

PROGRAM STRUCTURE
I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	191HS1T01	Communicative English		✓		Students are able to demonstrate communication skills to express fluently in both written as well as oral form of language which is very much essential for the career growth
2	191BS1T01	Differential Equations and Linear Algebra		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using ordinary differential equations, system of linear equations in various engineering disciplines.
3	191BS1T02	Engineering Physics				
4	191ES1T01	Programming for Problem Solving Using C	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions that enable them to be employed as a software developer.
5	191HS1L01	Communicative English Lab-I		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth
6	191BS1L01	Engineering Physics Lab				
7	191ES1L01	Programming for Problem Solving Using C Lab	✓			Students are able to demonstrate technical skills related to control structures, arrays, string formulas enabling them to be employed in

						software industry.
8	191ES1L02	Basic Engineering Workshop		✓		Engineering Workshop helps the students by improving their skills by knowing the construction of various wooden joints and various fitting joints, by understanding different black smithy work and preparing various sheet metal models.
9	191MC1A01	Environmental Science				
10	191MC1A02	Constitution of India				

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
11	191BS2T05	Partial Differential Equations and Vector Calculus		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations, vector differentiation, vector integration and their applications in various engineering disciplines.
12	191BS2T06	Chemistry of Materials				
13	191ES2T02	Engineering Graphics and Design		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations and their applications in various engineering disciplines.
14	191ES2T03	Essential Electrical and Electronics Engineering	✓			Students are able to acquire technical skill of characterizing electronic devices, modelling and analysis of electronic circuits in logging industry.
15	191ES2T04	Engineering Mechanics	✓			Students are able to acquire skills related to principles of friction, kinetics, kinematics, resolving forces, trusses etc which forms the crux of design sciences.
16	191HS2L02	Communicative English Lab-II		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth

17	191BS2L04	Engineering Chemistry Lab				
18	191ES2L03	Essential Electrical and Electronics Engineering Lab		✓		This subject helps the student to demonstrate their technical skills by analyzing various electrical networks, knowing the operation of Dc generators, analyzing the performance of single phase transformers and 3-phase induction motors. This will create skills among student so that wherever they will find these types of machine their deal with their complexities.
19	191ES2L12	Mining Engineering Workshop		✓		This subject helps the students to demonstrate their technical skills by knowing the construction of various wooden joints and various fitting joints, by understanding different black smithy work and preparing various sheet metal models.
20	191PR2P01	Engineering Exploration Project		✓		Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.

III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
21	171MI3T01	Introduction To Mining Technology		✓		This course demonstrate the technical skills of the student by giving them knowledge about life cycle of mines, ventilation, lighting and permanent lining of underground mines. It also gives knowledge about modern techniques of shaft sinking.
22	171MI3T02	Basic Mechanical Engineering For Mines		✓		This course demonstrate technical skills to improve the knowledge of the students about the law of thermodynamics, working principles of I.C engines and explain them about fluid statics, kinematics and dynamics.
23	171BS3T10	Probability and Statistics		✓		Students are able to demonstrate problem solving skills by learning about random variables , probability distributions, sampling theory, test of hypothesis, correlation and regression.
24	171ES3T22	Material Engineering		✓		This subject demonstrate the technical skill improvement of the student as it make the student to understand the basic concepts of Metallurgy and materials science and various types of heat treatments of alloys. This helps the student to understand the melting point of different minerals and mixing of alloys to make a metal more efficient and durable.
25	171MI3T03	Mining Geology-I		✓		Mining Geology -I helps to enhance students skills by giving them clear picture about the

