

KGCE IN ELECTRONICS & COMMUNICATION ENGINEERING - MODEL CURRICULUM

Programme Title : KGCE in Electronics & Communication Engineering							Notional Hours: 2880	
COURSE NAME & CODE	TOPIC / MODULE	THEORY (Hrs)	PRACTICAL (Hrs)	OBJECTIVE OF MODULE	OUTCOME OF MODULE	METHODOLOGY	TOOLS REQUIRED	
		480	960	YEAR 1				
BASIC MATHEMATICS & SCIENCE (1001)	Module M1 Basic Mathematics calculations & Algebra	40	0	OB 1.1 To understand principles of basic mathematics and calculation including Fraction, Ratio & Proportions, Basic Algebra	Will be able to: MO-1.1 Perform basic mathematical calculations in Fraction, Ratio & Proportions, Basic Algebra	- Lecture - Use of smart class rooms - Use of instructional	- Laptop & Projector - Guideline documents	
	Module M2 Mensuration and Trigonometry	40	0	OB 2.1 To understand principles of Mensuration and Trigonometry	MO-2.1 Perform basic mathematical calculations and solve sample probles related to Mensuration and Trigonometry	- Lecture - Use of smart class rooms - Use of instructional guidelines	- Laptop & Projector - Guideline documents	
	Module M3 Basic Science	40	0	OB 3.1 To understand principles of basic Science including System of units, Unit Conversion Mass/weight/volume/density, Work/power/energy, Velocity/Speed, elasticity	MO-3.1 Understand the concepts of basic science including : System of units, Unit Conversion MO-3.2 Define - Mass/weight/volume/density, Work/power/energy, Velocity/Speed, elasticity	- Lecture - Use of smart class rooms - Use of instructional guidelines	- Laptop & Projector - Guideline documents	
	Module M4 Basic Science	40	0	OB 4.1 To understand principles of basic Science including Heat, Pressure & Temperature and thier applications. OB 4.2 To Understand the concepts of Basic electricity - AC/DC/Voltage, Current , Resistance, Ohms law	MO-4.1 Define - Heat, Pressure & Temperature and their applications MO-4.2 Explain - AC/DC/Voltage, Current , Resistance, Ohms law	- Lecture - Use of smart class rooms - Use of instructional guidelines	- Laptop & Projector - Guideline documents	
Engineering Drawing	Module M1 Introduction to Engineering Drawing Practice	8	0	OB 1.1 To understand different instruments used in engineering drawing	MO-1.1 List various instruments used in engineering drawing MO-1.2 State uses of various drawing instruments MO-1.3 Use various instruments to draw sample exercises	- Lecture - Demonstration	- Scales, Compass, Drawing board, Clips, Mini drafter, Pencils, Drawing sheets, Stencils, Instrument box	
		10	0	OB 1.2 To understand freehand sketching, lettering and dimensioning	MO-1.4 Understand the application of freehand sketching, lettering and dimensioning, Layouting and title block MO-1.5 List various dimensioning methods MO-1.6 Solve problems based on different dimensioning methods	- Lecture - Demonstration		
	Module M2 Geometrical Drawing	20	0	OB 2.1 To understand Geometric constructions and drawings of various objects and shapes	MO-2.1 Draw lines, angles, triangles, squares, polygons, threads, fasteners based on sample exercises	- Lecture - Demonstration		

