</b>	<b>Course No.</b>	<b>Course Name &amp; Credit Hours</b>
<b><i>Mathematics and Science Core Courses (22 credit hours)</i></b>			
	Mathematics – I (Calculus) (3) Mathematics – II (Linear Algebra and Numerical Methods) (3) Mathematics – III (Transforms, PDE and Vector Calculus) (3)	MATH 1420  MATH 1421	Calculus I (4)**  Calculus II (4)
	Mathematics – IV (Complex Variable and Statistical Methods) (3)	STAT 1772	Introduction to Statistical Methods (3)**
	Programming for Problem Solving Using C (3) Programming for Problem Solving Using C Lab (1.5)	CS 1160	C/C++ programming (3)
	Applied Physics (3) Applied Physics Laboratory (1.5)	Physics 1511	General Physics I (4)**
	**double count for both UNIFI and EET math and science core (11)		
<b><i>Required Electrical Engineering Technology Core Courses (36 credit hours)</i></b>			
	Electrical Circuit Analysis –I (3) Electrical Circuit Analysis –II (3) Electrical Circuits Lab (1.5)	TECH 1037  TECH 1039	Intro. to Circuits (3)  Circuits and Systems (3)



	<p>Induction and Synchronous Machines (3)  Induction and Synchronous Machines Lab (1.5)  Digital Electronics (3)  Digital Electronics Lab (1.5)  Electronic Devices and Circuits (3)  Electronic Devices and Circuits lab (1.5)  DC Machines and Transformers (3)</p> <p>DC Machines and Transformers Lab (1.5)  Skill advanced course- Courses offered by Siemens Centre of excellence : (2)e  AUTOMATION LAB-  Basics of PLC, Basics of SCADA/  ELECTRICAL &amp; ENERGY  STUDIES LAB-  Basics of Low Voltage Switchgear,  Basics of Induction Motor/  PROCESS INSTRUMENTATION LAB-  Basics of Process Instrumentation</p>	<p>TECH 2038   TECH 2042  TECH 3156  TECH 2041  TECH 3152    TECH 3164</p>	<p>Introduction to Electrical Power and Machinery (3)   Introduction to Digital Electronics (3)  Advance Digital Electronics (3)   Introduction to Analog Electronics (3)  Advanced Analog Electronics (3)    Programmable Logic Controllers (PLCs) (3)</p>
	<p>Power System-I (3)  Power Systems-II (3)</p>	<p>TECH 3166</p>	<p>Advanced Electrical Power Systems (3)</p>
	<p>Control Systems (3)  Control Systems Lab (1.5)</p>	<p>TECH 3129</p>	<p>Linear Control Systems (3)</p>
	<p>Microprocessors and Microcontrollers (3)  Microprocessors and Microcontrollers Lab (1.5)</p>	<p>TECH 3157</p>	<p>Microcontroller Applications (3)</p>
	<p>Power Electronics (3)  Power Electronics Lab (1.5)</p>	<p>TECH 4167</p>	<p>Power Electronics Applications (3)</p>
<b>UNIFI courses (22 credits)</b>			
	<p>Mathematics I (Calculus)  Managerial Economics &amp; Financial Analysis  Communicative English/Skills Lab  Mathematics IV  Applied Physics/Lab</p>		<p>Quantitative Reasoning (3)  Connect Course (Elective) (3)   Written Communication (3)  Connect Course (Elective) (3)  Scientific Reasoning w/lab (4)</p>
	<p>Constitution of India OR Essence of Indian Traditional Knowledge*   Environmental Science *</p>		<p>Human Condition (Global)   Responsibility</p>

			* These courses will only transfer for UNIFI credit if the Kakinada transcript shows them as credit-bearing courses.
<b>Elective course (at least 24 credit hours)</b>			
	Electro Magnetic Fields (3) Power System Analysis (3) Power Systems and Simulation Lab (1.5) Electrical Engineering Workshop Lab (1.5) Data Structures Through C (3) Data Structures through C Lab (1.5) Engineering Drawing (3) Python Programming (3) Python Programming Lab (1.5) Electrical Measurements and Instrumentation (3) Electrical Measurements and Instrumentation Lab (1.5) Skill oriented course- Design of Electrical Circuits using Engineering Software Tools (2) Skill advanced course- High Voltage Lab (2) PEC courses		University Electives

