

Shri Rawatpura Sarkar University, Raipur



Examination Scheme & Syllabus for B.Tech in Mining Engineering Semester-IV

(Effective from the session: 2019-20)



Faculty of Engineering, Shri Rawatpura Sarkar University, Raipur

**B.Tech in Mining Engineering
Semester-IV**

**Examination Scheme
(Effective from the session: 2019-20)**

S.N	Course Code	Th/ Pr	Subject	Type of Course	Teaching hours per week			TC	Examination Scheme				Total Marks
					L	T	P		Theory		Practical		
									EX	IN	EX	IN	
1	BENMN401T	Th	MiningEnvironment -II	Subsidiary	3	1	-	4	70	30	-	-	100
2	BENMN402T	Th	Basic MineSurveying	Core	3	1	-	4	70	30	-	-	100
3	BENMN403T	Th	Geology-II	Core	3	-	2	4	70	30	-	-	100
4	BENMN404T	Th	Underground CoalMining	Core	3	1	-	4	70	30	-	-	100
5	BENMN405T	Th	SurfaceMining	Core	3	1	-	4	70	30	-	-	100
6	BENMN406T	Th	MathematicsIV [NumericalMethods]	Core	3	1	-	4	70	30	-	-	100
7	BENMN402P	Pr	Basic MineSurveyingLab	Core	-	-	2	1	-	-	35	15	50
8	BENMN403P	Pr	MiningEnvironment -IILab	Core	-	-	2	1	-	-	35	15	50
Total Contact hr per week: 28				Total Credit: 26				Grand Total Marks:				700	

Course Title	Mining Environment-II
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Course Code	BENMN401				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Mining Environment-I				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Discuss the classification of engineering materials, structure of metals and alloys, and Fe-C phase diagram • Explain the treatment of iron & steel, hardening, annealing, normalizing, and tempering. • Explain the various types of ropes and its construction and application. • Explain the classification of cement, RCC, application of fly ash mining. • Discuss the engineering behavior of materials. 				
Course Contents	<p>UNIT I Ventilation Systems and Planning Calculation of Pressure and Quantity Requirements, Network Problems, Hardy-Cross method, Ventilation Planning and Economic Analysis, various types of Ventilation Schemes.</p> <p>UNIT II Mechanical Ventilation Mine Fans, Auxiliary and Booster Fans, Forcing and Exhaust Ventilation, Fan Reversal.</p> <p>UNIT III Ventilation Survey Methods and Instruments for the Measurement of Pressure, Velocity and Quantity of Air.</p> <p>UNIT IV Surface Mining Environment – I Air, Water, Noise pollution in Mines - Causes, Consequences, Preventive Measure Land degradation and reclamation.</p> <p>UNIT V Surface Mining Environment - II Environmental Impact of Surface Mining, Environmental Management Plan Environmental Audit Environmental problems in deep Surface Mines, Waste dumps.</p>				
Course Outcome					
Text Books	1. Introduction to Engineering Materials by B.K. Agrawal				



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	2. Elements of Mining Technology by D.J. Deshmukh, Vol.I
Reference Books	1.Environmental Impact of Mining By Down and Stokes 2.Subsurface Mine Ventilation, H.L. Hartman

Course Title	BASIC MINE SURVEYING
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Course Code	BENMN402				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Basic Civil Engineering				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Mining Engineering is the application of the knowledge of science and other branches of engineering for the extraction of minerals and ores from the surface of the earth. • Atmosphere becomes the first step of mining education. • Explain the origin, occurrence, effects, and detection of various mine gases. • Discuss the air conditioning of surface mines and underground mines. • Discuss about the challenges of underground mine surveying. 				
Course Contents	<p>UNIT I SURVEYING Definition, objective, classification and principles of surveying. Linear and Angular Measurement – Instruments for measuring distances and angles such as EDM, Total Station, Miner’s Dial. Prismatic compass: principle and construction and measurement techniques</p> <p>UNIT II THEODOLITE Essentials of the transit and modern micro-optic theodolite; measurement of horizontal and vertical angles; theodolite traversing, traverse calculations, adjustment of the traverse; computation of co-ordinates; temporary and permanent adjustments. Tacheometry: Principle and classification of tachometry; stadia tachometry; distance and elevation formulae</p> <p>UNIT III LEVELING Definition of leveling terms; leveling instruments; different types of leveling; booking and reduction methods; differential, profile, cross-sectional and reciprocal leveling; underground leveling; shaft depth measurement. Contouring: Characteristics, methods of contouring and uses of contours; problem solving.</p> <p>UNIT IV TRIANGULATION Classification, reconnaissance, measurement, procedures for angles and base-line Theory of errors: Calculation of most probable values, adjustment of observations.</p> <p>UNIT V CURVE SETTING Elements, laying of simple circular curves on surface and belowground. Transition</p>				



