

PROGRAM STRUCTURE
I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	171HS1T01	English - I		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
2	171BS1T01	Mathematics - I		✓		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	171HS1T02	Environmental Studies				
4	171BS1T03	Engineering Chemistry				
5	171ES1T02	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.
6	171ES1T01	Computer Programming	✓			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.
7	171HS1L01	English Communication Skills Lab - I		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
8	171BS1L01	Engineering Chemistry Lab				

9	171ES1L01	Computer Programming Lab	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions enabling them to be employed as a software developer.
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II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	171HS2T03	English - II		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
11	171BS2T02	Mathematics - II		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations and their applications in various engineering disciplines.
12	171BS2T06	Mathematics - III		✓		Students are able to demonstrate problem solving skills by evaluating improper and vector integrals applicable in various engineering disciplines.
13	171BS2T07	Engineering Physics				
14	171ES2T03	Engineering Drawing		✓		Students are able to acquire skills related to creating technical drawings by displaying from different angles of projection and adding dimensional information.
15	171ES2T05	Basic Electrical and Electronics Engineering	✓			Students are able to acquire skills related to basic electrical and electronic principles enabling them to be employed for designing civil engineering constructional elements.
16	171HS2L02	English Communication Skills Lab – II		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
17	171BS2L02	Engineering Physics Lab				

18	17IES2L02	Engineering Workshop and IT Workshop		✓		Students are able to acquire skills related to system troubleshooting, implement MS office tools, develop LaTeX documents and to work with Linux commands. Students are able to acquire skills related to building various joints in different trades for several applications
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III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
19	R1621261	Development of Mineral Deposits		✓		This subject emphasis on the skill development of student as it will helps the students to gain knowledge on ordinary methods of drilling and blasting and special method of shaft sinking , students will also get to know different drives in underground mines. This subject overall helps to enhance the technical skills of students by gaining their knowledge in modern shaft sinking method which is the preliminary work in the underground mines.
20	R1621262	Thermal Engineering for Mining		✓		Thermal engineering subject helps the student to improve their technical skills by knowing different types of thermodynamics laws, the operation of a heat engine and functioning of various systems of compressors, boilers, refrigeration and air conditioning. This will help the students to get placed in the boilers plant.
21	R1621034	Fluid Mechanics and Hydraulic Machines	✓			Students are able to acquire skills related to concepts of fluid statics, dynamics and performance characteristics of turbines and pumps and enabling them to be employed as a fluid engineer.
22	R1621035	Computer Aided Engineering Drawing Practice		✓		Computer Aided Drawing practice is designed to improve the skills of the students as they will able to draft packages and commands for computer aided drawing and modelling. Students will able gain the skills to draw complex drawing by using this tools.
23	R1621263	Mining Geology – I		✓		It 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.
24	R1621026	Managerial Economics & Financial Analysis			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.
25	R1621036	Electrical and Electronics Engineering Lab		✓		Electrical and electronics lab helps the students to improvise 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.
26	R1621264	Fluid Mechanics and Hydraulic Machines Lab		✓		This subject helps the students to improve their skills by making them know the performance evaluation methods of various flow measuring equipment and hydraulic turbines and pumps. This subject helps the students to demonstrate their skills as they will identify and know the uses of different pumps which will be used in underground and open cast mines.

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
27	R1622031	Kinematics of Machinery	✓			This subject helps the students to improve their 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.
28	R1622261	Materials Engineering		✓		Materials engineering subject develops the 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.
29	R1622262	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 and mineral wealth of India and Andhra Pradesh. By the knowledge of this subject student can explore different mineral deposit by studying its stratigraphy.
30	R1622263	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.
31	R1622264	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 and blasting expert or a surface mining engineer.
32	R1622036	Industrial Engineering and Management			✓	Entrepreneurship- This subject helps the student to demonstrate competency become as the students have interactions between engineering, business, technological and environmental spheres in the modern society. This subject also understand students role as engineers and their impact to society at the national and global context which enabling them to become an entrepreneur.
33	R1622265	Geology Lab		✓		This subject helps the student to improve their skills as students get 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 in buying and selling of minerals.
34	R1622266	Materials Lab		✓		This subject helps the student to demonstrate their technical skills as students get exposed to various tests such as tension, hardness, torsion, etc., they were also able to understand various microstructures of engineering materials which

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						helps them to understand various complexities of the materials.
35	R1622267	Professional Ethics & Human Values				

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
36	RT31261	Underground Coal Mining Technology		✓		Skill Development This subject helps the student to improve their skills by understand coal growth in India and all over the world and different terminology used in coal mining including modern methods. The subject also have a new innovative thoughts through computer application which also helps to get placed in various underground Coal mines.
37	RT31263	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.
38	RT31264	Electrical Equipment in Mines		✓		This subject helps the student to demonstrate their technical skills as it helps the students to understand standards of lighting in different working areas, AC and Dc motors and its maintenance, earthing methods and applicability. This subject will guide the students of mining to be self sufficient for the electrical related problems in mines.
39	RT31265	Mine Surveying– II		✓		This subject helps the student to demonstrate their technical skills by understanding the correlation and stope survey methods and also the limitations of photogrammetry and modern survey methods. This subject designed to make the students expert in the surveying methods so that they can become a surveyor in mines and different mining related fields.

