Programme : **Diploma in CE/EE/ET/ME/MT/CM/IT**
Programme Code : **01/02/03/04/05/06/07/15/16/17/18/19**
Name of Course : **Community Development**
Course Code : **AU361**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	02	32
Practical	01	16

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60 min Duration	3 Hrs	--	--	--
Marks	20	80	--	--	--

Course Rationale:

The course has been introduced to make young Engineers especially aware of the present status of Villages &to motivate them to make improvement in villages when they start their Engineering carrier.

Course Objectives:

After studying this course, the student will be able to

- Able to understand present situation in villages and realize the gravity of the village development.
- Able to make survey of villages, collect the data, analyze it and identify the area of development.
- Able to identify the available natural resources and how they can be utilized for betterment of villages.
- Able to collect the useful information for starting probable new industries in villages.

- Able to guide villagers in building low cost durable houses taking in to considerations weather conditions of that area.
- Able to guide villagers for development good habits regarding health and hygiene.
- Motivated to bring about all round development of villages.

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weightage
1	**Introduction**			
	1.1	Present status of rural and urban community.	02	04
	1.2	Necessity of community development.		
	1.3	Identifying needs of community, Ways to develop community.		
2	**Human Power Development**			
	2.1	Present scenario of Human power in India,	04	08
	2.2	Socioeconomic survey to ascertain requirement of human requirements.		
	2.3	Methodology for training the human power		
	2.4	Wage employment and self employment,		
	2.5	Support from financial institutions for self employment.		
3	**Appropriate Technology and Technology Transfer**			
	3.1	Technological development of India, Additional needs of community due to technology development,	04	12
	3.2	Classification of rural industries,		
	3.3	Areas of appropriate technology,		
	3.4	Use of locally available materials,		
	3.5	Methods of transfer of technology, Project reports preparation.		
4	**Industrialization**			
	4.1	Present status of rural traditional industries,	04	12

	4.2	Renewal of old industries in villages- • Manufacturing new commodities such as plastic utensils, nylon ropes, ceramics • Repairing – agricultural implements, tractors, automobiles, electrical or diesel pump sets, domestic appliances • Food processing – Papad, jam, jelly, pickles, preservation, spices, syrups, ketchups • Utilization of waste product – Gobar gas, fuel cake, • Construction – Brick clamp, stone quarry, sand supply, and crusher. • Miscellaneous – Handlooms, power looms, Ginning mills, Jaggery making • Service Industry – STD/PCO/Net café, • Housing support to industrialization.		
5	**Non Conventional Energy Sources**			
	5.1	Availability of energy sources in India,	**06**	**20**
	5.2	Needs of use of non conventional energy sources.		
	5.3	Availability of such sources in India.		
	5.4	Various types of non conventional energy sources. Solar energy – Solar water heater and solar cooker, wind energy, wind mill and wind turbines, bio-gas-generation.		
6	**Community Services**			
	6.1	Health and Hygiene awareness,	**04**	**08**
	6.2	Health services,		
	6.3	Educating the community for good habits of health and hygiene, Potable drinking water, purifying well water, low cost latrines, drainage system and soak pits Tree plantation programmes, roads and communications.		
7	**Waste Management**			
	7.1	Generation of waste, causes	**04**	**08**
	7.2	Types of waste – domestic, commercial, industrial, E-waste, hazardous waste.		
	7.3	Waste separation of domestic waste e.g. wet, dry, reusable, recyclable,		

	7.4	Waste disposal – methods, treatments, etc.		
	7.5	Reduce, Reuse, and Recycle, 3Rs in Waste Management.		
8	**Developments**			
	8.1	Programmes for all round development of	**04**	**08**
	8.2	Community, Various government schemes, IRDP – Integrated Rural Development Programme.		
	8.3	Active participation of community in development programmes		
	8.4	Motivation for participation.		
		Total	**32**	**80**

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical/Experiment/Assignment	Hrs
1	Assignment on manpower development	02
2	Assignment on appropriate Technology and technology transfer.	02
3	Assignment on renewal of old industries in villages.	04
4	Assignment on Non-conventional energy sources.	04
5	Assignment on Waste Management	04
	Total	**16**

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	Introduction	Class rooms teaching
2	Man power developments	Class rooms teaching, data collection
3	Appropriate technology & technology transfer	Class rooms teaching
4	Industrialization	Class rooms teaching
5	Non-conventional energy sources	Class rooms teaching
6	Community services	Class rooms teaching
7	Developments	Class rooms teaching

Text Books:

Sr. No	Author	Title	Publication
1	Katav Sing	Rural Development Principles, Policies and management.	--
2	S.P. Sukhatme	Solar Energy	--
3	G.P. Rai	Non-Conventional Sources of Energy	--
4	Debendra K. Das	Dynamics of rural development, perspectives	Deep & Deep Publications Delhi

Reference Books:

Sr. No	Author	Title	Publication
1	T.T.T.I. Madras	Environmental Engg.	Tata McGraw Hill Publishing Co. Ltd. New Delhi.

