GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM
COURSE TITLE: MINE MANAGEMENT SAFETY AND LEGISLATION
(COURSE CODE:3362202)

Diploma Programme in which this course is offered	Semester in which offered
Mining Engineering	Sixth

1.   RATIONALE

Diploma graduates are supposed to work as supervisors in mines, where they have to manage the resources of the organization, i.e. equipment, manpower, time, money, etc for safe, efficient and effective utilization for target production. And hence they should be aware of general management concepts, government laws, regulations, labour laws, safety laws, etc. This course aims to develop such skills and knowledge required for effective and efficient management of mines.

2.   COMPETENCY

The course content should be taught and curriculum should be implemented with the aim to develop required skills in the students so that they are able to acquire the following competency:

- **Manage mine operations as per provisions of various mine rules and regulations safely.**

3.   COURSE OUTCOMES (COs)

The theory should be taught and practical should be carried out in such a manner that students are able to acquire required learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.
   i.   Explain general and personal management techniques to manage works in a mine.
  ii.   Explain different legal acts related to workman in mines.
 iii.   Explain Mines acts, rules and regulations as per DGMS.
  iv.   Describe safe practices of working under the provision of mine rules and regulations.

4.   TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	
4	0	0	4	70	30	00	00	100

Legends: L-Lecture; **T** – Tutorial/Teacher Guided Student Activity; **P** -Practical; **C** – Credit; **ESE** -End Semester Examination; **PA** - Progressive Assessment.

5.   COURSE CONTENT DETAILS

Unit	Major Learning Outcomes (In the Cognitive Domain)	Topics and Sub-topics
Unit – I General Principles of Management	1a. Explain Management concept and skills. 1b. Explain functions of Management. 1c. Describe scientific Management. 1d. Explain functions of personal management. 1e. Describe the methods of work study techniques. 1f. Explain time and motion study techniques. 1g. Explain various wages and incentive system and laws.	1.1. Management: Need, Basic concepts and functions of Management, 1.2. Scientific management - main principles-advantages. 1.3. Personal Management – Manpower planning, recruitment, promotion/selection, Training and development. Motivation, Counselling, Skills. 1.4. Management by objectives-Concept, process, Work study 1.5. Method study and work measurement techniques-Time and motion study 1.6. Essentials of a good wage system, Terms: Nominal wages, real wages, living Wage minimum wages, fair wages, fall back wages, lead- lift, Tub pushing 1.7. Different method of wage payments, merits and Demerits of each system, wage boards 1.8. Concepts Incentives and Inventory.
Unit – II General Legislation	2a. Explain role and functions of trade union. 2b. Describe salient and relevant part of Industrial dispute act. 2c. Describe salient and relevant part of compensation and wages act.	2.1. Trade Unions and functions. 2.2. Provisions of Industrial Disputes Act'56 2.3. Workmen's compensation Act '23 2.4. Payment of Wages Act '36 2.5. Minimum Wages Act ' 48
Unit– III Mine Legislation	3a. Explain various safety and welfare regulations. 3b. Describe main provisions of Mine Act 1952. 3c. Describe main provisions of Regulation of Coal Mines1957. 3d. Describe Provision of Regulation of Metalliferous Mines 1961. 3e. Describe Provision of Mines Rules 1955 Relating to First aid Sanitation, and	3.1 Safety and Welfare: Main Provisions of Mine Act 1952 3.2 Provision of Regulation of Coal Mines 1957- General terms and definitions, duties and responsibility of competent person, manager, safety officer, ventilation officer etc. 3.3 Methods of working, roof support, explosive, ventilation, shafts and outlets, plans / sections and machinery. 3.4 Provision of Regulation of Metalli-ferrous Mines 1961- 3.5 Duties and Responsibilities of

Unit	Major Learning Outcomes (In the Cognitive Domain)	Topics and Sub-topics
	Drinking water.	3.6 Workmen, Competent Persons, winding engine man, etc. 3.7 Mines Rules 1955 Relating to First aid, Sanitation, and Drinking water
Unit– IV Accident, Health And Safety	4a. Describe the various types of accidents in the mines and the remedial measures. 4b. Describe different Safety measures and provisions. 4c. Describe occupational diseases and preventive measures.	4.1. Importance of mine safety, safety publicity, selection of important places for display of posters. 4.2. Classification and analysis of accidents in mines, their causes and remedial measures. 4.3. Cost of accidents. Zero accident potential working. 4.4. Occupational diseases, their causes and preventive measures.