40	RT31022	Managerial Economics & financial analysis			✓	The subject helps the student to improve the ideas as it develops the managerial skills in the students, it also helps the student to understand various financial terms and analysis of it which help them to become an independent entrepreneur.
41	RT31266	Mine mechanization		✓		This subject helps the student to demonstrate their technical skills as they will able to know surface and pit bottom layouts, various coal face machinery. It also help to upgrade the skills of students as they will able to know the design and construction details of excavating & transporting equipment's used in surface mines.
42	RT31267	Advanced English Communication Skills Lab			✓	This subject helps the student to prepare themselves for their careers which may require them to listen to, read, speak and write in english both for their professional and interpersonal communication in the globalised context which help to placed in good companies.
43	RT31268	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.
44	RT31016	IPR & Patents				
45	RT31260	Mine Field visit(Mandatory)				

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
46	1RT32261	Mine Systems Engineering		✓		Mine system engineering helps the student to enhance technical skills as they expose the students to advanced optimization procedures to be adapted in mining.
47	1RT32262	Mineral Engineering and Fuel 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.
48	1RT32263	Mine Environmental 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.
49	1RT32264	Mining Machinery		✓		This subject helps the student to demonstrate their technical skills as they will able to know surface and pit bottom layouts, various coal face machinery. It also upgrade the skills of students as they will able to know the design and construction details of excavating & transporting equipment's used in surface mines.
50	1RT32265	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 stoping methods, design and planning of stoping methods. Students can be placed in

						different metal mining companies by possessing a depth knowledge in this subjects.
51	RT32266A	Rock Slope Engineering		✓		This subject demonstrate technical skills as they will understand the basic mechanics of rock failures and various which influence it.
52	RT32266B	Mine Subsidence Engineering		✓		This subject demonstrate technical skills as students able to understand the theories of mine subsidence and factors affecting it, methods of surface subsidence prediction, mining activities effect and time influence and impact on structure and influence of item on subsidence.
53	RT32266C	Rock Fragmentation Engineering		✓		This subject helps the students to demonstrate their technical skills as they will get to know the theory of rock breaking, and its applications by using various types of rock drilling and blasting methods.
54	RT32267	Mineral Engineering 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.
55	RT32268	Environmental Engineering Lab		✓		This subject helps the student to upgrade their technical skills by making them familiar with detection of different gases using deferent methods detectors and multi gas detector, to find flammable index of coal dust and understand the rescue and recovery operations using different rescue apparatus.
56	RT32269	Industrial Training (3-4weeks)				

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
57	RT41261	Mine Economics		✓		This subject helps the student to demonstrate their problem solving skills by having the knowledge of estimation and valuation of mineral deposits, understanding the concept of project appraisal, finance and accounting which helps student to get their skill enhanced. Students possessing depth knowledge in this subject can employ themselves in the policy making of different minerals.
58	RT41262	Computer Applications in Mining	✓			This subject helps the student to acquire skills in different mining companies by providing them basic introduction on CAD applications, with reference to generation of basic CAD drawings this will help them to employ in mine planning.
59	RT41264	Mine Legislation & General Safety		✓		This subject is vital and important subject of mining as it demonstrates 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.
60	RT41265	Industrial Robotics		✓		Industrial robotics is quite new subject in era it will helpful to the student to demonstrate their technical skill as students practice in applying their knowledge of mathematics, science, and Engineering and to expand this knowledge into the vast area of robotics and will be exposed to the concepts of robot kinematics, Dynamics, Trajectory planning
61	RT41267	Numerical Methods		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using Advanced Numerical Methods and Applied Statistics in various engineering disciplines.

62	RT41268	Industrial Management		✓		It helps the students to Improve their technical skills as it will create a relationship between the engineering, business, technological and environmental spheres in the modern society. It also helps the to understand their role as engineers and their impact to society at the national and global context.
63	RT4126L	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.
64	RT4126M	Rock Mechanics & Ground Control Lab		✓		This subject helps the student to improve their skills as they will understand basic concepts of determining the physic-mechanical properties of rocks and also they will understand various rock mass properties such as uniaxial compressive strength, tensile strength, impact, slake durability and shear strength properties for rock and soil.
65	RT4126N	Short Survey Camp (One Week)		✓		This helps the student to demonstrate their technical skills as they will visit a place and perform indecent survey so that they can become a surveyor in a mining location.


VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
66	RT42031	Production Planning and Control			✓	Entrepreneurship- This subject helps the student to demonstrate competency in the concepts of production and service systems, it also helps to know the principles and techniques in the design, planning and control of these systems to optimise and make best use of resources in achieving their objective which helps them to enable them a good entrepreneur.
67	RT42262A	Deep Sea Mining		✓		It helps the student to demonstrate their technical skills as students were able to know the characteristics of the ocean floor, off shore exploration of oil and gas and sub sea systems.
68	RT42263A	Planning of Under Ground Metal Mining Project		✓		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.
69	RT42263B	Planning of Under Ground Coal Mining Project		✓		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.
70	RT42263C	Planning of Surface Mining Projects	✓			It helps the student to demonstrate their technical skills as here entire phasing and sequencing of equipment planning and selection components are discussed for the optimization of the production and increasing the production cycle coupled with financial analysis. Possessing good knowledge of this subject helps them to placed as a surface mining planner.

71	RT42264A	Maintenance & 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.
72	RT42264B	Rock Excavation Engineering		✓		This subject helps the student to demonstrate technical skills as they understand the engineering properties of rock and rock mass is essential.
73	RT42264C	Mine Health and Safety Engineering		✓		This subject demonstrates the technical skills of different aspects of mine health and safety related problems also it creates awareness of the hazardous effect of mining in mining workers' health.
74	RT42265	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.
Total		74	10	50	05	



Program Coordinator



Head of the Department

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