Learning Resources: : Internet, Daily News papers

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Introduction	02	04	--	06
2	Man-power development	04	04	--	08
3	Appropriate technology & its transfer	04	04	04	12
4	Industrialization	06	04	04	14
5	Non-conventional Energy Sources	08	06	06	20
6	Community Services	06	04	--	10
7	Developments	06	04	--	10
	Total	**36**	**30**	**14**	**80**

(Prof. R. H. Dhorje)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS

Programme	:	**Diploma in CE/EE/ET/ME/MT/CM/IT**
Programme Code	:	**01/02/03/04/05/06/07/15/16/17/18/19**
Name of Course	:	**Environmental Science**
Course Code	:	**AU362**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	**02**	**32**
Practical	**01**	**16**

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	**Two class tests of 60 min Duration**	**3 hours**	--	--	--
Marks	**20**	**80**	--	--	--

Course Rationale:

This course has been introduced to make young engineers aware of the relation between society and environment; the global environmental issues, etc. To motivate them for environmental management and to adopt sustainable development practices.

Course Objectives:

After studying this course, the student will be able to

- Harmony between society and environment.
- Understand global environmental issues.
- Understand environmental pollution and remedial measures.
- Select environmental management practices.
- Adopt the sustainable development strategies in career.

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weightage
1	**Introduction**			
	1.1	Society and environment, Indian traditions, customs and culture,	04	08
	1.2	Role of festivals in protecting environment.		
	1.3	Impact of population on environment.		
2	**Developments and Environment**			
	2.1	Agriculture and Industry as major sectors of development.	06	16
	2.2	Impact of development on environment – changing pattern of land use, land reclamation, deforestation, resource depletion, environmental degradation.		
	2.3	Role of society in sustainable development – public awareness through education, campaigns, etc., public participation in decision making.		
	2.4	Causes of Lack of environmental awareness, measures to increase public awareness.		
3	**Environmental Pollution**			
	3.1	Causes, effects and measures to reduce – air pollution, water pollution, soil pollution, sound pollution.	06	16
	3.2	Pollution due to radioactive causes, consequences including human diseases.		
	3.3	The price of civilization.		
4	**Global Environmental Issues**			
	4.1	Ozone layer depletion and its effects.	06	16
	4.2	Greenhouse effect – global warming climate changes, their effects on human, agriculture, animals, plants.		
	4.3	Disasters - Natural (droughts, floods, earthquakes, cyclones, landslides, avalanches, Tsunamis) Manmade (industrial, technological, atomic). Their impact on environment, prevention and control.		

5	**Environmental Management (E.M.)**			
	5.1	Need for environmental management,	**05**	**12**
	5.2	Three levels of environmental management (Global, national, local),		
	5.3	Aspects of E.M. – ethical, social, technological, economic.		
	5.3	Legal provision for E.M. – introduction to constitutional provisions, environmental laws.		
6	**Sustainable Development (S.D.)**			
	6.1	Concept of S.D.	**05**	**12**
	6.2	Need for S.D.		
	6.3	Challenges for S.D. – Social, economic political considerations.		
	6.4	Role of individuals, society, Govt., Non-Govt. organizations, national and international agencies for S.D.		
	6.5	Green evolution.		
		Total	**32**	**80**

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical/Experiment/Assignment	Hrs
1	Group Discussion. & Assignment on Developments and Environment	02
2	Group Discussion Assignment. Articles collection from newspapers, internet on Environmental Pollution	02
3	Assignment, Articles collection from newspapers, internet on Global Environmental Issues.	04
4	Assignment on Global Environmental Issues	04
5	Assignment on Environmental Management	04
	Total	**16**

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	Introduction	Class room teaching
2	Developments and Environment	Class room teaching, Group Discussion.
3	Environmental Pollution	Class room teaching, Group Discussion.
4	Global environmental issues	Class room teaching, Group Discussion.
5	Environmental Management.	Class room teaching.
6	Sustainable Development	Class room teaching.