6.   SUGGESTED SPECIFICATION TABLE WITH HOURS and MARKS (THEORY)

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total
I	General Principles of Management	16	06	08	06	20
II	General Legislation	08	03	04	03	10
III	Mine Legislation	24	10	10	08	28
IV	Accident, Health And Safety	08	04	04	04	12
Total		**56**	**23**	**26**	**21**	**70**

Legends: **R** = Remember**, U** = Understand**, A**= Apply and above Level (Bloom's revised taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

7.   SUGGESTED PRACTICAL / EXERCISES
   Not Applicable

8.   SUGGESTED STUDENT ACTIVITIES
   i.   Visit to mine and study safety features being used
   ii.   Study mine organisational set up and identify responsibilities and powers of different job positions.
   iii.   Study of mine legislations/acts and prepare power point presentations to present in seminar

9.   SPECIAL INSTRUCTIONAL STRATEGIES (If Any)
   i.   Arrange expert lectures by legal/management/safety experts.
   ii.   Arrange field visit to explain organisation structure and safety features being used.
   iii.   Use case study method to explain management and safety related problems.
   iv.   Arrange seminar on different issues related to management, legislation/acts and safe working practices in mine (ask students to prepare ppts in group of four to five on different topics)

10. SUGGESTED LEARNING RESOURCES

A) Books

S.No.	Author	Title of Books	Publication
1	Khanna O.P.	Industrial Management	
2	Singh V.N.	Mine Management	Lovely Prakshan, Dhanbad
3	Prasad and Rakesh	Mine Legislation	Lovely Prakshan Dhanbad
4	Kaku L. C	Mine Act, Rules, Regulations	Lovely Prakshan Dhanbad
5	UMS Series	Blue Volume/ Red Volume	Lovely Prakashan, Dhanbad

B)   Software/Learning Websites

i. http://en.wikipedia.org/wiki/Management
ii. http://en.wikipedia.org/wiki/Scientific_management
iii. http://pblabour.gov.in/pdf/notifications/nc08_minimum_wages_act_1948.pdf
iv. http://hrylabour.gov.in/docs/labourActpdfdocs/Workmen_Compensation_Act.pdf
v. http://www.ilo.org/dyn/travail/docs/625/Payment%20of%20Wages%20Act%201936.pdf
vi. http://en.wikipedia.org/wiki/Trade_unions_in_India
vii. http://dgms.net/ma_1952.pdf
viii. http://dgms.net/mr.pdf
ix. http://dgms.net/mvtr.pdf
x. http://dgms.net/Mines%20Rescue%20Rules.pdf
xi. http://www.slideshare.net/imranakbar/accidents-in-coal-mines

11. COURSE CURRICULUM DEVELOPMENT COMMITTEE

Faculty Members from Polytechnics

- **Prof. S.G. Srivastava**, H.O.D, Mining Engg. Dept., Govt. Polytechnic, Bhuj
- **Prof. C.V. Thakor**, Lecturer, Mining Engg. Dept., Govt. Polytechnic, Bhuj
- **Prof. S.C. Dabhekar,** Lecturer, Mining Engg. Dept., Govt. Polytechnic, Bhuj
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Coordinator and Faculty Members from NITTTR Bhopal

- **Dr. C. K. Chugh**, Professor, Department of Mechanical Engineering
- **Dr. P. Verma**, Professor, Department of Vocational and Entrepreneurship Education