



**Bachelor of Science**  
**Electronics Semester: I (Major)**

Course Code	US01MAELE01	Title of the Course	Electronic Components.
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	The course is to make the students understand the fundamentals of electronic components, Network theorems and Power supplies.
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Course Content		
Unit	Description	Weightage In %
1.	<b>Resistors:</b> General Information, resistance of resistor and Symbol, Resistor Types: Carbon composition, Carbon film, Wire wound, Colour Coding, Variable resistors, Potentiometers, Rheostats. <b>Capacitors:</b> General Information and Symbol, Capacitance of Capacitors. Capacitor Types: Mica, Ceramic, Paper and Electrolytic Capacitors and Variable capacitors. <b>Inductor:</b> General information and Symbol. Inductor Types: Air-core, Iron-core and Ferrite-core inductor. Inductance of Inductor, Variable inductance.	25
2.	<b>Network Theorems:</b> Series and Parallel Connections of Resistors. Series and Parallel Connections of Capacitors, Series and Parallel Connections of Inductors. Ohm's Law, Kirchhoff's Voltage and Current laws, Superposition theorem, Network analysis by Mesh Currents, Circuit analysis by Node Pair voltages, Thevenin's theorem, Norton theorem, Thevenin-Norton conversion.	25
3	<b>Diodes:</b> PN Junction theory, Forward Biased PN junction, Reverse Biased PN junction, VI characteristics of PN Junction diode. <b>DC Power Supplies:</b> Block Diagram of Power supply. Rectifiers: Half wave, Centre tapped and Bridge type Full wave. Filters: Series Inductors, shunt capacitor, LC Filter and PI filter.	25
4	<b>Special type Diodes:</b> Zener Diode, Voltage regulation, Zener diode as peak clipper, Meter protection, Tunnel effect, Tunnel diode, Tunnel diode oscillator, Varactor diode, PIN diode, Schottky diode, Light emitting diode, Thermistor.	25





Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive electronic components and to analyze their simple circuit using network theorems.
2.	Make students understand basic electronics circuits and their troubleshooting.
3.	Helps to understand the various diodes and their applications.
4.	Make students understand and troubleshooting of diode circuits.

Suggested References:	
Sr. No.	References
1.	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.
2.	Electrical Engineering Fundamentals By Del Toro.
3.	Electronics Devices and Circuits By David A. Bell.

On-line resources to be used if available as reference material
On-line Resources





**Bachelor of Science  
Electronics Semester: I  
(Major) Practicals**

Course Code	US01MAELE02	Title of the Course	Electronics Practicals.
Total Credits of the Course	4	Hours per Week	8

Course Objectives:	To make the students understand the fundamentals of electronics components and Power supplies, Cathode Ray Oscilloscope and their applications.
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**Part -1**

Course Content		
No	Title of Practical	
1.	Study of Multimeter and Power Supply.	
2.	Study of CRO.	
3.	CRO Applications.	
4.	Self Inductance of Coil.	
5.	Capacitance of Capacitor.	
6.	Charging and discharging of capacitor.	
7.	Study of Transformer.	
8.	Measurement of Resistor using VI Method.	
9.	Other experiments based on Theory.	

**Part -2**

Course Content		
No	Title of Practical	
1.	Forward Characteristics of PN junction Diode.	
2.	Reverse Characteristics of PN junction Diode.	
3.	Study of Half wave rectifiers.	
4.	Study of Full wave rectifiers.	





5.	Study of Filter Circuits.	
6.	Characteristic of Thermistor	
7.	Zener diode as Voltage regulator.	
8.	Clipping Circuit using Zener Diode.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive and active electronics components.
2.	Make students understand basic electronics circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.
2.	Electrical Engineering Fundamentals By Del Toro.