Text Books:

Sr. No	Author	Title	Publication
1	Environmental Engineering	A. Kamala	Tata Mc Graw Hill, New Delhi

Reference Books:

Sr. No	Author	Title	Publication
1	Environmental Engineering.	TTTI Madras Chennai	Tata Mc Graw Hill, New Delhi

Learning Resources: Internet, Daily News papers, Environmental magazines

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Introduction	04	04	---	08
2	Developments and Environment	10	06	--	16
3	Environmental Pollution	04	06	06	16
4	Global environmental issues	04	06	06	16
5	Environmental Management.	04	04	04	12
6	Sustainable Development	04	04	04	12
	Total	**30**	**30**	**20**	**80**

(Prof. R.H.Dhorje)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS

Programme : **Diploma in CE/EE/ET/ME/MT/CM/IT**
Programme Code : **01/02/03/04/05/06/07/15/16/17/18/19**
Name of Course : **Renewable & Sustainable Energy Management**
Course Code : **AU363**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	02	20
Practical	01	10

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60 min Duration	3 Hrs	--	--	--
Marks	20	80	--	--	--

Course Rationale:

Energy is an important aspect in all sectors of country's economy. The energy crisis is mainly caused due to increased population and enhanced standard of living and life style of people. The conventional sources of energy are insufficient to meet these demands. Hence alternative energy sources are utilized for power production. The use of alternative energy source is increasing day by day. Diploma Engineers are to develop, operate and maintain these systems therefore essential to know basics of energy conversion, conservation, energy audit and waste heat recovery techniques.

Course Objectives:

After studying this course, the student will be able to

- Know the National scene of energy production, utilization, consumption and reserves.
- Appreciate the need for non-conventional energy sources.
- Understand relative advantages and disadvantages of various non-conventional energy sources.

- Develop awareness for effective utilization of alternative energy sources.
- Identify different components of solar energy and wind energy sources.
- Identify and analyze biomass plant.
- Identify and apply energy conservation techniques for commonly used Power absorbing and generating devices.
- Apply principles of energy conservation and energy management techniques

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weig htage
1	**Review of conventional sources of energy**			
	1.1	Types of conventional energy sources availability, important plant in India	04	06
	1.2	India's production and reserves for fossil fuels, waterpower, nuclear power		
	1.3	Need for non-conventional energy sources		
	1.4	Environmental impact of various energy sources.		
2	**Solar Energy**			
	2.1	Principle of conversion of solar energy into heat and electricity	06	16
	2.2	Solar radiation. Solar radiations at earth's surface		
	2.3	Solar radiation geometry- declination, hour Angle, altitude angle, incident angle, zenith angle, solar azimuth angle.		
	2.4	Construction and working of typical flat plate Collector		
	2.5	Solar concentrating collectors and their applications, advantages and limitations		
	2.6	Applications of Solar energy- Space heating and cooling, photovoltaic electric conversion, Solar distillation, Solar cooking and furnace, Solar pumping and Green house, Agriculture and industrial process heat.		
3	**Wind Energy**			
	3.1	Basic principles of wind energy conversion, power in wind, available wind power formulation, power coefficient, and maximum power	04	12

	3.2	Main considerations in selecting a site for wind mills, advantages and limitations of wind energy Conversion		
	3.3	Classification of windmills, construction and working of horizontal And vertical axis wind mills, their comparison		
	3.4	Main applications of wind energy for power generation and pumping		
4	**Energy From Biomass**			
	4.1	Common species recommended for biomass, methods for obtaining energy from biomass, thermal	06	12
	4.2	Classification of biomass- gasified, fixed bed and fluidized		
	4.3	Application of gasifier		
	4.4	Biodiesel production and application		
	4.5	Agricultural waste as biomass, biomass digester, comparison of biomass with conventional fuels.		
5	**Geothermal Energy**			
	5.1	Availability, forms of geothermal energy- Dry steam, wet steam, hot dry rock, magnetic chamber system	02	06
	5.2	Different power plants available		
6	**Tidal Energy**			
	6.1	Tidal power, factors for selection of tidal power plant	02	06
	6.2	Classification-Single basin, double basin type		
	6.3	tidal power plants in world, ocean thermal plants.		
7	**Energy Conservation**			
	7.1	Energy conservation and management, need and importance of energy conservation and management	02	08
	7.2	concept of payback period, return on investment, life cycle cost, Sankey diagrams, specific energy consumption		
8	**Energy Conservation Techniques**			
	8.1	Distribution of energy consumption	06	14
	8.2	Energy audit, types of audit, methods of energy conservation		
	8.3	cogeneration and its application, combined cycle system		

