PEOPLE'S UNIVERSITY, BHOPAL
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Programme: **Diploma in Engineering**   **Semester –IV**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (70)	Internal (30)	Total (100)	External (Nil)	Internal (Nil)	Total
DPE14011	**E-Commerce and E- Business**	3	1	-			Min: 40 (D Grade)			Nil

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: Nil	Lab work & Sessional - Max Marks: Nil	Assignment/Quiz/Attendance – Max. Marks: Nil

Pre-Requisite	Nil
Course Outcome	To understand technical aspect of E-commerce and E-Business.
	To describe the process of E-commerce and E-business
	To understand Infrastructure design issues of E-commerce

Unit	Contents *(Theory)*	Marks Weightage
I	**Introduction of E-Commerce**: Definition of E-Com , different types of E-com , E -commerce trade cycle , Advantages and disadvantages of E-com , Traditional commerce Vs E commerce.	14
II	**Overview of Hardware and Software Technologies of E-Commerce:** Client side programming (Dream weaver , Front page), Server side programming (PHP) , Database connectivity , session tracking , middleware technologies from E- com.	**14**
III	**Payment System of E-Commerce**: Traditional payment model , Characteristics of payment, system, SET Protocol for credit card payment, E-cash, E-check, smart cards.	**14**
IV	**Introduction to E business :** Definition of E business , Characteristics , elements of e business, roles , Impact of E business , challenges of E business. .	**14**
V	**Developing E Business-models:** E- business structure , Evolution of E – business and its business models stages , Characteristics of Internet based software and E- business solutions.	**14**

Text Book/References Books/ Websites

1. Henry Chan; E-Commerce Fundamentals and application; Wiley publication
2. Dave Chaffey; E –business and E – commerce Management; Pearson, 3rd edition

Suggested List of Laboratory Experiments :- (Expandable):*Nil*

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	**T**	**P**	**External (70)**	**Internal (30)**	**Total (100)**	**External (Nil)**	**Internal (Nil)**	**Total**
DPE14012	**Rural Technology & Community Development**	**3**	**1**	**-**			**Min: 40 (D Grade)**			**Nil**

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: Nil	Lab work & Sessional Max Marks: Nil	Assignment/Quiz/Attendance – Max. Marks: Nil

Pre-Requisite	**Nil**	
Course Outcome	1.	To understand Rural areas problems
	2.	To describe the process by which we improve the living conditions of rural India.
	3.	To understand how we help community of rural areas

Unit	Contents (Theory)	Marks Weightage
I	**Introduction:** Definition, various sources, types of waste, problem associated with waste, effects of waste- on society, on human health, on animals. Recycling of waste.	14
II	**Municipal & Solid waste:** Definition-Sources of solid waste, types of solid waste, Composition of solid waste, collection methods and techniques of solid waste, industrial & agricultural waste.	**14**
III	**Hazardous & E-waste**: Definition- sources of hazardous waste, collection of hazardous waste. Medical waste & Nuclear waste, disposal method and treatment. Definition- sources of E-Waste, E-waste – non-recycling impacts, recycling of e-waste.	**14**
IV	**Collection, Treatment & Disposal:** methods of residential and commercial waste collection, collection vehicles, manpower. Segregation & composting of solid wastes. Method & techniques for treatment of solid waste.	**14**
V	**Disposal of Solid Wastes:** Refuse disposal systems, incinerations, principle features of an incinerator, site selection and plant layout of an incinerator. Sanitary landfill, advantages and disadvantages of sanitary land fill - site selection. Dumping-open & sea dumping.	**14**

Text Book/References Books/ Websites

1. Vikram Singh ; Rural Development in India; Satyam Law International.

2. Katar Singh; Rural Development Principle Policies & Management;

3. Jerry W. Rabinson; Introduction to Community Development; SAGE.

4. Rhonda Phillips, Robert H. Pittman; An Introduction to Community Development; Taylor & Fransis

Suggested List of Laboratory Experiments :- (Expandable):*Nil*

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	**T**	**P**	**External (70)**	**Internal (30)**	**Total (100)**	**External (Nil)**	**Internal (Nil)**	**Total**
DPE14013	**Waste Management**	3	1	-			Min: 40 (D Grade)			Min: Nil

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: Nil	Lab work & Sessional – NIL Max Marks: NIL	Assignment/Quiz/Attendance – Max. Marks: NIL

Pre-Requisite	**Nil**
Course Outcome	1. Ability to understand about basic concept of waste management.
	2. Ability to understand about recycling of various wastes.
	3. Ability to understand about waste collection, handling and disposal.

