

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade
Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956
Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Program Name : B.Tech. in Mining Engineering

Syllabus Revision for the Academic Year 2021-2022				
S.No	Semester	Course Code	Course Name	% of content revised for the existing year
1	1	201HS1T01	Communicative English	0
2	1	201BS1T01	Differential equations and Linear algebra	0
3	1	201BS1T02	Engineering Physics	0
4	1	201ES1T03	Essential Electrical and Electronics Engineering	0
5	1	201ES1T05	Engineering Graphics	0
6	1	201HS1L01	Communicative English Lab	0
7	1	201BS1L01	Engineering Physics Lab	0
8	1	201ES1L03	Essential Electrical and Electronics Engineering Lab	0
9	1	201MC1T01	Environmental Science	0
10	2	201BS2T05	Partial Differential Equations and Vector Calculus	0
11	2	201BS2T08	Chemistry of Materials	0
12	2	201ES2T06	Engineering Mechanics	0
13	2	201ES2T08	Programming for Problem Solving Using C	0
14	2	201ES2L07	Engineering Workshop	0
15	2	201ES2L12	Computer Aided Drafting Lab	0
16	2	201HS2L02	Professional Communications Skills Lab	0
17	2	201BS2L05	Engineering Chemistry Lab	0
18	2	201ES2L10	Programming for Problem Solving Using C Lab	0
19	2	201MC2T02	Constitution of India	0

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20	3	201BS3T14	Numerical Methods and Integral Transforms	0
21	3	201ES3T17	Basic Mechanical Engineering	0
22	3	201MI3T01	Mining Geology	0
23	3	201MI3T02	Mine Surveying	0
24	3	201MI3T03	Development of Mineral Deposits	0
25	3	201MI3L01	Geology Lab	0
26	3	201MI3L02	Basic Mechanical Engineering Lab	0
27	3	201MI3L03	Mine Surveying Lab -I	0
28	3	201SO3L09	Geo-Statistics through SURPAC	20
29	3	201MC3T03	Biology for Engineers	0
30	4	201BS4T17	Complex Variables and Statistical Methods	0
31	4	201MI4T04	Fundamentals of Rock Mechanics	0
32	4	201MI4T05	Surface Mining	0
33	4	201MI4T06	Underground Coal Mining Technology	0
34	4	201BS4T18	Managerial Economics and Financial Accountancy	0
35	4	201MI4L04	Rock Mechanics Lab	0
36	4	201MI4L05	Mine Surveying Lab -II	0
37	4	201SC4L20	Data Analytics for Mining using Python	100
38	4	201MC4T04	Essence of Indian Traditional Knowledge	0
39	5	191MI5T09	Mine Systems Engineering	0
40	5	191MI5T10	Underground Metal Mining Technology	0
41	5	191MI5T11	Mine Environment & Ventilation Engineering	10
42	5	191MI5T12	Mine Machinery	10
43	5	191MI5E02	Environmental Impact Assessment	0
44	5	191MI5E03	Planning of Underground Coal Mining Project	0
45	5	191MI5E04	Sustainable Mining	100
46	5	191MI5E01	Drilling & Blasting	0