	8.4	concept of energy management, study of different energy Management techniques like- analysis of input, reuse and recycling of waste, energy education, conservative technique and energy audit		
		Total	**32**	**80**

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical / Experiment/Assignment	Hrs
1	To collect information about global and Indian energy market	02
2	One field visit to be conducted to demonstrate application of Solar Energy	04
3	One field visit to be conducted to Wind Mill	04
4	To visit a biomass/ biogas plant of municipal waste or elsewhere.	04
5	Perform energy audit for workshop/Office/Home/SSI unit.	02
	Total	**16**

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	Review of conventional sources of energy	Classroom teaching and Internet browsing
2	Solar Energy	Classroom teaching and field visits, use of charts
3	Wind Energy	Classroom teaching, field visit & use of charts
4	Energy From Biomass	Classroom teaching, field visit & use of charts
5	Geothermal Energy	Classroom teaching and Internet browsing
6	Tidal Energy	Classroom teaching and Internet browsing
7	Energy Conservation	Classroom teaching
8	Energy Conservation Techniques	Classroom teaching and case study

Text Books:

Sr. No	Author	Title	Publication
1	Non conventional energy resources	Dr B.H.Khan	Tata McGraw Hill
2	Non conventional energy Resources	G. D. Rai	Khanna publication

Reference Books:

Sr. No	Author	Title	Publication
1	Solar energy	S. P. Sukhatme	Tata McGraw Hill
2	Solar energy	H. P. Garg	Tata McGraw Hill
3	Power plant engineering	Arrora Domkundwar	Dhanpat Rai & co.
4	India- The energy sector	P.H: Henderson	Oxford University Press
5	Industrial energy conservation	D. A. Ray	Pergaman Press
6	Non-conventional energy source	K. M. Mittal	---
7	Energy resource management	Krupal Singh Jogi	---
8	Website for Akshay Urja News Bulletin. (www.mnes.nic.in)	---	---

Learning Resources: Charts of solar water heater and cooker, Models of solar water heater and cooker, Photovoltaic cells etc., video cassette no.131, 365 of G.P.P. library

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Review of conventional sources of energy	06	--	--	06
2	Solar Energy	02	06	08	16
3	Wind Energy	04	04	04	12
4	Energy From Biomass	04	04	04	12
5	Geothermal Energy	06	--	--	06
6	Tidal Energy	06	--	--	06
7	Energy Conservation	02	04	02	08
8	Energy Conservation Techniques	04	04	06	14
	Total	**34**	**22**	**24**	**80**

(Prof.K.M.Kakade)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS

Programme : **Diploma in CE/EE/ET/ME/MT/CM/IT**
Programme Code : **01/02/03/04/05/06/07/15/16/17/18/19**
Name of Course : **Engineering Economics**
Course Code : **AU364**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	02	20
Practical	01	10

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60 min Duration	3 Hrs	--	--	--
Marks	20	80	--	--	--

Course Rationale:

Diploma Engineers working in middle level management are no longer confined to the role of professional technicians. They often have to take business decisions, for which they are required to apply economic concepts, logic, tools of analysis and economic theories as they advance in their carrier. It is for this reason that diploma students are required to posses some working knowledge of economic concepts, economic policy of our country, also the effects of globalization, GATT, WTO etc.

Course Objectives:

After studying this course, the student will be able to

- Various concepts, applications, contribution of Micro Economics and macro economics to engineering business decisions.
- Consumer demand, market demand, supply and production.
- Prices and cost - Break even analysis, price decisions.
- Concept of National income.
- Inflation, Deflation and unemployment.
- Money and Banking, New economic environment.