**Mode of study and award of degree:**

The admitted students will study mandatory 3 years education at University College of Engineering (Autonomous) Kakinada campus and one year education at the University of Northern Iowa (UNI). After successful completion of 4 years of study and earning, a Bachelor of Technology degree will be awarded by JNTUK by accrediting the one year (two semesters) mandatory education credits (includes UG project) from UNI through transfer of credits to JNTUK. Students will also receive a Bachelor's of Science degree from UNI upon completion of the 1 year and required hours outlined above.

**Continuation to master studies at UNI:**

The student can continue the master studies at UNI. They can apply for the master's studies by completing the bachelor degree at UNI and earning a cumulative grade point average of 3.0 or above. Students will also be required to also submit 3 Letters of Recommendation, a resume and a personal statement. There will be no English proficiency requirement for students that complete their UNI bachelor's degree.

**Eligibility and Selection Criteria for Admission to the 3 + 1 :**

Candidates satisfying the following requirements shall be eligible for admission to the 3 + 1 bachelor program:

- [International Application for Admission](#)
- Submission of educational transcripts from JNTUK showing at least the first two years of completed courses and grades
- Proof of English proficiency

- IELTS - 6.0
- TOEFL 79
- Duolingo - 105

**Tuition and Fees:**

The tuition and fees structure for one year of undergraduate students at the University of Northern Iowa (*below fees reflect 2022-23 costs*):

**Undergraduate**

Tuition & Fees	\$21,272	
Books & Supplies	\$500	
Health Insurance		\$2,328
		\$9,648
Personal & Rec Exp		<u>\$1,500</u>
		<b>\$35,248</b>

**Scholarship Opportunities at UNI**

**Transfer Scholar Award:** International students applying to UNI as a transfer student are automatically considered for this \$1,000 scholarship. Awards are based on academic achievement for students earning a transfer GPA of 3.25 (on a 4.0 scale) or above

**International Excel Award:** All incoming degree-seeking students, including freshmen and transfer, with strong academic backgrounds may qualify for this scholarship with awards ranging from \$1000 - \$6000.

**Qualifications:**

- Equivalent grade point average of a 3.0 on a 4.0 point scale
- Proof of English proficiency
- Examples of leadership and service
- Completed application file
- UNI Scholarship Application submission

**Visa Requirements**

Once students have been admitted to UNI’s 3 + 1 program they must also submit a [Financial Certification Form](#) showing the source of their funding. All sponsors must sign this form and then submit supporting financial documentation showing the funding for the one year of expenses at UNI (\$34,152 minus scholarships).

Upon submission of these documents, UNI will issue a I20 immigration form to students, along with their admission and scholarship letters, and provide steps that need to be taken to pay their visa fees and secure an appointment at the U.S. embassy.

UNI will provide the necessary information and guidance to assist students through this process as well as schedule mock interview appointments for students as soon as they secure an interview date.

**Accommodations:**

UNI offers several different on-campus housing options for students including dorms and apartments. Students can also opt to live off campus in one of the city apartments or houses. Upon admission and acceptance, students will need to submit a housing contract to access on-campus housing.

**Work Experience in the U.S.**

While on a student visa and studying at UNI, students may opt to apply for on-campus student employment opportunities. UNI hires over 2000 students to work in different aspects of campus and students can earn an average of \$9.20 per hour. In addition, there are opportunities for students to work off campus through internships with Curricular Practical Training (CPT) or employment after graduation through Optional Practical Training (OPT). Students may stay on their student visa during OPT and work for up to three years in their field. UNI's Career Services Office and Applied Engineering and Technology Management Department staff and faculty are available to assist students in connecting with potential employers.

## **IMPORTANT CONTACTS:**

### **A) JNTU Kakinada:**

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### **A) University of Northern Iowa:**

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