PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MTUP13101	Industrial Safety	3	1	-	(70)	(30)	Min: 40 (D Grade)	(Nil)	(Nil)	(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	Functioning of Engineering equipments and industry work culture.
Course Outcome	1. Student should be able to apply standard safety procedures in an industrial environment.
	2. An ability to identify, formulate, and solve broadly-defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the safety.

Unit	Contents (Theory)	Marks Weightage
I	**Industrial Safety:** Accident, Causes, Types, Results and control, Mechanical and electrical hazards, Types, Causes and preventive steps/procedure, Describe salient points of factories act 1948 for health and safety, Wash rooms, Drinking water layouts, Light, Cleanliness, Fire, Guarding, Pressure vessels, etc, Safety color codes, Fire prevention and firefighting, Equipment and methods.	**14**
II	**Fundamentals Of Maintenance Engineering:** Definition and aim of maintenance engineering, Primary and secondary functions and responsibility of maintenance department, Types of maintenance, Types and applications of tools used for maintenance, Maintenance cost & its relation with replacement economy, Service life of equipment.	**14**
III	**Wear And Corrosion And Their Prevention:** Wear- Types, Causes, Effects, Wear reduction methods, Lubricants-types and applications, Lubrication methods, General sketch, Working and applications of screw down grease cup, Pressure grease gun, Splash lubrication, Gravity lubrication, Wick feed lubrication, Side feed lubrication, Ring lubrication, Definition, Principle and factors affecting the corrosion, Types of corrosion, Corrosion prevention methods.	**14**
IV	**Fault Tracing:** Fault tracing-concept and importance, Decision tree concept, Need and applications, Sequence of fault finding activities, Show as decision tree, Draw decision tree for problems in machine tools, Hydraulic, Pneumatic, Automotive, Thermal and electrical equipment's like, Any one machine tool, Pump ,Air compressor, Internal combustion engine, Boiler, Electrical motors, Types of faults in machine tools and their general causes.	**14**
V	**Periodic and Preventive Maintenance**: Periodic inspection-concept and need, Degreasing, Cleaning and repairing schemes, Overhauling of mechanical components, Overhauling of electrical motor, Common troubles and remedies of electric motor, Repair complexities and its use, Definition, need, Steps and advantages of preventive maintenance, Steps/procedure for periodic and preventive maintenance of, Machine tools, Pumps, Air compressors, schedule of preventive maintenance of mechanical and electrical equipment, Advantages of preventive maintenance, Repair cycle, concept and importance.	**14**

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Text Book/References Books/ Websites:

1. Maintenance Engineering Handbook; Higgins & Morrow; Da Information Services.
2. Maintenance Engineering; H. P. Garg; S. Chand and Company.
3. Pump-hydraulic Compressors; Audels; Mcgrew Hill Publication.
4. Foundation Engineering Handbook; Winterkorn; Hans; Chapman & Hall London

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

PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MTUP13102	Waste to Energy	3	1	-	(70)	(30)	Min: 40 (D Grade)	(Nil)	(Nil)	(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. Student should be able to apply the knowledge about the operations of waste to energy plants.
	2. Apply the knowledge in planning and operations of waste to energy plants.
	3. Able to analyze the various aspects of waste to energy management systems.

Unit	Contents (Theory)	Marks Weightage
I	**Introduction to Energy from Waste:** Classification of waste – agro based, Forest residues, Domestic waste, Industrial waste (hazardous and non-hazardous), Characterization of waste for energy utilization, Conversion devices – Incinerators, Gasifiers, digestors ,Waste production in different sectors i.e. domestic, Industrial, Agriculture, Postconsumer waste etc. Waste Selection criteria.	**14**
II	**Technologies for Waste to Energy Biochemical Conversion** – Energy production from organic waste through anaerobic digestion and fermentation, Thermo-chemical conversion – combustion, Incineration and heat recovery, Pyrolysis, Gasification, Plasma Arc Technology.	**14**
III	**Waste to Energy Options**: Landfill gas, Collection and recovery, Refuse Derived Fuel (RDF) – fluff, Briquettes, Pellets, Alternate Fuel Resource (AFR) – production and use in cement plants, Thermal power plants and industrial boilers, Conversion of wastes to fuel resources for other useful energy applications, Energy from plastic wastes – non-recyclable plastic wastes for energy recovery, Energy recovery from wastes and optimization of its use, Benchmarking and standardization.	**14**
IV	**Centralized and Decentralized Waste to Energy Plants**: Collection, Segregation, transportation and storage requirements, Location and Siting of waste to energy, Plant,. Industry specific applications – In-house use – sugar, Distillery, Pharmaceuticals, Pulp and paper, Refinery and petrochemical industry and any other industry, Centralized and decentralized energy production, Distribution and use, Comparison of centralized and decentralized systems and its operations.	**14**
V	**Waste To Energy & Environmental Implications**: Environmental standards for waste to energy plant operations and gas clean-up, Savings on non-renewable fuel resources, Carbon Credits, Carbon foot calculations and carbon credits transfer mechanisms, Energy analysis, Global best practices in waste to energy production and use, Indian scenario on waste to energy production distribution and use in India, Role of the Government in promoting 'Waste to Energy'.	**14**