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weightage
1	**Introduction to Economics**			
	1.1	Engineering Economics –Definition, Objectives ,Importance	04	10
	1.2	Business Economics - General concepts on micro & macro economics Categories of Economy- Market economy , Command economy , Mixed economy		
2	**Demand Analysis**			
	2.1	Consumer demand, utility, total and marginal utility, law of diminishing, cardinal and ordinal utility.	07	20
	2.2	Law of demand, Determinants of Demand, Elasticity of demand, Factors governing the elasticity of demand		
	2.3	Demand for forecasting necessity, techniques, methods		
3	**Supply, Production and Cost analysis**			
	3.1	Law of supply, supply factors, supply function, Equilibrium of demand and supply	06	14
	3.2	Theory of production, Laws of production		
	3.3	Cost concepts, Elements of costs, Preparation of cost sheet, Segregation of costs into fixed and variable costs. Break-even analysis-Linear approach. (Simple numerical problems to be solved)		
4	**Time value of money**			
	4.1	Simple and compound interest	08	16
	4.2	Cash flow diagram Principle of economic equivalence. Evaluation of engineering projects – Present worth method, Future worth method, Annual worth method, internal rate of return method, Cost-benefit analysis in public projects.		
	4.3	Depreciation policy, Depreciation of capital assets, Causes of depreciation, Straight line method and declining balance method		

5	**National Income and Inflation**			
	5.1	Concepts, measurement, Gross National production, gross domestic production, methods of measuring national income, India's national income.	**03**	**08**
	5.2	Inflation - deflation, measures, kinds and effects.		
	5.3	Unemployment causes, kinds, effects and remedies.		
6	**Finance, Money and Banking and New Economic Environment**			
	6.1	Business finance, Profit & Loss (Income) Statement ,Balance sheet, budget and budgetary control, Standards of Financial Reporting, Book – Keeping, Trial Balance	**04**	**12**
	6.2	Money- Kinds and functions, significance, Value.		
	6.3	Banking: Meaning and functions of commercial banks; functions of Reserve Bank of India.		
	6.4	Liberalization, Trade Privatization, Globalization , GATT and W.T.O.		
		Total	**32**	**80**

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical / Experiment/Assignment	Hrs
1	Assignment on Engineering costs and estimates – fixed, variable, break even	**02**
2	Assignment on Cash Flows, compounding, and time value of money	**02**
3	Assignment on Nominal and effective rates, compounding periods, spreadsheets	**02**
4	Assignment on Depreciation	**02**
5	Assignment on Replacement analysis	**02**
6	Assignment on Inflation & Min. rate of return	**02**
	Total	**16**

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	Introduction to Economics	Lecture method, discussion
2	Demand Analysis	Lecture method, Assignment, surveys, case study, discussion
3	Supply Production and cost analysis	Lecture method, Assignment, surveys, case study, discussion
4	Time value of money	Lecture method, Assignment, surveys, case study, discussion
5	National income and inflation	Lecture method, Literature survey, discussion.
6	Finance, money and banking and New economic environment	Lecture method, visits journals review, discussion.

Text Books:

Sr. No	Author	Title	Publication
1	D.N. Dwivedi and Abhishek Dwivedi	Engineering Economics	Vikas publishing House Pvt. Ltd., New Delhi,
2	Maheshwari	Managerial Economics (2nd ed)	Prentice Hall of India Pvt. Ltd. New Delhi

Reference Books:

Sr. No	Author	Title	Publication
1	Pannerselvam	Engineering Economics	Prentice Hall of India Pvt. Ltd. New Delhi
2	Sasmita Mishra	Engineering economics & Costing	Prentice Hall of India Pvt. Ltd. New Delhi
3	Newnan, Eschenbach, and Lavelle,	Engineering Economic Analysis, 9th Edition,	Oxford University Press, 2004.
4	Eschenbach, Ted G.	Engineering Economy - Applying Theory to Practic	Irwin, 1995
5	Newnan and Wheeler,	Study Guide for Engineering Economic Analysis, 9th Edition,	Oxford University Press, 2004.
6	Anthony J. Tarquin	Engineering Economy	McGraw-Hill, 1989

Learning Resources: Books, Journals, and Reports etc.