						nature of the material, the attitude of the beds, structures caused by deformed forces, etc. Geology also helps in choosing the method of exploitation, finding the solution for the problems associated with it. Having depth knowledge in this subject students will be able to explore different mineral beds under the earth.
26	171ME3T01	Computer Aided Engineering Drawing Practice		✓		Students are able to acquire skills related to drafting of mechanical components/assemblies through AUTOCAD software enabling them to be employed as a design engineer.
27	171ES3L12	Electrical and Electronics Lab		✓		Electrical and electronics lab helps the students to improve their technical skills as they get to know how to determine the efficiency of dc shunt, Single phase transformers. This subject also helps to obtain the characteristics and performance of Dc shunt motors. This subject helps student to solve the Dc motor and transformers related problems at the mine site.
28	171ES3L13	Basic Mechanical Engineering Lab		✓		This course helps the students to demonstrate their technical skills by making them learn the basic principles of fluid flow, measurement of pressure, discharge and velocity of fluid flow. It also helps the students to have practical exposure on the performance evaluation methods of various flow measuring equipment, hydraulic turbines and pumps.
29	171HS3A09	Professional Ethics and Human Values		✓		Students are able to acquire skills which help them in becoming a professional with ethical and human values,

30	171HS3A10	Employability Skills-I	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
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IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
31	171ES4T27	Kinematics Of Machinery		✓		This subject helps the students to demonstrate their technical skills as they are able to understand the nature and role of the kinematics of machinery, the mechanisms and machines, it also helps the students to upgrade their skills by exposes the students to various kinds of power transmission devices like belt, rope, chain and gear drives and their working principles and their merits and demerits.
32	171MI4T04	Computer Application In Mining	✓			This subject helps the student to acquire skills in different mining companies as Providing them basic introduction on CAD applications, with reference to generation of basic CAD drawings which enable them to place in mine planning of different mining company.
33	171MI4T05	Mining Geology –II		✓		This subject demonstrate the technical skills of the student as it aware the students about different economic minerals and emphasizes their distribution in India. It also helps the student to know the basic principles of stratigraphy and procedure to be adopted in sampling . By the knowledge of this subject student can explore different mineral deposit by studying its stratigraphy.
34	171MI4T06	Mine Surveying – I		✓		This subject improve the skills of the student as it helps the student to determination of different levels and level difference and computation of

						areas, volumes which includes determination of capacity of reservoirs, volumes of barrow pits. This subject help the student to make a career as surveyor or asst. surveyor in the mining field.
35	171MI4T07	Surface Mining		✓		This subject demonstrate the technical skills and knowledge of students as they get to know about Opencast Mining, Ground Water control, use of drilling machines, Smooth Blasting and Pre- splitting, Mining methods and selection of high angle conveyor and In-Pit Crusher Conveyor System. This subject helps them to get placed in the surface mines as drilling & blasting expert or a surface mining engineer.
36	171MI4T08	Fundamentals of Rock Mechanics		✓		This subject demonstrate the technical skills of student by making them learn the basic principles of stress and strain, properties of rocks and their determination and also make them aware of failure theories of rock
37	171MI4L01	Geology Lab		✓		This subject helps the student to demonstrate their technical skills as students were able to know the properties of minerals, different faults of minerals and economic justification of minerals. This subject helps the mining students to have ample knowledge about minerals so that they can participate as an independent consultant in buying and selling of minerals.
38	171MI4L02	Computer Application In Mining Lab	✓			This subject helps the student to acquire skills in different mining companies as Providing them basic introduction on CAD applications, with reference to generation of basic CAD drawings enabling them to placed in mine planning.

39	171HS4A08	Intellectual Property Rights and Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.
40	171HS4A11	Employability Skills-II	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
41	171MI5T09	Under Ground Coal Mining Technology		✓		This subject helps the student to demonstrate their technical skills as they will understand the peculiarities and limitations of metal mining, familiar with different stopping methods, design and planning of stopping methods. Students can be placed in different metal mining companies by possessing a depth knowledge in this subjects.
42	171MI5T10	Mine Environment Engineering - I		✓		This subject enhance the skill of students to understand atmosphere and mine atmosphere conditions, heat and humidity levels in mines and controlling method. It also help students to know about ventilation standards planning and layout.
43	171MI5T11	Basic Geo Mechanics		✓		This subject helps the student to demonstrate technical skills as they are able to understand In-situ stress , slope stability, mine subsidence and numerical methods in rock mechanics.
44	171MI5T12	Mine Surveying - II		✓		This subject helps the student to improve their skills by understanding the correlation and stope survey methods and know and limitations of photogrammetry and modern survey methods.
45	171HS5T04	Managerial Economics and Financial Analysis	✓			This subject helps the student to acquire skills to understand managerial economic concept, Break even concept, profit & loss concept and balance sheet of an enterprise which enable them to be employed in the field of accounting and trading