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**Bachelor of Science**  
**Electronics**  
**Semester: I**  
**(Minor)**

Course Code	US01MIELE01	Title of the Course	Basic Electronics.
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	The course is to make the students understand the fundamentals of electronic components and network theorems.
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Course Content		
Unit	Description	Weightage In %
1.	<b>Resistors:</b> General Information, resistance of resistor and Symbol, Resistor Types: Carbon composition, Carbon film, Wire wound, Colour Coding, Variable resistors, Potentiometers, Rheostats. <b>Capacitors:</b> General Information and Symbol, Capacitance of Capacitors. Capacitor Types: Mica, Ceramic, Paper and Electrolytic Capacitors and Variable capacitors. <b>Inductor:</b> General information and Symbol. Inductor Types: Air-core, Iron-core and Ferrite-core inductor. Inductance of Inductor, Variable inductance.	50
2.	<b>Network Theorems:</b> Series and Parallel Connections of Resistors. Series and Parallel Connections of Capacitors, Series and Parallel Connections of Inductors. Ohm's Law, Kirchhoff's Voltage and Current laws, Superposition theorem, Network analysis by Mesh Currents, Circuit analysis by Node Pair voltages.	50

Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive electronic components and to analyze their simple circuit using network theorems.
2.	Make students understand basic electronics circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.
2.	Electrical Engineering Fundamentals By Del Toro.

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**Bachelor of Science**  
**Electronics**  
**Semester: I**  
**(Minor)**  
**Practicals**

Course Code	US01MIELE02	Title of the Course	Electronics Practicals
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	To make the students understand the fundamentals of electronics components and Power supplies, Cathode Ray Oscilloscope and their applications.
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Course Content		
No	Title of Practical	
1.	Study of Multimeter and Power Supply.	
2.	Study of CRO.	
3.	CRO Applications.	
4.	Self Inductance of Coil.	
5.	Capacitance of Capacitor.	
6.	Charging and discharging of capacitor.	
7.	Study of Transformer.	
8.	Measurement of Resistor using VI Method.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
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1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive and active electronics components.
2.	Make students understand basic electronics circuits and their troubleshooting.

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1.	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.
2.	Electrical Engineering Fundamentals By Del Toro.

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**Bachelor of Science  
Electronics Semester: I  
(Inter Disciplinary)**

Course Code	US01IDELE01	Title of the Course	Fundamentals of Electronics.
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	The course is to make the students understand the fundamentals of electronic components and network theorems.
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Course Content		
Unit	Description	Weightage In %
1.	<b>Resistors:</b> General Information, resistance of resistor and Symbol, Resistor Types: Carbon composition, Carbon film, Wire wound, Colour Coding, Variable resistors, Potentiometers, Rheostats. <b>Capacitors:</b> General Information and Symbol, Capacitance of Capacitors. Capacitor Types: Mica, Ceramic, Paper and Electrolytic Capacitors and Variable capacitors. <b>Inductor:</b> General information and Symbol. Inductor Types: Air-core, Iron-core and Ferrite-core inductor. Inductance of Inductor, Variable inductance.	50
2.	<b>Network Theorems:</b> Series and Parallel Connections of Resistors. Series and Parallel Connections of Capacitors, Series and Parallel Connections of Inductors. Ohm's Law, Kirchhoff's Voltage and Current laws, Superposition theorem, Network analysis by Mesh Currents, Circuit analysis by Node Pair voltages.	50

Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive electronic components and to analyze their simple circuit using network theorems.
2.	Make students understand basic electronics circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.
2.	Electrical Engineering Fundamentals By Del Toro.

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**Bachelor of Science  
Electronics Semester: I  
(Inter Disciplinary)  
Practicals**

Course Code	US01IDELE02	Title of the Course	Electronics Practicals
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	To make the students understand the fundamentals of electronics components and Power supplies, Cathode Ray Oscilloscope and their applications.
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Course Content		
No	Title of Practical	
1.	Study of Multimeter and Power Supply.	
2.	Study of CRO.	
3.	CRO Applications.	
4.	Self Inductance of Coil.	
5.	Capacitance of Capacitor.	
6.	Charging and discharging of capacitor.	
7.	Study of Transformer.	
8.	Measurement of Resistor using VI Method.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work
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Evaluation Pattern		
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1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
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1.	Helps to understand the various passive and active electronics components.
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