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(1002)	Module M3 Orthographic Projection	20	0	OB 3.1 To draw orthographic projections of various objects	MO-3.1 State the concept of quadrants in engineering drawing MO-3.2 Differentiate first angle and third angle projection MO-3.3 Prepare orthographic projection of given sample objects	- Lecture - Demonstration	- Laptop & Projector
	Module M4 Shop floor drawing	22	0	OB 4.1 To understand and draw shop floor drawings	MO-4.1 State the importance of shop floor drawing in industry MO-4.2 Prepare isometric drawings of given sample objects MO-4.3 Prepare assembly drawing of given sample products	- Lecture	
Professional Knowledge-I (Trade Theory) (1041)	Module M1 Basic Electronics	50	0	OB 1.1 To understand the fundamentals of Electronics which includes Understand about Basic Electricity ,Understand Passive and Active Components , Understand different types of Resistors, Capacitors and Transformers , Understand Microphone and Loud Speakers, Understand Active Components ,Describe Transistors and power devices ,Discuss IC s and Surface Mount Devices	Will be able to: MO-1.1 Explain about the active and passive components in basic electronics	- Lecture - Use of smart classrooms - Use of instructional guidelines	- Laptop & Projector - Electronic Components
	Module M2 Digital Electronics , Electronic Devices and Circuits	70	0	OB 2.1 To Explain about Number Systems , Basic Gates , Applications OB 2.2 To understand the importance of Basic Electronic Circuits : , Describe Half Wave Rectifier , Describe fullWave Rectifiers (Centre tapped and Bridge), Illustrate voltage regulator and SMPS Understand Amplifiers ,Assemble an Amplifier , Describe Oscillators	M O 2.1 To Explain about Number Systems , Basic Gates , Applications M O 2.2 To understand the importance of Basic Electronic Circuits	- Lecture - Use of smart classrooms - Demonstration	- Laptop & Projector - Electronic Components
	Module M3 Communication Systems and Industrial Safety	40	0	OB.3.1 Analog and Digital Communication OB.3.2. Describe Modulation and De Modulation OB.3.3. Understand Radio and Television Communication OB.3.4. Describe cable T V and DTH OB.3.5. Fiber to the Home - FTTH OB.3.6. Describe Mobile Communication OB.3.7. Apply the best customer relationship on pre and post servicing OB.3.8. Apply safe working practice	M.O.3.1. Discuss Analog and Digital Communication M.O.3.2. Describe Modulation and De Modulation M.O.3.3. Understand Radio and Television Communication M.O.3.4. Describe cable T V and DTH M.O.3.5. Fiber to the Home - FTTH M.O.3.6. Describe Mobile Communication M.O.3.7. Apply the best customer relationship on pre and post servicing M.O.3.8. Apply safe working practice	- Lecture - Use of smart classrooms - Demonstration	- Laptop & Projector - Electronic Components and Devices

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	Module M4 ELECTRONIC HOME APPLIANCES	80	0	OB 4.1 Basic Principle, Working and Operation of LCD/LED/Smart TVs , Home Theater Sources, Analog Audio and Video Sources, Home Theater Audio Speaker, Amplifier and Power Relationships Speaker Types and Feature, Equalization Surround Sound Options Blue Tooth and wireless connectivity , LED Light system and LED Bulbs,Tubes and Emergency Lamps Basic Theory of Electro magnetic Induction and principle of operation Induction cook top , Electrical and electronics circuit in	MO 4.1 Basic Principle, Working and Operation of LCD/LED/Smart TVs , Home Theater Sources, Analog Audio and Video Sources, Home Theater Audio Speaker, Amplifier and Power Relationships Speaker Types and Feature, Equalization Surround Sound Options Blue Tooth and wireless connectivity , MO 4.2 LED Light system and LED Bulbs,Tubes and Emergency Lamps MO 4.3 Basic Theory of Electro magnetic Induction and principle of operation Induction cook top , Electrical and electronics circuit in	- Lecture - Demonstration	- Laptop & Projector
	Module M1 Basic Electronics Workshop	0	130	OB 1.1 Make use of Multimeter , Operate Single and Dual Regulated Power Supplies , Make use of CRO/DSO ,Experiment with Function Generator , Practice neat soldering and desoldering	MO-1.1 Work with different devices and instruments required for the testing and study of Electronic circuits	- Demonstration - Practical Exercises	'- General tools & equipments used in Electronics Lab
	Module M2 Digital and Electronics Circuit Lab	0	100	OB 2.1 Verify the Truth Tables of Basic Gates with Digital IC Trainer Kit Explain Rectifiers. Discuss the types of Rectifiers. Understand the use of Filters Assemble Half wave rectifier with and without filters Assemble Full wave rectifier with and without filters Assemble Bridge rectifier Discuss various types of voltage regulators Assemble a IC Voltage Regulator Test a SMPS Explain basic theory of amplification Describe the working of Transistor Amplifier Assemble IC Power Amplifier Build up a practical Amplifier PA system assembling and test with input signals Understand basic principles of oscillations Describe Sine wave and Square wave Oscillators Assemble an Astable Multi vibrator using Transistors and IC	MO-2.1 Verify the Truth Tables of Basic Gates with Digital IC Trainer Kit Explain Rectifiers. Discuss the types of Rectifiers. Understand the use of Filters Assemble Half wave rectifier with and without filters Assemble Full wave rectifier with and without filters Assemble Bridge rectifier Discuss various types of voltage regulators Assemble a IC Voltage Regulator Test a SMPS Explain basic theory of amplification Describe the working of Transistor Amplifier Assemble IC Power Amplifier Build up a practical Amplifier PA system assembling and test with input signals Understand basic principles of oscillations Describe Sine wave and Square wave Oscillators Assemble an Astable Multi vibrator using Transistors and IC	- Demonstration - Practical Exercises	'- General tools & equipments used in Electronics Lab