						related jobs in the mines.
46	171MI5E01	Maintenance and Reliability Engineering		✓		This subject helps the student to demonstrate technical skills as they will be able to understand various aspects of maintenance, reliability and reliability management.
47	171MI5E02	Mine Construction and Management		✓		This subject helps the student to demonstrate technical skills to understand the selection sites of mine opening, types of lining, different drivages and surface layouts of different mines.
48	171MI5E03	Industrial Management and Labor Relations		✓		This subject helps the students to demonstrate technical skills as they will be able to understand project management techniques and labour relations and labour welfare activities.
49	171HS5T06	Employability Skills – III	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
50	171MI5L03	Rock Mechanics Lab		✓		This subject helps the students to improve their technical skills as they will understand geotechnical engineering which will provide an understanding for the assessment of Rock mass characterization based on Rock mass properties
51	171MI5L04	Mine Surveying Lab		✓		This subject helps the student to improve their skills as they will understand different equipment and compare accuracy levels and to study several experiments and conversant with it.
52	171MI5S01	MOOCs - I				

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
53	171MI6T13	Under Ground Metal Mining Technology		✓		This subject helps the student to demonstrate their technical skills as they will understand the peculiarities and limitations of metal mining, familiar with different stopping methods, design and planning of stopping methods. Students can be placed in different metal mining companies by possessing a depth knowledge in this subjects.
54	171MI6T14	Mineral Processing Technology		✓		This subject help the students to enhance the technical skills of mining engineering students as they will know different mineral processing techniques and also they will get to know about different type of fuel technology. This subject helps the mining student to get placed in different process related plants
55	171MI6T15	Mine Environment Engineering - II		✓		This subject helps the student to demonstrate their problem solving skills of the students as they will understand the process of spontaneous heating, fires, explosion, inundation and adverse effects, rescue and recovery operation and standards of lighting arrangement.
56	171MI6T16	Mining Machinery		✓		This subject demonstrate technical skills as they will aware of winding engines and other winding accessories, various coal face machinery, they will also get to understand design and construction details of excavating & transporting equipment's used in surface mines

57	171MI6E04	Advanced Geo Mechanics		✓		This subject demonstrate technical skills as student able to understand the in extensometers and bore hole cameras, underground support system and modern instruments of Hydroelectric projects and tunnels.
58	171MI6E05	Mine Fire and Spontaneous Heating		✓		This subject demonstrate technical skills as students able to understand mine fires with statistical data of Indian mines, techniques and equipment of fire fighting, spontaneous heating and liability indices and relative proneness of spontaneous heating.
59	171MI6E06	Mineral Exploration		✓		This subject demonstrate technical skills as students able to understand the methods of mineral exploration its instrumentation, exploratory drillings and fundamentals of remote sensing.
60	171MI6E09	Rock Fragmentation Engineering		✓		This subject demonstrate technical skills of the students by making them know the estimation of rock mass strength, its behaviour during excavation, types of drilling and blasting methods depend on the rock mass characterization
61	171HS6T07	Employability Skills - IV	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
62	171MI6L05	Mineral Processing Technology Lab		✓		Mineral Processing lab helps the students to demonstrate technical skills by giving them

						hands-on experience to the various laboratory techniques and procedures of mineral processing such as sampling, screening, crushing, grinding, etc which helps them to get placed in different process industry.
63	171MI6L06	Environmental Engineering Lab		✓		This subject helps the student to upgrade their skills by making them familiar with detection of different gases using different methods detectors and multi gas detector, to find flammable index of coal dust and understand the rescue and recovery operations using different rescue apparatus.
64	171MI6S02	MOOCs - II				