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	curve and super elevation. Development surveys: Setting a point of known coordinate, control of direction and gradient in drifts, tunnels, raises and winzes; application of lasers; Problems of underground traversing,
Course Outcome	At the end of the course student will be able to:- <ol style="list-style-type: none">1. The students are expected to enhance the technical knowledge on origin, occurrence, effects, and detection of various mine gases, air conditioning of surface and underground mining.2. To enhance the technical knowledge on health & safety.3. Work effectively as an individual and as a member of multidisciplinary team.4. Apply knowledge of surveying for understanding, formulating and solving surveying problems.5. Apply knowledge of surveying for understanding, formulating and solving surveying problems
Text Books	<ol style="list-style-type: none">1. V.S.Vutukuri and R.D.Lama, Environmental Engineering in Mines, Trans Tech Publishers.2. M.J.McPherson, Subsurface Ventilation and Environmental Engineering, Chapman & Hall Publication, London.3. G.B.Mishra, Mine Ventilation and Environment, Oxford University Press.
Reference Books	<ol style="list-style-type: none">1. H.L.Hartman, Mine Ventilation and Air Conditioning, Wiley Publication, 1999.2. D.J.Deshmukh, Elements of Mining Technology Vol II, VidyasewaPrakashan, Nagpur.3. A.Skochinsky and Komorov V., Mine Ventilation, MIR Pub., Moscow4. B.B.Dhar and A.K.Ghose, Mining Challenges for 21st Century, Ashish Publications New Delhi.5. D. Pennman, J.S. Penman, The principles and practice of Mine Ventilation, Charles Griffin6. H. Rabia, Mine Environmental Engineering, Entrac Software Pub.



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Course Title	Geology-II				
Course Code	BENMN403				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Introduction to Mining				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Know the various terminology of Geology and paleontology. • Know about the Indian stratigraphy and fossil fuels in India. • Learning of various economic minerals which is beneficial for industries. • Detailed knowledge about various minerals. • Discuss about the challenges of exploration to find the ore body. 				
Course Contents	<p>Unit-1 Principles of Stratigraphy & Paleontology</p> <p>Stratigraphy: Definitions and Basic Principles of Stratigraphy; Stratigraphic Units; Criteria for Stratigraphic Classification and Correlation; Standard Geological Time Scale.</p> <p>Paleontology: Fossils; Elementary idea about conditions, modes of preservation and uses of fossils. A preliminary idea on broad groups of animals and plants fossils; Brief Palaeontological study of Gondwana Fields</p> <p>Unit-2 Indian Geology</p> <p>Introduction: Major Geomorphic Divisions of India; General Review of Indian Stratigraphy.</p> <p>Indian Rock Systems: Classification, geographic distribution and descriptions of important Geological formations and Economic significance- Archean, Proterozoic, Palaeozoic, Mesozoic, Gondwana, Deccan Traps and Cenozoic</p> <p>Unit-3 Economic Geology-I</p> <p>Introduction: Definition and Scope of the subject; Fundamental terms and their definitions.</p> <p>Processes and forms: Brief review of the processes of Mineral formation and the Genetic Classification of Mineral Deposits. Distribution and Morphology of Minerals Deposits</p> <p>Unit-4 Economic Geology-II</p> <p>Metallic Minerals: Mode of Occurrence, Origin, Distribution, Association and</p>				