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Introduction to Economics	04	06	--	10
2A	Consumer Demand Analysis	04	04	02	10
2B	Market demand & elasticities and Fore casting	02	04	04	10
3	Supply Production and cost analysis	06	04	04	14
4	Time value of money	06	06	04	16
5	National Income and Inflation	04	04	--	08
6	Finance, Money and Banking and New economic environment	06	04	02	12
	Total	**32**	**32**	**16**	**80**

(Prof. B.Prasad)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS

Programme : **Diploma in CE/EE/ET/ME/MT/CM/IT**
Programme Code : **01/02/03/04/05/06/07/15/16/17/18/19**
Name of Course : **Industrial Psychology**
Course Code : **AU365**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	02	32
Practical	01	16

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60 min Duration	3 Hrs	--	--	--
Marks	20	80	--	--	--

Course Rationale:

The overall purpose of the course is to acquaint with the major sub-areas within Industrial Psychology such as personality and temperament upon industrial psychology, psychology of management, impact of work environment upon the psychology of people in a workplace, psychology to recruitment, psychological testing ,motivation influences work productivity & psychological disorders or abnormalities

Course Objectives:

After studying this course, the student will be able to

- Maintain harmony among workers of various departments.
- Understand needs and requirements of workers.
- Extract maximum work with full cooperation and optimum efforts.
- Proper assigning of the job as per workers capability.
- Able to improve work culture of the organization, thus improving job satisfaction of the workers.

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weigh tage
1	**The Practice of Industrial Psychology**			
	1.1	Definition, objectives, scope, Principles, practices and problems,	02	04
	1.2	Methods and techniques		
2	**Understanding the Employee's Thinking**			
	2.1	Sensation and Perception, Thinking and Day Dreaming, Gestalt Approach, Unconscious and Conscious Psychic Elements,	06	14
	2.2	Explaining Behaviour, Knowledge of Brain Processes, Personal Interpretation of a Given Situation, Instinct.		
3	**Personality & Temperament**			
	3.1	Mature & immature temperaments (e.g. Sanguine, Melancholic, Choleric, Phlegmatic), emotional types, fear, intelligence, knowledge, deviation, etc	04	08
4	**Personnel Management**			
	4.1	Recruitment and selection, Psychological testing, Performance appraisal, Training and development	04	10
5	**Organizational Psychology**			
	5.1	Leadership, Motivation, job satisfaction and job involvement,	06	14
	5.2	Maslow's model of self actualisation, Security, Money, Ambition, Companionship, Social reinforcement, Labour wastage, etc		
6	**Work Psychology**			
	6.1	Working conditions - Noise, Space, Light, Temperature, Speed of Work, etc. Accidents, Breakages, Fatigue etc. Safety, violence, and health in the workplace, Stress	04	10
7	**Recruitment**			
	7.1	Ways of seeking applicants, types of interview, ways of selecting staff.	04	10
8	**Social Considerations**			
	8.1	Group Behaviour, Conformity, Industrial Groups, The hawthorne effect	04	10
		Total	32	80

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical / Experiment/Assignment	Hrs
1	Assignment on Identifying similarities and differences that occur in the way different employees perceive their workplace.	02
2	Assignment on the effect of personality and temperament upon industrial psychology.	02
3	Assignment on Identifying applications for psychological testing in industrial management.	02
4	Assignment on Identifying ways that the work environment might impact upon the psychology of people in a workplace	02
5	Assignment on the application of psychology to recruitment.	04
6	Assignment on the impact of social factors upon work productivity.	02
7	Assignment on the significance of psychological disorders or abnormalities in a workplace	02
	Total	**16**

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	The practice of Industrial Organizational psychology	Lecture method, Assignment discussion
2	Characteristics of work place	Lecture method, visit short report
3	Development of Human Resources	Lecture method, case study visit
4	Selection, psychological testing and training	Lecture method, visit demonstration
5	Engineering psychology	Lecture method, discussion, visit case study
6	Consumer Psychology	Lecture method, discussion, assignment case study

Text Books:

Sr. No	Author	Title	Publication
1	Thomas Harrel.	Industrial Psychology	
2	K.K.Ahuja	Industrial management and organizational behaviour	Khanna Publications

3	R.D.Agarwal	Organization & Management	
4	O.P.Khanna , Lal	Production Technology Vol. I , II	Dhanpat Rai and sons

Reference Books:

Sr. No	Author	Title	Publication
1	Schultz, D. & Schultz, S.E. (2006).	Psychology & work today. (9th International ed.)..	New Jersey: Pearson Prentice Hall
2	Edgar H schien	Organisational Psychology	Prentice Hall of India Pvt. Ltd. New Delhi
3	H.L. Kaila	Industrial Psychology	The Associated Publishers

Learning Resources: Books, Journals, and Reports etc.