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Professional Skill-I (Trade Practical) (1049)	Module M3 Communication Systems and Industrial Safety Lab	0	60	OB 3.1 Compare Analog and Digital Communication Describe Modulation and types of Modulations State need of modulation Define demodulation Know about AM/FM transmission and reception Discuss cable T V and DTH Know about Fiber communication Name Mobile phone technologies List the evolution Maintain complete customer satisfaction during the complete Service cycle. Effectively communicate with clients/ customers to gain commitment for Servicing. Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy	MO-3.1 Compare Analog and Digital Communication Describe Modulation and types of Modulations State need of modulation Define demodulation Know about AM/FM transmission and reception Discuss cable T V and DTH Know about Fiber communication Name Mobile phone technologies List the evolution Maintain complete customer satisfaction during the complete Service cycle. Effectively communicate with clients/ customers to gain commitment for Servicing. Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy	- Demonstration - Practical Exercises	'- General tools & equipments used in Electronics Lab
	Module M4 Electronic HOME APPLIANCES Lab	0	270	OB 4.1 Discuss Basic Principle, Working and Operation of LCD/LED/Smart TVs Home Theater Sources, Analog Audio and Video Sources, Digital Audio and Video Sources and Digital Media Center Home Theater A/V Processing Video Basics Signal Routing Options Audio and Video Signal Types Sound and Video Connectors Analog and Digital Connections Audio Formats Video Formats Home Theater Audio Speaker, Amplifier and Power Relationships Speaker Types and Features Equalization Surround Sound Options Blue Tooth and wireless connectivity SD/USB HDD Memory Utilization Describe LED Light system Assembling and Testing of LED Bulbs, Tubes and Emergency Lamps Basic Theory of Electro magnetic Induction and principle of operation Identify the faults in Induction cook top and rectify. Dismantle and identify various parts, wiring and tracing of various controls, Electrical and electronics circuit in Induction cook top. Replacing the Induction tube (coil) in Induction cook top.	MO-4.1 Discuss Basic Principle, Working and Operation of LCD/LED/Smart TVs Home Theater Sources, Analog Audio and Video Sources, Digital Audio and Video Sources and Digital Media Center Home Theater A/V Processing Video Basics Signal Routing Options Audio and Video Signal Types Sound and Video Connectors Analog and Digital Connections Audio Formats Video Formats Home Theater Audio Speaker, Amplifier and Power Relationships Speaker Types and Features Equalization Surround Sound Options Blue Tooth and wireless connectivity SD/USB HDD Memory Utilization Describe LED Light system Assembling and Testing of LED Bulbs, Tubes and Emergency Lamps Basic Theory of Electro magnetic Induction and principle of operation Identify the faults in Induction cook top and rectify. Dismantle and identify various parts, wiring and tracing of various controls, Electrical and electronics circuit in Induction cook top. Replacing the Induction tube (coil) in Induction cook top.	- Demonstration - Practical Exercises	'- Electronic Home Appliances in the Lab