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	<p>Industrial uses of important Metallic (Au, Al, Cu, Fe, Mn, Sn, Pb and Zn) Minerals. Non-Metallic Minerals: Mode of Occurrence, Origin, Distribution, Association and Industrial Uses of important Non- Metallic (Diamond, Mica, Radioactive Minerals, Gypsum, Dolomites, Fire-Clay, Magnesite, Talc, Asbestos, Graphite, Kyanite, Sillimanite, Corundum, Fluorite, Phosphorite, Precious and Semi-Precious Stones) Minerals and Petroleum deposits of India.</p> <p>Unit-5 Prospecting and Exploration</p> <p>Introduction: Prospecting and Exploration -their definitions and classification of methods</p> <p>Methods and Guides: Elementary methods of Geological, Geophysical, Geochemical prospecting; Guides to Ores- Ringed Targets, Intersection Loci, Physiographical, Mineralogical, Stratigraphical and Structural Guides to Ores.</p>
Course Outcome	<p>At the end of the course student will be able to:-</p> <ol style="list-style-type: none">1. Apply knowledge of legislation in mines for the implementation of rules and regulations during their job.2. Work effectively with other engineering and science teams for suggesting any measures against any mine.3. know about the different types of mineral diposits.4. Detailed knowledge of mode of occurrence origine and distribution of minerals.5. Enhance the knowledge of geophysical and geochemical prospecting.
Text Books	<ol style="list-style-type: none">1. CMR-20172. MMR-1961 L. C. Kaku.3. Mines Act-19524. Mines Rules-1955 L. C. Kaku.
Reference Books	<ol style="list-style-type: none">1. Legislation in Indian Mines (A critical Appraisal) Vol. II & I By- S. D. Prasad & Prof. Rakesh



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Course Title	UNDERGROUND COAL MINING				
Course Code	BENMN404				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Introduction to Mining				
Course objectives	<ul style="list-style-type: none"> • Mining Engineering is the application of the knowledge of science and other branches of engineering for the extraction of minerals and ores from the surface of the earth or from the underground. • Geology becomes the first step of mining education. • It is essential to know and identify mineral and ore, their modes of occurrences in the earth crust and the formation and deposition of various rocks. • Discuss about the different types of deposits. • Know about the gaseous problems in underground mines. 				
Course Contents	<p>UNIT-I INTRODUCTION Theories of Coal Formation, Classification of Coal, Coal Seam and its Classification, Coal Seam Structures and abnormalities, Coal Measuring Rocks and their Characteristics, Distribution of Coal in India, Indian Coal Mining Industry.</p> <p>UNIT-II BORD AND PILLAR METHOD Development by Bord& Pillar system, Panel & without Panel system, Size and Shape of the Pillar, Galleries, Cycle of Operations, Depillaring, Problems in Depillaring, Preparatory arrangements, Pillar Extraction techniques, Depillaring with Stowing and Caving Methods, Dangers associated with Depillaring.</p> <p>UNIT-III LONGWALL MINING Important Terminology, Types of Longwall Faces and their choice, Merits and Demerits of Longwall mining, Development of Longwall Panels and Faces, Longwall Advancing Method, Longwall Retreating Method, Length of Longwall Faces, Rate of Face Advance, Double Unit Longwall Faces, Face Organization, Variants of Longwall Mining</p> <p>UNIT-IV OVERVIEW OF THICK SEAM MINING Problem in Mining of Thick Seams, Choice of Thick Seam Mining Methods, Inclined Slicing, Horizontal Slicing, Diagonal Slicing, Transverse Slicing, Sublevel</p>				



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	<p>Caving, Blasting Gallery Method, Cable-Bolting Method of Thick Seam extraction.</p> <p>UNIT-V</p> <p>OVERVIEW OF SPECIAL METHODS OF MINING</p> <p>Short wall Mining, Room & Pillar mining, Hydraulic Mining, Underground gasification of Coal, Introduction to CBM recovery.</p>
Course Outcome	<p>At the end of the course student will be able to:-</p> <ol style="list-style-type: none">1. Illustrate the fundamentals of underground coal mining.2. Explain the various mine development methods.3. Explain the long wall mining method.4. Analyze the various thick and deep seam mining methods.5. Categorize the various modern mining methods.
Text Books	<ol style="list-style-type: none">1. Fundamentals of Historical Geology and Stratigraphy of India: Ravindra2. Geology of India and Burma: M.S. Krishnan3. Economic Mineral Deposits: M.L. Jensen & A. Batman4. India's Mineral Resources: S. Krishnaswamy
Reference Books	<ol style="list-style-type: none">1. Geophysical Prospecting: M. Dorbin & B. Miller2. Courses in Mining Geology: Arogya swamy3. Applied Geology: S. Banger