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Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Text Book/References Books/ Websites:

1. Industrial and Urban Waste Management in India; TERI Press.
2. Banwari Lal and Patwardhan; Wealth from Waste: Trends and Technologies; TERI Press.
3. S.N Mukhopadhyay; Fundamentals of waste and Environmental Engineering; TERI Press.
4. www.envfor.nic.in www.cpcb.nic.in
5. www.eai.in/ref/ae/wte/typ/clas/india_industrial_wastes.html
6. www.teriin.org/projects/green/pdf/National-Waste.pdf

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

PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MTUP13103	Cost Management of Engineering Projects	3	1	-	(70)	(30)	Min: 40 (D Grade)	(Nil)	(Nil)	(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. Students should be able to perform and evaluate present worth, future worth and annual worth and more economic alternatives.
	2. Able to carry out and evaluate benefit/cost, life cycle and break-even analyses on one or more economic alternatives.

Unit	Contents (Theory)	Marks Weightage
I	Introduction and overview of the strategic cost management process cost concepts in decision-making, Relevant cost, Differential cost, Incremental cost and opportunity cost, Objectives of a costing system, Inventory valuation, Creation of a database for operational control, Provision of data for decision-making.	**14**
II	Project: meaning, Different types, Why to manage, Cost overruns centers, Various stages of project execution, Conception to commissioning, Project execution as conglomeration of technical and nontechnical activities, Detailed engineering activities, Pre project execution main clearances and documents project team, Role of each member, Importance project site, Data required with significance, Project contracts, Types and contents, Project execution project cost control, Bar charts and network diagram.	**14**
III	Project commissioning, Mechanical and process cost behavior and profit planning marginal Costing, Distinction between marginal costing and absorption costing, Break-even analysis, Cost-volume-Profit Analysis, Various decision-making problems, Standard costing and variance analysis.	**14**
IV	Pricing strategies. Pareto analysis. Target costing, life cycle costing, Costing of service sector Just-in-time approach, Material requirement planning, Enterprise resource planning, Total quality management and theory of constraints Activity-based cost management, Bench marking, Balanced score card and value-chain analysis, Budgetary control, Flexible budgets, Performance budgets, Zero-based budgets, Measurement of divisional profitability pricing decisions including transfer pricing.	**14**
V	Quantitative techniques for cost management, linear programming, PERT/CPM, Transportation problems, Assignment problems, Simulation, learning curve theory.	**14**

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Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Text Book/References Books/ Websites:

1. Cost Accounting A Managerial Emphasis; Prentice Hall of India; New Delhi.
2. Charles T. Horngren and George Foster; Advanced Management Accounting .
3. Robert S Kaplan Anthony A. Alkinson; Management & Cost Accounting.
4. Ashish K. Bhattacharya; Principles & Practices of Cost Accounting A. H. Wheeler publisher.
5. N.D. Vohra; Quantitative Techniques in Management; Tata McGraw Hill Book Co. Ltd.

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

PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MTUP13201	Urban Renewal	3	1	-	(70)	(30)	Min: 40 (D Grade)	(Nil)	(Nil)	(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. Student should be able to know surveys for renewal and sources of data.
	2. Student should be able to know problems and prospects of renewal in Indian cities.
	3. Student should be able to know policies for urban renewal.

Unit	Contents (Theory)	Marks Weightage
I	Definition of urban renewal, Surveys for renewal and sources of data, Methods of analysis.	**14**
II	Problems and prospects of renewal in Indian cities, Urban renewal a comparative study.	**14**
III	Policies for urban renewal, Legislation for renewal.	**14**
IV	Methodology for urban renewal, Alternative strategies for urban renewal.	**14**
V	Preparation of plans, Implementation, Costing and phasing Case study and report writing.	**14**

Text Book/References Books/ Websites:

1. Gehl, J. Gemzoe, L ;Compendium in town renewal and urban planning.; Nova Publisher.
3. Chris Couch, Chries Fraser; Urban Regeneration in Europe; Oxford.
3. Edward Ng. Earthscan ;Designing high-density cities; Routledge.
4. JNURM, Govt of India

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

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Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External (70)	Internal (30)	Total (100)	External (Nil)	Internal (Nil)	Total
MTUP13202	Water Resource Management	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. Student should able to know need for management of water resources.
	2. Student should able to know organized harnessing of water.
	3. Student should able to know areas, desert areas, special economic zones, port city.