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	Module M4 ELECTRONIC HOME APPLIANCES LAB (by OJT mode)		400	OB 1.1 Deliver and setup small home appliances OB 1.2 Deliver and setup consumer appliances -TV, Oven , Induction Cooker and Home Theater, Emergency Lamps...	MO-1.1 Familiarization of Appliances to the consumers MO1.2 - Provide basic training to the consumer	- Demonstration - Industrial Visit- Provide on call or on site services	To be completed outside the academic hours or in vacation.
		480	960	YEAR 2			
Professional Knowledge-II (Trade Theory) (2041)	Module M1 Basics of DTH	50	0	OB 1.1 Introduction to Satellite Communication Introduction to DTH , DTH Terminology and Components Introduction of Tools and Basic Electronics for DTH Role Basics of Electromagnetic Spectrum and Frequency Bands used in Satellite Communication Dish Assembly , Mount Assembly	MO-1.1 Introduction to Satellite Communication Introduction to DTH , DTH Terminology and Components Introduction of Tools and Basic Electronics for DTH Role Basics of Electromagnetic Spectrum and Frequency Bands used in Satellite Communication Dish Assembly , Mount Assembly	- Lecture - Use of smart class rooms	- Laptop & Projector
	Module M2 BASICS OF CABLE TV	50	0	OB 2.1 Basics of Digital Cable Technology - Evoluton of Cable and Satellite Television Headend System and Distributon Network MultiPlay Digital Services - Access Network Architecture	MO-2.1 Basics of Digital Cable Technology - Evoluton of Cable and Satellite Television Headend System and Distributon Network MultiPlay Digital Services - Access Network Architecture	- Lecture	- Laptop & Projector
	Module M3 BASICS OF UPS AND INVERTER	65	0	OB 3.1 Introduction to UPS Block Diagram of UPS Functions of Basic elements Working Principle of UPS General Types of UPS in use Introduction to Inverter Block Diagram of Inverter and functions of each element Working Principle of Inverter and its applications- Screw threads, Taps & Dies : Screw thread Terminology, applications - Nut, Bolt, Keys, Other Fastenings - Gauges - Interchangeability - Importance of surface finish - Limits, Fits & Tolerance - Precision measuring instruments Linear, Angular & Surface	MO - 3.1 Introduction to UPS Block Diagram of UPS Functions of Basic elements Working Principle of UPS General Types of UPS in use Introduction to Inverter Block Diagram of Inverter and functions of each element Working Principle of Inverter and its applications	- Lecture - Demonstration - Use of smart class rooms	- Laptop & Projector

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	Module M4 BASICS OF SOLAR ENGINEERING	35	0	OB 4.1 To understand the solar cell To understand the working solar cell PN junction Learn the working of Solar Panel	MO-4.1 To understand the solar cell To understand the working solar cell PN junction Learn the working of Solar Panel	- Lecture - Demonstration - Use of smart class rooms	- Laptop & Projector
Employability Skills & Entrepreneurship (2001)	Module M1 English & Communication	5	10	OB 1.1 To understand communication and self management skills OB 1.2 To understand English Literacy - functional English, reading & writing	MO-1.1 Demonstrate knowledge of various methods of communication - verbal, non-verbal-visual; Greetings & self introduction, Asking & responding to question, formal & informal communication MO-1.2 Demonstration of writing sentences and paragraphs on topics related to the subject, discussions on current happenings	- Lecture - Demonstration - Use of smart class rooms - Mock discussions, Interviews	- Laptop & Projector
	Module M2 Communication & Behavioral Skills	5	10	OB 2.1 To understand Behavioral skills - Personal strength analysis, social responsibility, role modeling	MO-2.1 Identify specific do's and don'ts for avoiding common body language mistakes MO-2.2 Execute time management and planning skills, Skills to crack interviews MO-2.3 Demonstration of impressive appearance and groomed personality, ability to self- explore MO-2.4 Display professionalism at the institute and workplace	- Lecture - Demonstration - Use of smart class rooms - Mock discussions, Interviews	- Laptop & Projector
	Module M3 Information Technology	20	40	OB 3.1 To understand Information and communication technology skills OB 3.2 To be familiar with internet and its applications	MO-3.1 Understand the basics of computers, Operating system, MS-Word, MS-Excel software's MO-3.2 Create simple documents like - resume, letter writing, job application etc., MO-3.3 Printing document, Familiar with usage of shortcuts, Creating and Editing of Text, Formatting the Text. MO-3.4	- Lecture - Demonstration - Use of smart class rooms	- Laptop & Projector
	Module M4 Entrepreneurship	25	5	OB 4.1 To understand Entrepreneurial skills	MO-4.1 Describe the significance of entrepreneurial values and attitude. MO-4.2 Demonstrate the knowledge of attitudinal changes required to become an entrepreneur MO-4.3 Explain the ways to set up an enterprise and different aspects involved viz., legal, compliances, Marketing aspect, Budgeting,	- Lecture - Demonstration - Use of smart class rooms	- Laptop & Projector