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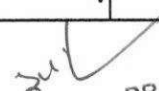
47	5	191CE5O01	Basic Concrete Technology	1 00
48	5	191EE5O01	Electrical Safety	1 00
49	5	191EE5O02	Electrical Materials	1 00
50	5	191EE5O03	Basic Electrical Measurements	1 00
51	5	191ME5O01	Renewable Energy Sources	1 00
52	5	191ME5O02	Fundamentals of Mechanical Engineering	1 00
53	5	191ME5O03	Supply Chain Management	1 00
54	5	191ME5O04	3D Printing	1 00
55	5	191ME5O05	Entrepreneurship Development and Incubation	1 00
56	5	191EC5O01	Signals and Systems	1 00
57	5	191EC5O02	Digital Electronics and Logic Design	1 00
58	5	191EC5O03	Semi conductor devices	1 00
59	5	191CS5O01	Data Structures	1 00
60	5	191CS5O01	Object Oriented Programming through C++	1 00
61	5	191CS5O03	Java Programming	1 00
62	5	191CS5O04	R Programming	1 00
63	5	191IT5O01	Database Management Systems	1 00
64		191IT5O02	Computer Graphics	1 00
65	5	191PT5O01	Process Intensification in Petroleum Industry	1 00
66	5	191PT5O02	Fundamentals of Petroleum Industry	1 00
67	5	191AG5O01	Basic Crop Production Practices	1 00
68	5	191MI5L04	Mine Environment & Ventilation Engineering Lab	0
69	5	191HS5T06	Employability Skills – III	0
70	5	191PR5P02	Socially Relevant Project	1 00
71	5	191MC5A08	Intellectual Property Rights and Patents	
72	6	191MI6T13	Mineral Processing Technology	30
73	6	191MI6T14	Mine Hazards & Rescue	15

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74	6	191MI6T15	Environmental Management in Mines	100
75	6	191MI6E06	Mine Health & Safety Engineering	0
76	6	191MI6E07	Planning of Underground Metal Mining Project	0
77	6	191MI6E05	Green Mining	100
78	6	191MI6E08	Rock Fragmentation Engineering	0
79	6	191MI6E10	Environmental Pollution and Control	5
80	6	191MI6E11	Planning of Surface Mining Project	0
81	6	191MI6E09	Deep Sea Mining	0
82	6	191MI6E12	Rock Excavation Engineering	20
83	6	191CE6O02	Disaster Management	100
84	6	191EE6O04	Energy Audit and Conservation Management	100
85	6	191EE6O05	Non-Conventional Energy Sources	100
86	6	191EE6O06	Instrumentation	100
87	6	191ME6O06	Solar Energy Utilisation	100
88	6	191ME6O07	Basic Thermodynamics and Heat Transfer	100
89	6	191ME6O08	Introduction to Hydraulics and Pneumatics	100
90	6	191ME6O09	3D Printing	100
91	6	191ME6O10	Robotics	100
92	6	191ME6O11	Management Science	100
93	6	191ME6O12	Entrepreneurship Development and Incubation	100
94	6	191EC6O04	Biomedical Instrumentation	100
95	6	191EC6O05	ECAD Tools	100
96	6	191CS6O05	Python Programming	100
97	6	191CS6O06	Operating Systems	100
98	6	191CS6O07	Web Technologies	100
99	6	191CS6O08	Cyber Security	100
100	6	191CS6O09	AR / VR	100

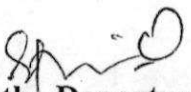
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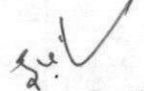
101	6	191IT6O03	Computer Organization	100
102	6	191IT6O04	AI Tools & Techniques	100
103	6	191IT6O05	Robotic Process Automation	100
104	6	191PT6O03	Unconventional Hydrocarbon Resources	100
105	6	191PT6O04	Asset Management	100
106	6	191AG6O02	Weather forecast in Agriculture	100
107	6	191AG6O03	Bio-energy systems design and applications	100
108	6	191MI6L05	Mine Planning & Design Lab	0
109	6	191MI6L06	Mineral Processing Lab	40
110	6	191HS6T07	Employability Skills – IV	0
111	6	191MC6A09	Professional Ethics and Human Values	100
112	7	171MI7T17	Mine Economics	0
113	7	171MI7T18	Mine Health and Safety Engineering	0
114	7	171MI7T19	Mine Legislation and General Safety	0
115	7	171MI7T20	Mine Management	0
116	7	171MI7E10	Planning of UGMM Project	0
117	7	171MI7E11	Planning of UGCM Project	0
118	7	171MI7E12	Planning of Surface Mining Project	0
119	7	171MI7E13	Mine mechanization	0
120	7	171MI7E14	Advance Underground Coal Mining Technology	0
121	7	171MI7E15	Mine Blasting operation	0
122	7	171MI7L07	Mine Planning and Design Lab	0
123	7	171ES7L16	Mechanical Engineering Lab	0
124	7	171MI7P01	Industry Oriented (Internship) Minor Project	0
125	8	171MI8E16	Mine Systems Engineering	0
126	8	171MI8E17	Advance Surface Mining Technology	0
127	8	171MI8E18	Advanced Underground Metal Mining Technology	0