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Course Title	Surface Mining				
Course Code	BENMN405				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Knowledge about various survey needed for any type of construction.				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Discuss the chain survey for linear measurements • Explain the compass survey • Discuss the plane table surveying and Miner’s Dial • Brief discussion on types of leveling instruments, temporary and temporary adjustment of leveling instruments, trigonometric leveling, reciprocal leveling. • Discuss about the various transportation system in mines. 				
Course Contents	<p>Unit-1 Open Pit Design and Layouts</p> <p>Classification of surface mining methods, mineral deposits suitable for open pit mining, important parameters of open pit design; design of benches, ultimate pit, stripping ratio, break even stripping ratio, different methods of opening up the deposits; box cuts, internal and external box cut, methods of driving box cuts; layout of open pits; layout of waste dumps, unit operations in opencast mining.</p> <p>Unit-2 Rock Drilling</p> <p>Theory of rock drilling, different types of drill machines used in open pits; rotary, percussive and rotary percussive drilling, selection of drill machines on the basis of drillability; computation of productivity of drill machines; inclined drilling; their advantages and disadvantages</p> <p>Unit-3 Pit Preparation</p> <p>Development of an open pit mine and its various activities, introduction to site preparation equipments such as dozers, scrapers, front-end loaders, grader, back hoe, etc.; their construction, machine operation, suitability and applicability; calculation of their productivity.</p> <p>Unit-4 Loading and Excavation</p> <p>Different types of excavators used in open pits; shovel, dragline, hydraulic excavators, multi bucket excavators, surfaceminers, their construction, specifications, machine operation, suitability and</p>				



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	<p>applicability; calculation of their productivity.</p> <p>Unit-5 Transport in Open Pit Automobile transport such as dumpers, its various types, applicability and limitations, computation of their productivity; synchronization of shovel dumper combination, automation in open pit transport such as truck dispatch system. Rail transport and conveyors; their suitability, in-pit crushing & conveying, high angle conveying, specialized conveying.</p>
Course Outcome	<p>At the end of the course student will be able to:-</p> <ol style="list-style-type: none"> 1. Analyzed different surface mining methods. 2. Design the layout and open of a large open cast mine. 3. Design drilling and blasting for Surface mining. 4. Choose the better excavation and loading method. 5. Organize the transportation system.
Text Books	<ol style="list-style-type: none"> 1. Surveying Vol. I by B.C. Punmia & Ashok Jain 2. Surveying Vol. II by B.C. Punmia & Ashok Jain 3. Surveying Vol. I by S.K. Duggal 4. Surveying Vol II by S.K. Duggal 5. Mine Surveying Vol I by Ghatak 6. Mine Surveying Vol II by Ghatak
Reference Books	<ol style="list-style-type: none"> 1. Metalliferous Mine Surveying : Frederick Winniberg 2. Surveying and levelling : Kanetkar and Deshpande



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Course Title	Mathematics IV [Numerical Methods]				
Course Code	BENMN406				
Course Credits	L	T	P	TC	
	3	1	-	4	
Prerequisites	Mathematics-I, Mathematics-II]				
Course objectives	<p>1.To enable the students to apply the knowledge of Mathematics in various fields:</p> <p>2.To solve the algebraic, transcendental and simultaneous linear equations and its application.</p> <p>3.To solve the problems related to data appear equal or unequal intervals and to obtain a functional relationship between the observed values.</p> <p>4.To calculate the derivative of the function and evaluate the definite Integral from set of numerical values.</p> <p>5.To solve the ordinary differential equations using different numerical techniques</p>				
Course Contents	<p>Unit-1 Numerical Solutions of Algebraic, Transcendental and Simultaneous Linear Equations Errors in numerical computation, Error type, Bisection Method, Regula–Falsi Method, Secant Method, Newton- Raphson Method, Direct Methods: Gauss Elimination, Gauss-Jordan & Crout’s Triangularisation Method, Iterative Methods: Jacobi, Gauss-Seidel & Relaxation Methods.</p> <p>Unit-2 Interpolation and Curve Fitting Finite differences, Forward, Backward & Central Difference Interpolation, Lagrange’s method and Newton’s Divided Difference method, Principle of Least Squares, Fitting a Straight Line, Fitting a Parabola, Exponential Function, Method of Group Averages.</p> <p>Unit-3 Numerical Differentiation and Integration Derivatives using Forward, Backward and Central Difference methods, Derivatives using unequally spaced values, Newton-Cote’s Quadrature method, Trapezoidal rule, Simpson’s 1/3 rule, Simpson’s 3/8 rule, Weddle’s rule.</p> <p>Unit-4 Numerical Solutions of Ordinary Differential Equations Numerical solutions of ODE by Picard’s Method, Taylor’s Series Method, Euler’s Modified Method, Runge-Kutta Method of Fourth Order, Milne’s Method, Adams–Bashforth Method to solve ODE.</p>				