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	Module 1 DTH INSTALLATION AND SERVICE	0	220	OB 1.1 DTH Packages and Products Practicals on Frequency Bands used in Satellite Communication DTH Installation Working and Operation of Digital Satellite Finder Connectorization Signal Peaking HD PVR Installation and VOD connection Troubleshooting Demo of DTH SD/HD Box	MO-1.1 DTH Packages and Products Practicals on Frequency Bands used in Satellite Communication DTH Installation Working and Operation of Digital Satellite Finder Connectorization Signal Peaking HD PVR Installation and VOD connection Troubleshooting Demo of DTH SD/HD Box	- Demonstration - Practical Exercises	- DTH settop box and Basic tools used in DTH
	Module 2 CABLE TV INSTALLATION AND SERVICE	0	240	OB 2.1 -Tools and Equipment -Building Access Network for DOCSIS -Building Outside plant of Fibre Access Network Laying coaxial cables, carrying out installation and connectorization of actives and passives Carrying out installation of power inserter and balancing and commissioning of amplifier Pre-installation and installation process of Set Top Box (STB) Cater to customer complaints by troubleshooting and maintenance of set top box Understand application and Networking of Optical Devices using different OF Cables Laying Optical Fiber cables, carrying out installation and connectorization of actives and passives Carrying out installation of OF Cable Joints (Splicing) , Different Types of OF Closures Pre-installation and installation process of Set Top Box (STB) and Optical Modem for OF cables	MO-2.1 -Tools and Equipment -Building Access Network for DOCSIS -Building Outside plant of Fibre Access Network Laying coaxial cables, carrying out installation and connectorization of actives and passives Carrying out installation of power inserter and balancing and commissioning of amplifier Pre-installation and installation process of Set Top Box (STB) Cater to customer complaints by troubleshooting and maintenance of set top box Understand application and Networking of Optical Devices using different OF Cables Laying Optical Fiber cables, carrying out installation and connectorization of actives and passives Carrying out installation of OF Cable Joints (Splicing) , Different Types of OF Closures Pre-installation and installation process of Set Top Box (STB) and Optical Modem for OF cables .	- Demonstration - Practical Exercises	CABLE TV Service Equipemnts and Devices
Professional Skill-II (Trade Practical) (2049)	Module 3 UPS and Inverter Installation and Service	0	250	OB 3.1 UPS Installation Trouble shooting of UPS Distributors of UPS Installation of Inverter Trouble shooting of Inverter Distributors of Inverter	MO-3.1 UPS Installation Trouble shooting of UPS Distributors of UPS Installation of Inverter Trouble shooting of Inverter Distributors of Inverter	- Demonstration - Practical Exercises	UPS and Inverter and associated equipments
	Module 4 Solar Panel Installation and Service	0	250	OB 4.1 To understand the VI chara of solar cell and applications." To understand the construction of Solar Panel Learn the steps involved in installation of Solar Panel Learn the steps involved in trouble shooting of Solar Panel	MO 4.1 To understand the VI chara of solar cell and applications." To understand the construction of Solar Panel Learn the steps involved in installation of Solar Panel Learn the steps involved in trouble shooting of Solar Panel	- Demonstration - Practical Exercises	

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Project Work (2008)	1.Students Project Work	0	160	OB 1.1 To be familiar with industrial environment and production process	Employ skills acquired to solve problems of social significance of	- Demonstration - Industrial Visit	