Unit	Contents (Theory)	Marks Weightage
I	Need for management of water resources, International hydrological programme by UNESCO as a basis of water resource management.	**14**
II	Organized harnessing of water- dams, Hydro electric projects- their merits and demerits and short and long term impact on resource availability.	**14**
III	Special areas under consideration would include formal and functional regions (Hill areas, Coastal areas, Desert areas, Special economic zones, Port city, Aerotropolis, Medi-city, and knowledge city etc.)	**14**
IV	Urban water supply schemes, Financing and management of water supply project, Water pollution control act, Conservation & water carriage system, Sanitary appliance and their operation, Building drainage system of plumbing.	**14**
V	Case studies of various topologies of special area development plans in Indian and international context	**14**

Text Book/References Books/ Websites:

1. A Handbook for Integrated Water Resources Management in Basins; Global Water Partnership.
2. Letitia A Obeney; Water Supply Engineering ; Khanna Publisher.
3. Ashu Jain & Narendra Shukla; Water Resources Management in India; Pointer Publishers.
4. Sarah Luck; Water Resource Management; Syrawood Publishing House.

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

PEOPLE'S UNIVERSITY, BHOPAL

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Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total (100)	External	Internal	Total
MTUP13203	Techniques of Analysis & Population Studies	3	1	-	(70)	(30)	Min: 40 (D Grade)	(Nil)	(Nil)	(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. Student should able to know collection and presentation of data.
	2. Student should able to know significance of averaging and variation.
	3. Student should able to know significance of study of correlation. types of correlation.

Unit	Contents (Theory)	Marks Weightage
I	**Collection And Presentation of Data:** Introduction of statistics, Statistical data and method of analysis types of data, Designing questionnaire, Tabulation and representation of data, Line diagram, Pie diagram, Frequency distribution, Histogram, Radar diagram.	**14**
II	**Measures of Central Tendency and Variances:** Significance of averaging and variation, Calculation of mean median and mode for ungrouped and grouped data, Merits and limitations, Variance and standard deviation of ungrouped and grouped data, Lorenz curve, Skewness, Moments and kurtosis.	**14**
III	**Correlation Analysis:** Significance of study of correlation, Types of correlation, Karl pearson's coefficient of correlation, Properties of correlation coefficient, Rank correlation, Partial and multiple correlation.	**14**
IV	**Recasting and Time Series Analysis:** Requirement and methods of forecasting system, Types of time series data, Method of trend analysis, Semi-average, Moving-average and method of least square, Analysis and measurement of seasonal and cyclical variations, Introduction to non-linear rends.	**14**
V	**Population Pyramid:** Types and Properties, Human Sex Ratio, Dependency Ratio, Components of Population Growth: Birth and Mortality Rate, Age composition, Migration, Population forecasting method using statistical theories.	**14**

Text Book/References Books/ Websites:

1. Urban Planning: use of critical path Method / WORD
2. Asis Kumar Chattopadhyay; Demography: Techniques & Analysis; Viva books.
3. Petit; Population studies and Development from Theory to field work; Springer.

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

PEOPLE'S UNIVERSITY, BHOPAL

(Applicable for Admitted from Academic Session 2019-20 onwards)

Programme: **Master of Technology** **Specialization:** Urban Planning **Semester –III**

Subject Code	Subject Title	Credit			Theory			Practical		
		L	T	P	External	Internal	Total	External	Internal	Total (300)
MTUP1303	Pre-Dissertation	-	-	6	(Nil)	(Nil)	(Nil)	(200)	(100)	Min: 120 (D Grade)

Duration of Theory (Externals): 3 Hours

Theory Internal- Max Marks: Nil	Best of Two Mid Semester Test - Max Marks: Nil	Assignment/Quiz/Attendance - Max. Marks: Nil
Practical Internal Max Marks: 100	Lab work & Sessional - Max Marks: 50	Assignment/Quiz/Attendance- Max. Marks: 50

Pre-Requisite	Knowledge of concerned discipline of Engineering.
Course Outcome	1. Identify literature and problem identification of research.
	2. Apply engineering principles through efficient handling of project.
	3. Identify appropriate techniques to analyze complex engineering problems.

Unit	Contents (Theory)	Marks Weightage
I	**Pre- Dissertation:** Students are required to select a topic of their interest in the third semester and prepare a dissertation on it. Mid semester presentation will include identification of the problem based on the literature review on the topic referring to latest literature available. End semester presentation should be done along with the report on identification of topic for the work and the methodology adopted involving scientific research, collection and analysis of data, determining solutions and must bring out individuals contribution. The student must submit a synopsis at the end of the semester for the approval from the research Approval committee in the specified format and submitted to the university for further Approval and give the power point presentation of the same for Evaluation/Approval.	**300**

Text Book/References Books/ Websites: Nil

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