Unit	Contents (Theory)	Marks
I	**Introduction:** Definition, various sources, types of waste, problem associated with waste, effects of waste- on society, on human health, on animals. Recycling of waste.	**14**
II	**Municipal & Solid waste:** Definition-Sources of solid waste, types of solid waste, Composition of solid waste, collection methods and techniques of solid waste, industrial & agricultural waste.	**14**
III	**Hazardous & E-waste**: Definition- sources of hazardous waste, collection of hazardous waste. Medical waste & Nuclear waste, disposal method and treatment. Definition- sources of E-Waste, E-waste – non-recycling impacts, recycling of e-waste.	**14**
IV	**Collection, Treatment & Disposal:** methods of residential and commercial waste collection, collection vehicles, manpower. Segregation & composting of solid wastes. Method & techniques for treatment of solid waste.	**14**
V	**Disposal of Solid Wastes:** Refuse disposal systems, incinerations, principle features of an incinerator, site selection and plant layout of an incinerator. Sanitary landfill, advantages and disadvantages of sanitary land fill - site selection. Dumping-open & sea dumping.	**14**

Text Book/References Books/ Websites

1. Jagbir Singh, AL. Ramanathan; Solid Waste Management: Present and future challenges; I.K. International Publishing House Pvt Ltd
2. George Tchobanoglous and Hillary theisen, Samuel Vigil; Integrated solid waste management, McGraw Hill.
3. T. V. Ramachandra; Management of Municipal Solid Waste; TERI press.

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Suggested List of Laboratory Experiments :- (Expandable):*Nil*

Subject Code	Subject Title	Credit			Theory			Practical		
		L	**T**	**P**	**External (70)**	**Internal (30)**	**Total (100)**	**External (Nil)**	**Internal (Nil)**	**Total**
DEC1402	**Signal & System**	3	1	-			Min: 40 (D Grade)			Min: Nil

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: Nil	Lab work & Sessional – Nil Max Marks: Nil	Assignment/Quiz/Attendance – Max. Marks: Nil

Pre-Requisite	Basic Knowledge of analog & Digital Signals.
Course Outcome	1. Properties of Various signal & Systems.
	2. Properties and applications of Fourier Transform.
	3. Properties and applications of Laplace Transform.

Unit	Contents (Theory)	Marks Weightage
I	**Signals:** Analog & Digital Signals, Continuous time signals, Discrete time signals, Basic elementary signals- Unit Step, Unit Ramp and Unit Impulse signal. Periodic & Non Periodic signals, Even & Odd signals, Power & Energy signals.	**14**
II	**Classification of systems**: CT systems and DT systems- – Linear & Nonlinear, Time-variant & Time-invariant system, Causal & Non-causal system, Stable & Unstable system. Numerical based on system.	**14**
III	**Laplace Transform:** (LT) of continuous time signals, Properties of Laplace transform (Linearity, Time shifting, Time scaling, Time Reversal, Differentiation in s-domain, Differentiation in time domain, Integration in time domain, Initial & Final value theorem).	**14**
IV	**Fourier Series**: Fourier series of continuous time signals, Trigonometric & Exponential Fourier series. Questions based on Fourier Series.	**14**
V	**Fourier Transform:** Fourier transform of continuous time signals (CTFT), Properties of Fourier transform (Linearity, Time shifting, Time scaling, Time reversal, Frequency shifting, Multiplication etc).Numerical based on Fourier Transform.	**14**