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128	8	171EE8O05	Robotics	0
129	8	171MI8O01	Environmental Impact Assessment	0
130	8	171MI8O02	Mine Closure and Reclamation	0
131	8	171MI8O03	Fundamentals of Communication	0
132	8	171MI8O04	Remote Sensing and GIS	0
133	8	171MI8O05	Quantitative Decision Making	0
134	8	171MI8P02	Major Project	0
Total number of courses in the academic year 2021-2022				134
Number of courses having revision in syllabus content $\geq 20\%$ in the academic year 2021-2022				56
Percentage of syllabus revision carried out in the academic year 2021-2022 = $(56/134)*100$				41.79


Program Coordinator


Head of the Department
Head of the Department
DEPARTMENT OF MINING ENGINEERING
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15. Suggested to include Accident enquiry report in Unit II of MHSE and removed the prevention in surface & underground mines
16. Suggested to change Unit III heading as Hazard identification & analysis in MHSE
17. Suggested to change headings of Unit IV & V as Behavioral based safety, Safety management and audit and added innovations in mine safety engineering in Unit V
18. Suggested to keep headings as, Design of stoping operations, Equipment & Support systems, Transport & Backfilling, Case studies, Basic considerations for the Units II, III, IV, V & I, removed grade control in Unit III and added in Unit I, also planning of stoping methods in Unit I of PUMMP.
19. Suggested to include Bio fuels in Unit V from Unit I in Green Mining
20. In RFE, removed the portion of types of explosives & accessories in Unit IV and suggested the headings as Blasting design, Blasting monitoring & control for IV & V Units.
21. In MPT Lab, John riffle method is removed in experiment I, kept Proximate analysis of coal in experiment VII, and small changes in II, III, IV, V and VIII experiments
22. In Environmental Engineering Lab, added DO & BOD of water sample and PH content & conductivity of water sample in exp I & II, acidity & alkalinity, determination of ambient air quality using respirable dust samples, application of sensor for air quality measurement, determination of organic matter content of soil, soil resistivity, noise quality assessment using sound level meter, determination of soil texture in list of experiments and determination of sulphate content Na, K, Ca, ions using flame photo meter, determination of hardness of water in augmented experiments.
23. In PSMP, suggested all Units headings as Preliminary Investigations, Production planning & scheduling, Transport & Material handling, Design of slopes, Other Mining Techniques.
24. Headings of units are changed as Introduction, Profile of the sea, Marine deposit, Offshore exploration, Legal aspects of ocean floor mining in Deep Sea Mining.
25. Unit II heading is changed as Properties of Rocks in REE.
26. In Safety practices in mines, included accident analysis, Henrich & Pearson triangle for mine accidents, rescue apparatus and Safety appliances w.r.t mine gasses in Unit III & IV.
27. Suggested the headings as Mechanism of slope failure, monitoring & analysis, Parameters affecting slope stability and included Static & dynamic loading in Unit III, Biological & Engineering Techniques in Unit V, Software's for slope stability analysis in Unit IV for Rock Slope Technology.
28. Identification of safety issues in different industries, changed the term technological to engineering in Unit IV, headings as Concept of mine closure, mine closure planning, implementation of mine planning, mine reclamation challenges, risk of mine closure planning, Financial Provisions for all the units and included mine closure funding sources, Escrow account, penalties, cost of mine closure & reclamation in Unit V of MC& R.
29. In Unit IV & V, removed design of open pit slopes, waste dumps and included Factor of safety, Design & stability, subsidence damage and prevention.


