

# Doctor of Philosophy in Electrical Engineering

Minimum Duration : 6 Semesters, 3 Years  
 Maximum Duration : 16 Semesters, 8 Years  
 Minimum CGPA required to earn degree 3.00

Program Code 128  
 Number of Courses 6 + Dissertation  
 Credit Hours 54

## Program Objectives:

The objective of the program are to:

- ▶ Enabling scholars to engage in advanced study, foster original and scholarly research.
- ▶ Integrate professional education and experience towards betterment of humanity.

## Note for Scholars

- ▶ Course will be selected from the given list of approved courses in consultation with the Research Advisor.
- ▶ The Research Advisor may direct the scholar to register for additional courses related to the area of research.
- ▶ Scholar needs to be registered in dissertation of Nine (09) credit hours for each semester for minimum of four (04) semesters.
- ▶ Scholar will submit his/her research proposal for approval from BOASAR.
- ▶ The scholar shall be required to publish a research paper in an HEC recognized journal before the public defense of the PhD dissertation.
- ▶ University Rules and Regulations for Post Graduate Degrees will be applicable.

## Eligibility

Candidate having 18 years of education in MS / Masters in Electrical/ Electronics /Computer System Engineering with 3.00 CGPA on the scale of 4.00 in semester system or at least 60% marks in annual system from recognized institute/university are eligible to apply.

Applicant needs to pass GAT (Subject) to be conducted by NTS/ETEA/any Registered Testing Agency or University, with at least 60% cumulative score and to clear departmental interview at the time of Admission.

Candidates who have done MS without Research thesis may be considered for admission in the PhD program if they submit a published paper in an HEC recognized journal as a principle author.

	Course Code	Course Title	Cr. Hrs.
SEMESTER ONE		Elective I	3-0
		Elective II	3-0
		Elective III	3-0
SEMESTER TWO		Elective IV	3-0
		Elective V	3-0
		Elective VI	3-0

SEMESTER THREE and Onwards : RES 900 Dissertation 0-9

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### LIST OF COURSES

Course Code	Course Title	Cr. Hrs.	Course Code	Course Title	Cr. Hrs.
EE702	Advanced topics in Communication Engineering	3-0	EE767	Power System Deregulation	3-0
EE708	Advanced topics in Electronics Engineering	3-0	EE769	Advanced Computer Architecture	3-0
EE713	Advanced topics in Power Engineering	3-0	EE770	Advanced Embedded Systems	3-0
EE719	Advanced topics in Control System Engineering	3-0	EE772	Advanced Digital System Design	3-0
EE727	Advanced topics in Micro and Nanosystems	3-0	EE774	ASIC Design Methodology	3-0
EE732	Advanced topics in Network systems	3-0	EE776	Power Aware Computing	3-0
EE735	MOS VLSI circuit design	3-0	EE721	Advanced Artificial Intelligence	3-0
EE737	Real Time DSP Design and Applications	3-0	EE780	Advanced Neural Networks	3-0
EE740	Advanced Digital Communications	3-0	EE801	Data Warehousing and Mining	3-0
EE742	Research Methods in PhD Studies	3-0	EE803	Formal Methods and Specifications	3-0
EE745	Power Management in wired and wireless systems	3-0	EE805	Human Aspects in Software Engineering	3-0
EE748	Low Power System Design	3-0	EE807	Advanced Engineering Mathematics	3-0
Ee749	Advanced System Modeling and Simulation	3-0	EE809	Logic and Research	3-0
EE751	Special Topics in Distributed Systems	3-0	EE810	Advanced Qualitative Research Methods	3-0
EE753	Power Awareness in Distributed Systems	3-0	EE814	Critical Review of Literature	3-0
EE759	Power System Stability and Dynamics	3-0	EE816	Agent Based Modeling	3-0
EE760	HVDC and Flexible AC Transmission	3-0	EE820	Bio Medical Image Analysis	3-0
EE762	Rural Electrification and Distributed Generation	3-0	EE824	Optimal Sampled-Data Control Systems	3-0
EE765	Artificial Intelligence techniques in Power Systems	3-0	EE827	Networked Dynamic Systems	3-0
			EE829	Modern Control Theory	3-0
			EE 736	Semiconductor Device Modeling	3-0
			EE 739	Principles of Energy Engineering	3-0
			EE 775	Magnetism, Magnetic Materials & Measurements	3-0
			EE 744	Energy Management in Communication Network	3-0

### Program Outcomes:

After completion of PhD program in Electrical Engineering the scholars will be able to:

- ▲ Apply knowledge of mathematics, science and Electrical Engineering to understand and solve real-life problems,
- ▲ Analyze systems and interpret results in the areas of Electrical Power Engineering, Electronic Engineering, Communication Engineering, Computer Systems Engineering and Control Systems,
- ▲ Design systems in the areas of Electrical Power Engineering, Electronic Engineering, Communication Engineering, Computer Systems Engineering and Control Systems keeping in view the socio-economic and environmental impact,
- ▲ Acquire high professional ethics and be good citizens, and
- ▲ Acquire lifelong learning skills to continue to stay on top of advances in the field of Electrical Engineering.