Text Book/References Books/ Websites

1.   Dr. Sanjay Sharma; Signals & Systems; Katson Publications.

2.   Farooq Hussain ;Signals & Systems; Umesh Publication.

3.   B.P.Lathi; Signal & System; B.S.Publication.

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Suggested List of Laboratory Experiments :- (Expandable):*Nil*

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (70)	Internal (30)	Total (100)	External (35)	Internal (15)	Total (50)
DEC1403	Electronic Circuit	3	1	1	External (70)	Internal (30)	Min: 40 (D Grade)	External (35)	Internal (15)	Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment/Quiz/Attendance – Max. Marks: 05

Pre-Requisite	Basic Knowledge of Semiconductor Physics.
Course Outcome	1. Ability to understand basics of Amplifiers.
	2. Properties and applications of various Types of Power Amplifiers.
	3. Properties and applications of Transistor & OPAMP.

Unit	Contents (Theory)	Marks Weightage
I	**Field Effect Transistor:** Construction – Working principle of FET – Difference between FET and BJT –Characteristics of FET – Applications – FET amplifier (Common source amplifier). **Uni-Junction Transistor:** Construction – Equivalent circuit – Operation – Characteristics, applications.	14
II	**Operational amplifier:** Differential amplifier specifications, ideal and practical OPAMP characteristics, slew rate **Applications of Op-Amp:** Inverting and non-inverting amplifier Analog computation, summer (inverting and non-inverting), average, integrator, differentiator, scalar, log and antilog amplifier.	14
III	**Feedback amplifier**: positive and negative feedback loop gain, effect of negative feedback on gain stability, distortion, and bandwidth, input and output impedance of amplifier, types of feedback (voltage, current, series and shunt).	14
IV	**Oscillators**: condition of sustained oscillation, RC phase shift, LC (Hartley and Collpit) Oscillators, Wein Bridge, Negative resistance (Tunnel diode and UJT) oscillators, crystal oscillators.	14
V	**Power amplifier**: classification, operation, analysis and design of Class A, Class B, Class-AB, Class C, transformer coupled, push pull and complementary symmetry amplifiers, power dissipation in transistors and efficiency calculations.	14

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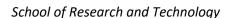Programme: **Diploma in Engineering**   **Semester –IV**

Text Book/References Books/ Websites

1. V.K.Mehta; Principle of Electronics; S.CHAND Publications.

2. Dr.R.S.Sedha; Electronic Devices & Circuits; S.CHAND Publications.

3. Sanjeev Gupta; Electronic Devices & Circuits; Dhampat Rai Publications.

4. Sendra and Smith; Microelectronics; Oxford Press.

5. Gayakwad; OPAMP and Linear Integrated Circuits; Pearson Education.

Suggested List of Laboratory Experiments :- (Expandable):

1. To Study of feedback amplifier.

2. To study the characteristic of hartleys oscillator.

3. To study the characteristic of Collpit oscillator.

4. To study of Class A, Class B & Class AB Amplifier.

5. To study the characteristic of FET.

6. To Study the OPAMP as a Summing Amplifier.

7. To Study the OPAMP as a Scaling Amplifier.

8. To Study the differential amplifier.

9. To Study of OPAMP as an Integrator & Differentiator.

10. To Study the OPAMP as a Logarithmic & anti-logarithmic amplifier.

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	**T**	**P**	**External (70)**	**Internal (30)**	**Total (100)**	**External (35)**	**Internal (15)**	**Total (50)**
DEC1404	**Digital Electronics-II**	3	1	1			Min: 40 (D Grade)			Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment/Quiz/Attendance – Max. Marks: 05

Pre-Requisite	Basic Knowledge of Digital System.
Course Outcome	1. Ability to understand basics of digital information storage.
	2. Properties and applications of various Types of registers and counters.
	3. Properties and applications of various memories and multivibrators.

