

**RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
ANDHRA PRADESH**

**DEPARTMENT OF
METALLURGICAL AND MATERIALS ENGINEERING**



**DRAFT COURSE STRUCTURE AND DETAILED SYLLABUS FOR THE
M.TECH PROGRAM**

IN

ADVANCED MATERIALS TECHNOLOGY

(BOARD OF STUDIES PROPOSED COPY)



General, Course structure, Semester-wise credit distribution

A. Total number of credits: 68

B. Course code and definition, Abbreviations

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
PCC	Program Core Course
PEC	Program Elective Course
PLC	Program Laboratory Course
MLC	Mandatory Learning Course
OEC	Open Elective Course
AC	Audit Course
PROJ	Project

E. Structure of the Program

S.No	Course Type	Credits
1	Program Core Course	15
2	Program Elective Course	12
3	Program Laboratory Course	3
4	Mandatory Learning Course	3
5	Open Elective Course	3
6	Audit Course	0
7	Project	32
Total		68

F. Semester-wise Credits Distribution

	TOTAL	E1-S1	E1-S2	E2-S1	E2-S2
Program Core Course	15	9	6	0	0
Program Elective Course	12	3	9	0	0
Program Laboratory Course	3	1.5	1.5	0	0
Mandatory Learning Course	3	2	1	0	0
Open Elective Course	3	3	0	0	0
Audit Course	0	0	0	0	0
Project	32	0	0	16	16
	68	18.5	17.5	16	16

Total number of Audit Courses (AC): 02

Notations:

E1-S1: Engineering first year first semester

E1-S2: Engineering first year second semester

E2-S1: Engineering second year first semester

E2-S2: Engineering second year second semester



G. Structure of curriculum

I Year I Semester

S. No	Course Code	Course Category	Course Title	L	T	P	Credits
1	21AM1101	PCC	Symmetry and Properties of Materials	3	1	0	3
2	21AM1102	PCC	Phase Diagrams and Phase Transformations	3	1	0	3
3	21AM1103	PCC	Advanced Materials Characterization	3	1	0	3
4	21AM11XX	PEC	Program Elective Course-1	3	1	0	3
5	21AM11XX	OEC	Open Elective Course	3	0	0	3
6	21AM1171	MC	Research Methodology and IPR	2	0	0	2
7	21AM11XX	AC	Audit Course - 1	2	0	0	0
8	21AM1181	PLC	Advanced Materials Characterization Laboratory	0	0	3	1.5
Total				19	4	3	18.5

I Year II Semester

S. No	Course Code	Course Category	Course Title	L	T	P	Credits
1	21AM1201	PCC	Processing and Design of Materials	3	1	0	3
2	21AM1202	PEC	Advanced Engineering Materials	3	1	0	3
3	21AM12XX	PEC	Program Elective Course-2	3	1	0	3
4	21AM12XX	PEC	Program Elective Course-3	3	1	0	3
5	21AM12XX	PEC	Program Elective Course-4	3	1	0	3
6	21AM1271	MLC	Seminar	1	0	0	1
7	21AM12XX	AC	Audit Course – 2	2	0	0	0
8	21AM1281	PLC	Phase Transformations Laboratory	0	0	3	1.5
Total				18	5	3	17.5

II Year I Semester

S. No	Course Code	Course Category	Course Title	Credits
1	21AM2181	PROJ	Project Work (Phase-1)	16

II Year II Semester



S. No	Course Code	Course Category	Course Title	Credits
1	21AM2281	PROJ	Project Work (Phase-2)	16

List of Program Elective Courses

Course Category	Course Code	Course Title	Credits
PEC	21AMXX11	Science and Technology of polymer, ceramics and semiconductors	3
PEC	21AMXX12	Solar Photovoltaic: Principles, technologies and Materials	3
PEC	21AMXX13	Energy storage materials	3
PEC	21AMXX14	Nano materials	3
PEC	21AMXX15	Carbon Materials and Manufacturing	3
PEC	21AMXX16	Structural Analysis of Nano materials	3
PEC	21AMXX17	Optic electronic materials and devices	3
PEC	21AMXX18	VLSI fabrication	3
PEC	21AMXX19	Advanced Casting, Forming and Joining Processes	3
PEC	21AMXX20	Additive Manufacturing	
PEC	21AMXX21	Thermo Mechanical and Thermo chemical Process	3
PEC	21AMXX22	Advanced Solidification Process	3
PEC	21AMXX23	Crystal Elasticity and Crystal Plasticity	3
PEC	21AMXX24	Fracture Mechanics	3
PEC	21AMXX25	Creep and Fatigue Behavior of Materials	3
PEC	21AMXX26	Texture in Materials	3
PEC	21AMXX27	Computational Materials Engineering	3

Apart from the above listed subjects, any NPTEL/SWAYAM Course in related to Advanced Materials Technology can be offered as Program Elective Course.

List of Open Elective Courses



Course Category	Course Code	Course Title	Credits
OEC	21AM1161	Business Analytics	3
OEC	21AM1162	Industrial Safety	3
OEC	21AM1163	Operations Research	3
OEC	21AM1164	Cost Management of Engineering Projects	3
OEC	21AM1165	Composite Materials	3
OEC	21AM1166	Waste to Energy	3

List of Audit Courses

Course Category	Course Code	Course Title	Credits
AC	21AMXX72	English for Research Paper Writing	0
AC	21AMXX73	Disaster Management	0
AC	21AMXX74	Sanskrit for Technical Knowledge	0
AC	21AMXX75	Value Education	0
AC	21AMXX76	Constitution of India	0
AC	21AMXX77	Pedagogy Studies	0
AC	21AMXX78	Stress Management by Yoga	0
AC	21AMXX79	Personality Development through Life Enlightenment Skills.	0