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Course Outcome	At the end of the course student will be able to:- 1. Enhancing the mathematical knowledge and numerical solution of algebraic. 2. Learners get knowledge about parabola, exponential function. 3. know about the various methods of derivatives. 4. Know about the different mathematical methods.
	1.
Text Books	2. M. K. Jain, S. R. K. Iyengar & R. K. Jain Numerical Methods for Scientific and Engineering Computation, New Age International (P) Limited, Publisher. 3. B. S. Grewal, Numerical Method in Engineering and Science, Khanna Publisher. 4. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, Inc. Publisher
Reference Books	1. Fundamentals of Vibrations – Anderson, R.A. (McMillan) IS – 1893 (Part I): 2002, IS – 13920: 1993, IS – 4326: 1993, IS-13828: 1993 2. Earth quake engineering damage assessment and structural design – S.F. Borg Disasters and development – Cuny F (Oxford University Press Publication)



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Course Title	Basic Mine Surveying Lab				
Course Code	BENMN402P				
Course Credits	L	T	P	TC	
	-	-	4	2	
Prerequisites	Basic Mine Surveying]				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> The objective of the course is to give an overview of basic mine surveying, use of surveying instruments and fundamental techniques of linear measurements, angular measurements and coordinate surveying.. 				
Course Contents	<p>LIST OF EXPERIMENTS</p> <p>11. Linear measurement by different methods</p> <ul style="list-style-type: none"> Ranging and Chaining of line of 50 meter. Measurements of area by cross staff. Measurement of width of an obstacle which can be seen across but can't be chained. <p>2. Angular measurement by different methods using Prismatic compass, surveyor compass and miners dial.</p> <ul style="list-style-type: none"> Measurement of included angle by Prismatic compass. Plotting a closed traverse and elimination of errors. Measurement of angle by Miners Dial. <p>3. Different methods of Levelling.</p> <ul style="list-style-type: none"> Measurement of difference in elevation and gradient between two stations using dumpy level & auto level. <p>4. Horizontal and Vertical angle by different Theodolite</p> <ul style="list-style-type: none"> Horizontal angle measurement by Repetition and Reiteration method. Measurement of base height (for accessible and inaccessible base) by trigonometric surveying. <p>5. Different methods of Tacheometry survey</p> <ul style="list-style-type: none"> Measurement of stadia constant. Measurement of distance and elevation by Stadia method. 				



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	<ul style="list-style-type: none">• Study of Auto Reduction Tacheometer.6. Setting out of circular curve by Chord and Offset method, Rankine's method & Cord and Offset method.7. Study of total station and their working in underground and opencast mines.8. Study of triangulation method and base line measurement.9. Underground correlation survey by Weisbach triangle method.10. Study of DGPS and their use in mine survey.11. Study of Ediograph, Pentagraph and Planimeter & their use in maps and plan
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Course Title	Mining Environment- II Lab				
Course Code	BENMN403P				
Course Credits	L	T	P	TC	
	-	-	4	2	
Prerequisites	Mining Environment-II]				
Course objectives	<p>This course will enable students to:</p> <p>The students shall be enabled with the practical knowledge of ventilation planning, mechanical ventilators, selection of mine fan, ventilation survey of the underground mine, dust sampling instrument</p>				
Course Contents	<p>LIST OF EXPERIMENT</p> <ol style="list-style-type: none"> 1. 1. Study of installation of Axial flow fan. 2. Study of installation of Centrifugal flow fan. 3. Study of installation and positioning of Booster fan. 4. Study of characteristic curve of different fans and their comparison. 5. Study of principal and working of Vane anemometer. 6. Study of principal and working of Velometer. 7. Study of principal and working of Pitot static tube. 8. Study of central and boundary ventilation system. 9. Study of gravimetric Dust sampler. 10. Study of thermal precipitator Dust sampler.. 				