Unit	Contents (Theory)	Marks Weightage
I	**Sequential Logic Circuits**: Definition of Sequential circuits, Definition of Latch & Flip-Flop and their differences. RS Flip-Flop, JK Flip-Flop, D Flip-Flop, JK Master-Slave Flip-Flop with truth tables. Triggering of FF – edge & level.	**14**
II	**Registers:** Definition of Register, Shift Register (SISO, SIPO, PISO, and PIPO), and Buffer Register with their truth tables. **Counters-** Synchronous & Asynchronous counter, up-down counter, decade counter.	**14**
III	**Memories:** RAM organization - Address Lines and Memory Size, Read/write Operations, Static RAM - Bipolar RAM cell, Dynamic RAM, SD RAM, and DDR RAM. Read only Memory, ROM organization, Expanding memory, PROM, EPROM, and EEPROM.	**14**
IV	**Multivibrators:** Astable, Monostable & Bistable Multivibrator and their Comparison .555 Timer & its application.	**14**
V	**Converters:** Analog to Digital & Digital to Analog Convertor.various types of A to D and D to A conveters.Flash & Successive approximation converter, weighted resistor & R-2R Ladder converter.	**14**

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Text Book/References Books/ Websites

1. Morris Mano; Digital Design; Prentice Hall of India Pvt. Ltd.

2. H.Taub & D. Schilling; Digital Integrated Electronics; McGraw Hill.

3. Douglas L. Perry VHDL; McGraw Hill, Inc; 2nd Edition, 1993.

4. J.Millman and Halkias; "Integrated Electronics, Analog and Digital Circuits and Systems; Tata McGraw Hill.

5. A.Anand Kumar; Digital Electronics; TMH.

Suggested List of Laboratory Experiments :- (Expandable):

01. To Study RS flip flop.

02. To Study D flip flop

03. To Study JK-flip flop

04. To Study shift Registers.

05. To Study Astable Multivibrator.

06. To Study Monostable Multivibrator.

07. To Study 555 Timer.

08. To Study Synchronous counter.

09. To Study Asynchronous counter.

10. To Study Decade Counter.

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (70)	Internal (30)	Total (100)	External (35)	Internal (15)	Total (50)
DEC1405	Analog Communication	3	1	1			Min: 40 (D Grade)			Min: 20 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: 30	Best of Two Mid Semester Test – Max Marks: 15	Assignment/Quiz/Attendance – Max. Marks: 15
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment/Quiz/Attendance – Max. Marks: 05

Pre-Requisite	Basic Knowledge of Analog signal & systems.
Course Outcome	1. Ability to understand Communication system.
	2. Properties and applications of various types of modulation.
	3. Properties and applications of Angle modulations.

Unit	Contents (Theory)	Marks Weightage
I	**Communication System:** Introduction to Analog and Digital signals, Basic difference between analog & digital signal, Basic communication system, Elements of communication system - Transmitters, Transmission channels & receivers, Applications of communication system, Introduction to analog and digital communication.	14
II	**Modulation & Demodulation:** Introduction to Modulation & demodulation, Need of Modulation, Types of Modulation, Introduction to Amplitude modulation, Phase Modulation & Frequency Modulation.	14
III	**Amplitude Modulation:** Time domain representation of AM signal (expression derived using a single tone message), modulation index , frequency domain (spectral) representations, illustration of the carrier and side band components; transmission bandwidth for AM Modulation, Calculation of Transmitted power & sideband power & Efficiency of Full AM system.	14
IV	**Modulations Techniques:** Double side band suppressed carrier (DSB-SC) modulation: time and frequency domain expressions, bandwidth and transmission power for DSB, Single side band modulation with suppressed carrier (SSB-SC) and basic concept of VSB, Spectra and band-width.	14
V	**Angle Modulation:** Frequency Modulation (FM) and Phase Modulation (PM): Time and Frequency domain representations, Spectral representation of FM and PM for a single tone message, General Equations of PM & FM, Carson's Rule for Bandwidth determination.	14

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Text Book/References Books/ Websites

1. B.P. Lathi; Modern Analog and Digital Communication System; Wiley Eastern limited.

2. Taub and Schilling; Principles of communication Systems; TMH Publications.

3. Singh and Sapre; Communication Systems; TMH Publications.

4. S Haykin; Communication Systems; John Wiley and Sons Inc.

Suggested List of Laboratory Experiments :- (Expandable):