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	The Practice of Industrial Psychology	04	--	--	04
2	Understanding the Employee's Thinking	06	06	02	14
3	Personality & Temperament	04	04	--	08
4	Personnel Management	06	04	--	10
5	Organizational Psychology	06	04	04	14
6	Work Psychology	04	04	02	10
7	Recruitment	--	06	04	10
8	Social Considerations	06	04	--	10
	Total	**36**	**32**	**12**	**80**

(Prof. B.Prasad)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS

Programme : **Diploma in CE/ MT**
Programme Code : **01/ 05/ 15/19**
Name of Course : **Applied Mathematics – III**
Course Code : **SC361**

Teaching Scheme:

	Hours /Week	Total Hours
Theory	02	32
Practical	01	16

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests, each of 60 Min. duration	03 hrs	---	---	---
Marks	20	80	---	---	---

Course Rationale:

The student shall learn various techniques in integration and differential equations and use these techniques to their related Engineering problems

Course Objectives:

- Apply the definition of integration as inverse of differentiation to solve Problems.
- Students will be able to apply various methods of integration..
- To apply mathematical principle to solve engineering problems.
- To draw and come to a valid conclusion.
- To locate the exceptional and critical points in an engineering system.

Course Content:

Chapter No.	Name of Topic/Sub topic		Hrs	Weightage
1.	**Application of Integration**			
	1.1	Mean value and RMS value of the functions.	04	08
	1.2	Area under the curve and area between two curves.		
	1.3	Volume of solid of revolution.		
2.	**Differential Equations**			
	2.1	Definition, order and degree of differential equations.	10	24
	2.2	Formation of differential equations.		
	2.3	**Solution of differential equations** : (using following methods) i) Variable separable, ii) Reducible to variable separable, iii) Homogeneous differential equations, iv) Exact diff. equations, v) Linear differential equations.		
3.	**Numerical Methods**			
	3.1	Solution of algebraic equations. Bisection method, Regulafalsi method and Newton – Raphson method.	06	16
	3.2	Solution of simultaneous equations containing 2 and 3 unknowns Gauss elimination method. Iterative methods-Gauss Seidal and Jacobi's method		
4.	**Statistics**			
	4.1	Measures of central tendency : (a)Mean (b) Median (c) Mode	06	16
	4.2	Measures of dispersion : a) Standard deviation (b) Co-efficient of variance		

5.	Vectors			
	5.1	Definition of vector, position vector, Algebra of vectors (Equality, addition, subtraction and scalar multiplication)	06	16
	5.2	Dot (Scalar) product with properties. Vector (Cross) product with properties. Work done and moment of force about a point & line		
		Total	32	80

List of Practicals/Experiments/Assignments:

Sr. No.	Name of Practical/Experiment/Assignment	Hrs
1	Application of Integration	02
2	Differential Equations	04
3	Numerical methods	04
4	Statistics	03
5	Vectors	03
	Total	16

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1.	Application of Integration	Classroom Teaching Method
2.	Differential Equations	Classroom Teaching Method
3.	Numerical methods	Classroom Teaching Method
4.	Statistics	Classroom Teaching Method
5.	Vectors	Classroom Teaching Method

Text Books:

Sr. No	Author	Title	Publication
1.	P.N.Wartikar & J.N.Wrtikar	Engineering Mathematics I	Pune Vidyarthi Griha Prakashan,Pune
2.	Patel & Rawal	Applied Mathematics	Nirali Prakashan
3.	S.P.Deshpande	Applied Mathematics	Pune Vidyarthi Griha Prakashan,Pune
4.	G.V.Kumbhojkar	Applied Mathematics	Phadke Prakashan,Kolhapur

Reference Books:

Sr. No	Author	Title	Publication
1.	Grewal B.S.	Higher Engineering Mathematics	Khanna Publishers, New Delhi
2.	Vishwanath	Engineering Mathematics Vol.II	Satya Prakashan, New Delhi
3.	B.L.Agarwal	Basic Statistics	New Age International Publication
4.	H.K. Dass	Engineering Mathematics Part II	S. Chand & Co. Ltd. Delhi

Learning Resources:

Chalk Board

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Application of Integration	00	00	08	08
2	Differential Equations	04	12	08	24
3	Numerical methods	04	04	08	16
6	Statistics	04	04	08	16
7	Vectors	04	04	08	16
	Total	**16**	**24**	**40**	**80**

(Prof. R.A.Pawar)
Prepared By

(Prof. S. B. Kulkarni)
Secretary, PBOS

(Prof. P.B.Kamble)
Chairman, PBOS