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30. Suggested mine design software heading for Unit V for Software's in mine planning and blasting
31. Suggested to add Planning & Designing of Surface Mining Project in Minor & Honors degree courses.

Agenda 8.4: Discussion on proposed syllabus for courses in V to VII Semester under AR20 honours and Minor Degree and ratification of the same.

The BoS members have discussed and approved the courses in V to VII Semester under AR20 honours and Minor Degree.

Agenda 8.5: Discussion on the value-added courses to be offered for students and ratification of the same.

The BoS members approved the list of value-added courses offered to students and ratified the same.

Agenda 8.6: Discussion on the new courses offered in B. Tech. (Min.E), programme and ratification of the same.

The BoS members have discussed and approved the new courses introduced in B. Tech. (Min.E), programmes. The Percentage of new courses introduced in the academic year 2021-2022 for B.Tech (Min.E) is 7.69%. The list of new courses is enclosed as Annexure-I.

Agenda 8.7: Discussion on the percentage of syllabus revision done in B.Tech.(Min.E) programme and ratification of the same.

The BoS Members approved the change in of syllabus revision done in the AR20 B.Tech. (Min.E) program. The percentage of courses revised in the academic year 2021-2022 for B.Tech (Min. E) is 41.79%. The list of courses revised is enclosed as Annexure-II.

Agenda 8.8: Discussion on the courses having focus on employability/entrepreneurship/skill development in B.tech (Min.E) programs and ratification of the same.

The members of BoS ratified the courses having focus on employability/entrepreneurship/skill development in B.Tech. (Min.E) programme.

Agenda 8.9: Discussion on B.Tech. (Min.E), programme in which Choice Based Credit System (CBCS)/elective course system is being implemented and ratification of the same.

- The members discussed and approved the choice-based credit system for B.Tech. (Min.E), programme.



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Agenda 8.10: Analysis of Feedback on Curriculum from Stakeholders

The BoS chairperson expressed the process of collecting feedback from the stake holders, the BoS members reviewed and discussed regarding that. The BoS members noted the same and advised to incorporate the suggestions as per the feasibility. The Action Taken Report is enclosed as Annexure-III.

Agenda 8.11: Analysis of Results of the odd semester of the academic year 2021-22.

The BoS chairperson presented the results. The BoS members appreciated the faculty for achieving better pass percentages.

Agenda 8.12: Analysis of student's feedback in the odd semester of the A.Y 2021-22.

BoS chairperson has expressed that the student feedback and action taken report process is done at the end of each semester. The BoS members were pleased to know the average feedback for the faculty in the odd semester.

Agenda 8.13: Any other item/s

BoS members suggested to extend the period of internships for the students and encourage the students to pursue software applications.

Agenda 8.14: Scheduling of the next BoS meeting.


The next BoS meeting is tentatively scheduled in the month of June 2023.

Agenda 8.15: Vote of Thanks

Mr. Satyajeet Parida, BoS Chairperson thanked the members for the successful completion of BoS VIII.


BoS Chairperson

Head of the Department
DEPARTMENT OF MINING ENGINEERING
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Department of Mining Engineering

Annexure-I

List of New Courses in the Academic Year 2021-2022

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (Min.E)	IV	201SC4L20	Skill Oriented Course-II Data Analytics for Mining using Python
2	B. Tech (Min.E)	V	191PR5P02	Socially Relevant Project
3	B. Tech (Min.E)	V	191MI5E04	Sustainable Mining
4	B. Tech (Min.E)	V	191MI5O01	Overview of Mining
5	B. Tech (Min.E)	VI	191MI6T15	Environmental Management in Mines
6	B. Tech (Min.E)	VI	191MI6E05	Green Mining
7	B. Tech (Min.E)	VI	191MI6O03	Electrical equipment's in Mine