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
65	R1641261	Computer Applications in Mining	✓			This subject helps the student to demonstrate technical skills in different mining companies as Providing them basic introduction on CAD applications, with reference to generation of basic CAD drawings for mine planning.
66	R1641262	Underground Metal Mining Technology		✓		This subject helps the student to demonstrate their technical skills as they will understand the peculiarities and limitations of metal mining, familiar with different stopping methods, design and planning of stopping methods. Students can be placed in different metal mining companies by possessing a depth knowledge in this subjects.
67	R1641263	Rock Mechanics & Ground Control		✓		This subject helps the students to demonstrate technical skills as they will understand geotechnical engineering studies will provide an understanding for the assessment of Rock mass characterization based on Rock mass properties. It also aware the student of stress and stress regime along the mine openings, methods of stress measurement, stress regime, induced stresses, failure modes, propagation of failures in the rock due to dynamic loading.
68	R1641264	Mine Legislation & General Safety		✓		This subject is vital and important subject of mining as it demonstrate the technical skills by provides an insight to various laws, rules and Acts related to Mines Safety and mining

						legislation. This subject will help the students to qualify different DGMS certification exam of Mines Manager.
69	R164126C	Rock Fragmentation Engineering		✓		This subject demonstrate technical skills of the students by making them know the estimation of rock mass strength, its behaviour during excavation, types of drilling and blasting methods depend on the rock mass characterization.
70	R164126D	Deep Sea Mining		✓		This subject acquire skills related to new technologies for the extraction of oil and gas production, developments in marine technologies for the extraction of deep seated minerals in future enabling them to be employed in petroleum and deep sea mining industries.
71	R164126E	Mine Construction Engineering		✓		It improves the technical skills of the students as it involves various aspects of selection criteria starting from site selection, design of underground structures, access to different working areas and development of stopping and mining methods.
72	R164126F	Tunnelling Engineering		✓		This subject helps the student to demonstrate their technical skills as they will understand the peculiarities and limitations of metal mining, familiar with different stopping methods, design and planning of stopping methods. Students can be placed in different metal mining companies by possessing a depth knowledge in this subjects.
73	R1641019	IPR & Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.
74	R1641267	Computer Applications in Mining Lab	✓			This subject helps the student to employ in different mining companies as Providing them


						basic introduction on CAD applications, with reference to generation of basic CAD drawings for mine planning.
75	R1641268	Rock Mechanics & Ground Control Lab		✓		This subject helps the students to improve their technical skills as they will understand geotechnical engineering which will provide an understanding for the assessment of Rock mass characterization based on Rock mass properties

VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
76		Short Survey Camp (One Week)				
77	R1642031	Production Planning and Control	✓			Students are able to acquire skills in improving the concepts of production planning and production control techniques enabling them to be employed in manufacturing industries.
78	R1642261	Mine Economics & Investment		✓		This subject helps the student to demonstrate technical skills as they are able to understand the estimation and valuation of mineral deposits and they will possess knowledge about project appraisal, finance and accounting.
79	R1642262	Mine Health and Safety Engineering		✓		This subject demonstrates the technical skills of different aspects of mine health and safety related problems also it create awareness of the hazardous effect of mining in mining workers health.
80	R164226A	Planning of Underground Metal Mining Projects		✓		This subject helps the student to understand different mining methods in under ground metal mining that will help them to know what types of stopping methods can be adopted to different types of mineral deposits.
81	R164226B	Planning of Underground Coal Mining Projects		✓		This subject helps the students to understand different methods of coal mining, advantages and disadvantages which is analysed the logical

						application of choice of mining methods can be evaluated in the mines.
82	R164226C	Planning of Surface Mining Projects		✓		This subject helps the student to improve their skills as here entire phasing and sequencing of equipment planning, selection components are discussed for the optimization of the production and increasing the production cycle coupled with financial analysis.
83	R1642265	Seminar		✓		Students will be able to demonstrate problem identification, analysis, design solutions or applications in petroleum technology domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
84	R1642266	Project		✓		Students will be able to demonstrate problem identification, analysis, design solutions or applications in petroleum technology domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
Total		84	16	57	02	


Program Coordinator


Head of the Department
Head of the Department
DEPARTMENT OF MINING ENGINEERING
ADITYA ENGINEERING COLLEGE (A9)