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Course Title	APPLIED GEOLOGY LAB				
Course Code	BENMN404P				
Course Credits	L	T	P	TC	
	-	-	4	2	
Prerequisites	Geography				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Explain physical properties of the mineral. • Brief discussion of igneous rock, sedimentary rock and metamorphic rock. • Discuss the folds, faults, joints, geological maps. 				
Course Contents	<p>LIST OF EXPERIMENTS</p> <p>1. Identification of Minerals in hand specimen -Asbestos, Augite, Biotite, Calcite, Corundum, Dolomite, Gypsum, Hornblende, Muscovite , Kaolinite Orthoclase, Plagioclase, Quartz, Talc.</p> <p>2. Identification of Rocks –</p> <p>(i) Granite, Rhyolite, Syenite, Gabbro, Basalt, Trachyte.</p> <p>(ii) Conglomerate, Sandstone, Shale, Limestone.</p> <p>(iii) Slate, Schist, Gneiss, Quartzite, Marble.</p> <p>3. Geological map reading and drawing simple Geological section -</p> <p>(i) Geological maps of inclined beds.</p> <p>(ii) Geological maps of Unconformity</p> <p>(iii) Geological maps of Folds.</p>				



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Course Title	MINE SURVEYING-I LAB				
Course Code	BENMN405P				
Course Credits	L	T	P	TC	
	-	-	4	2	
Prerequisites	Knowledge about various survey needed for any type of construction.				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none"> • Discuss the chain survey for linear measurements • Explain the compass survey • Discuss the plane table surveying and Miner’s Dial • Brief discussion on types of leveling instruments, temporary and temporary adjustment of leveling instruments, trigonometric leveling, reciprocal leveling. 				
Course Contents	<p>LIST OF EXPERIMENT</p> <ol style="list-style-type: none"> 1. To take the bearing of given lines and measure the included angles by the verniers of the dial. 2. To traverse the area by loose needle method with miner’s dial. 3. To traverse a given area by fast needle method with miner’s dial. 4. To sketch and describe a dumpy level. 5. Use and application of a micro optic level. 6. Find out the reduced level of different points with a given datum. 7. To carry out differential levelling and check the work by the levelling. 8. To draw a longitudinal profile along with a chain line. 9. To draw a cross section across given chain line. 10. To draw a contour of given area by direct and indirect methods. 11. To conduct a complete subsidence survey in a given area. 12. To calculate the contours of required reduced level and to plot the subsidence work with a suitable scale. 13. To sketch and describe a transit vernier theodolite. 14. To measure the horizontal angle by repetition method with a theodolite. 				



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Course Title	INDUSTRIAL TRAINING/VOCATIONAL TRAINING				
Course Code	BENMN406P				
Course Credits	L	T	P	TC	
	-	-	-	2	
Prerequisites	Industrial Training/ Mine Visiting				
Course objectives	<p>This course will enable students to:</p> <ul style="list-style-type: none">• Industrial Training is one of the most essential components for a B.Tech graduate in Mining.• The sole purpose of industrial training is to expose the students to “real life” situations. Different aspect of mining such as geology, exploration, selection of method of working.• Students will cover different coal and metal mines both underground and opencast in such a way that at the end of the completion of B.Techprogramme, they are conversant with different mining conditions.• Industrial training also opens avenues of new learning to the students and apply them during their project and industrial training presentations.				
Course Contents	<p>The students should follow the following procedures:-</p> <ol style="list-style-type: none">1. Before going for training, the students will prepare various formats for data collection based on the topic of training assigned to them.2. The students will be given specific assignments for the period of training.3. During the course of training students will complete weekly report, assignments and keep weekly attendance updated.4. On completion of training each student will submit a report of training and make a presentation before the group of students. Teacher assessment will be done during the training, on presentation of training and at the end of semester examination.5. A seminar will be organized on specific topics identified by the teacher and the students will present their experiences earned during the training on the specific tasks.6. Prepare the one training project file.				



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