1. To Perform DSB Amplitude Modulation.

2. To Perform DSB Amplitude Demodulation.

3. To Perform SSB Amplitude Modulation.

4. To Perform SSB-SC Amplitude Modulation.

5. To Perform Frequency Modulation.

6. To Perform Frequency Demodulation.

7. To Perform Phase Modulation.

8. To Perform Phase Demodulation.

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DEC1406	Software Lab	L	T	P	External (Nil)	Internal (Nil)	Total	External (35)	Internal (15)	Total (50)
		-	-	1			Nil			Min: 20 (D Grade)

Duration of Theory (Externals): Nil

Theory Internal- Max Marks: Nil	Best of Two Mid Semester Test – Max Marks: Nil	Assignment/Quiz/Attendance – Max. Marks: Nil
Practical Internal Max Marks: 15	Lab work & Sessional – Max Marks: 10	Assignment/Quiz/Attendance – Max. Marks: 05

Pre-Requisite	**Nil**
Course Outcome	Ability to Understand Electronic Software's and their uses.

Unit	Contents (Theory)	Marks Weightage
I	**Study of circuit simulation software (any one-TINA-PRO/PSPICE/CIRCUIT MAKER/ GPSIM/SAPWIN/ Mentor PADS etc).** Overview and Study of the key features and applications of the software. Application of the software in the field of Electronic Devices, Electronic Instrumentation and Network Analysis. Design, Optimization and simulation of 1. Basic Electronic circuits (examples rectifiers, clippers, clampers, diode, transistor characteristics etc). 2. Transient and steady state analysis of RL/ RC/ RLC circuits, realization of network theorems. 3. Use of virtual instruments built in the software.	**50**

Text Book/References Books/ Websites: Nil

Suggested List of Laboratory Experiments :- (Expandable):

1. To Design, Optimization and simulation of rectifiers.

2. To Design, Optimization and simulation of diode.

3. To Design, Optimization and simulation of transistor.

4. To Design, Optimization and simulation of clippers and clampers.

5. To Design, Optimization and simulation of transient and steady state analysis of RL/ RC/ RLC circuits.

6. To Design, Optimization and simulation of realization of network theorems

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Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (Nil	Internal (Nil)	Total	External (70)	Internal (30)	Total (100)
DEC-407	**Industrial Training-I**	-	-	2			Nil			Min: 40 (D Grade)

Duration of Theory (Externals): -Nil

Theory Internal- Max Marks: -Nil	Best of Two Mid Semester Test – Max Marks: -Nil	Assignment/Quiz/Attendance Max. Marks: -Nil
Practical Internal Max Marks: 30	Lab work & Sessional – Max Marks: 25	Assignment / Quiz/ Attendance Max. Marks: 05

Pre-Requisite	Fundamental Engineering concepts.
Course Outcome	1. To develop general confidence, ability to communicate and attitude, in addition to basic technological concepts through Industrial visits, expert lectures, seminars on technical topics and group discussion. 2. Ability to learn actual working environment.

Unit	Contents (Theory)	Marks Weightage
I	As a part of the Diploma in Engineering curriculum, DPE 407, Industrial Training -I is a Practical course, which the students should undergo in reputed Private / Public Sector / Government organization / companies as industrial training of minimum two weeks to be undergone by the student in the semester break after III semester theory examinations. **Training period**: Minimum of two weeks or 15 (Fifteen) Days. **Companies / Areas covered**: Any field related to concern branch / discipline of Diploma in Engineering. **Grading**: As per Scheme. **Note:** Presentation will take place the following week after you complete your training. The presentation is evaluated by your class in-charge. Report must be submitted during power point presentation. A Viva voce comprising comprehensive questions based on training undergone. **Etiquette:** Dress properly, Behave well, Portray good image as a university student, Be punctual, Observe work ethics, Concern for safety, Be professional.	100

Text Book/References Books/ Websites: Nil
Suggested List of Laboratory Experiments :- (Expandable): Nil

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