BOS Chairperson

Head of the Department
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Department of Mining Engineering


Annexure-II

List of Courses Revised in the Academic Year 2021-2022

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (Min.E)	III	201SO3L09	Geo-Statistics through SURPAC
2	B. Tech (Min.E)	VI	191MI6T13	Mineral Processing Technology
3	B. Tech (Min.E)	VI	191MI6E12	Rock Excavation Engineering
4	B. Tech (Min.E)	VI	191MI6L06	Mineral Processing Lab


BoS/Chairperson

Head of the Department
DEPARTMENT OF MINING ENGINEERING
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Department of Mining Engineering

Annexure III

Action Taken Report on Stakeholders Feedback in the Academic Year 2021-2022

S. No	Agenda Item No.	Stakeholders Recommended	Action Taken
1	8.10	The courses which provide different information about various electrical equipment should be included in the curriculum	The subject which gives relative knowledge about electrical equipment in the mines were included in the curriculum they were as follows <ul style="list-style-type: none">• Electrical equipment's in Mine
2	8.3	The sustainability and environment friendly mining activity should be followed in the upcoming days. Students should give importance towards it.	To make student aware of sustainability and environment friendly mining activity some courses added to the curriculum they are: <ul style="list-style-type: none">✓ Green Mining✓ Environmental Management in Mines
3	8.10	Mining students should have good knowledge in the planning of underground and surface mines	For the planning of different underground and surface mines various related courses has been included in the syllabus they are: <ul style="list-style-type: none">✓ Planning of UGMM Project✓ Planning of UGCM Project✓ Planning of Surface Mining Project
4	8.10	Students should participate in social relevant project which develops their internal and external personality.	The socially involved project course was included in the curriculum <ul style="list-style-type: none">✓ Socially Relevant Project

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5	8.10	Include various case studies in the core mining subject for the better understanding of the same course	As per the recommendation few case studies are included in different core mining subjects they are: <ul style="list-style-type: none"> • Mine hazards and rescue • Strata mechanics • Mine Closure & Reclamation
6	8.3	The new innovation, areas and new technology are upcoming in the mining field include those things in the Curriculum.	One new subject has been introduced which is completely in the different are i.e Space mining .technology. The old syllabus of Deep Sea Mining and its contents heading is being changed
7	8.10	Subject that creates job opportunities Should be included in curriculum and students should be aware of the subject importance.	The subject which creates job opportunities are included in the syllabus they are as follows: <ul style="list-style-type: none"> • Geo-statistics through Surpac • Data analytics for Mining Using Python
8		Students should be aware of latest software used in mining that helps in mining industry	The subject which are related to mining and are application of software in it has been included in the curriculum are as follows: <ul style="list-style-type: none"> • Computer Aided Mine planning • Geo spatial Imaging and geo informatics
9		Students should be aware of different environment impact created by mining activities.	For making aware students the harmful effect of different mining activities and its effect on environment the following course included in the curriculum. <ul style="list-style-type: none"> ✓ Environmental Impact Assessment
10	8.12	Students should be allowed for internship and industrial visit	Due to corona industry are not allowing outsider to get entry in their premises, For Internship management has allowed each student to visit


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			mines, also faculties are helping them to get the internship from various companies.
11	8.12	Alumni and industry person should visit the campus. So that industry condition should be understood properly	We have already arranged student alumni meeting and it will be held soon. Due to corona industry persons were refrain themselves to visit the campus but they were available in online mode and the instruction is passed to the Hods of the respective department to arrange the interaction as soon as possible.
12		Different MoU should be signed with different industries so that student can be benefited out of it.	Already our department has signed MoU with different educational institutes also we are planning to do MoU with few industries which will happen in the upcoming years.


BoS Chairperson

Head of the Department
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