Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

Syllabus for B. Tech in Computer Science & Engineering

(Applicable from the academic session 2020-2021)

Curriculum Structure

Semester III (Second year)							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
Theory							
1	Engineering Science Course	ESC 301	Analog and Digital Electronics	3	0	0	3
2	Professional Core Courses	PCC-CS301	Data Structure & Algorithms	3	0	0	3
3	Professional Core Courses	PCC-CS302	Computer Organisation	3	0	0	3
4	Basic Science course	BSC 301	Mathematics-III (Differential Calculus)	2	0	0	2
5	Humanities & Social Sciences including Management courses	HSMC 301	Economics for Engineers (Humanities-II)	3	0	0	3
Practical							
6	Professional Core Courses	PCC-CS393	IT Workshop (Sci Lab/MATLAB/Python/R)	0	0	4	2
7	Engineering Science Course	ESC 391	Analog and Digital Electronics	0	0	4	2
8	Professional Core Courses	PCC-CS391	Data Structure & Algorithms	0	0	4	2
9	Professional Core Courses	PCC-CS392	Computer Organisation	0	0	4	2
			Total credits				**22**

Semester IV (Second year)							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
Theory							
1	Professional Core Courses	PCC-CS401	Discrete Mathematics	3	1	0	4
2	Professional Core Courses	PCC-CS 402	Computer Architecture	3	0	0	3
3	Professional Core Courses	PCC-CS403	Formal Language & Automata Theory	3	0	0	3

4	Professional Core Courses	PCC-CS404	Design & Analysis of Algorithms	3	0	0	3
5	Basic Science courses	BSC 401	Biology	2	1	0	3
6	Mandatory Courses	MC401	Environmental Sciences	1	-	-	1
Practical							
7	Engineering Science Course	PCC-CS 492	Computer Architecture	0	0	4	2
8	Professional Core Courses	PCC-CS494	Design & Analysis of Algorithms	0	0	4	2
						Total credits	**21**

Semester V (Third year)							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
1	Engineering Science Course	ESC501	Software Engineering	3	0	0	3
2	Professional Core Courses	PCC-CS501	Compiler Design	3	0	0	3
3	Professional Core Courses	PCC-CS502	Operating Systems	3	0	0	3
4	Professional Core Courses	PCC-CS503	Object Oriented Programming	3	0	0	3
5	Humanities &Social Sciences including Management courses	HSMC-501	Introduction to Industrial Management (Humanities III)	3	0	0	3
6	Professional Elective	PEC-IT 501A/B/C/D	(Elective-I) Theory of	3	0	0	3

	courses		Computation/Artificial Intelligence/ Advanced Computer Architecture/ Computer Graphics				
7	Mandatory Courses	MC- CS501A/B	Constitution of India/ Essence of Indian Knowledge Tradition	-	-	-	0
Practical							
8	Professional Core Courses	ESC-591	Software Engineering		0	4	2
9	Professional Core Courses	PCC-CS592	Operating Systems		0	4	2
10	Professional Core Courses	PCC-CS593	Object Oriented Programming		0	4	2
			Total credits				**24**

Semester VI (Third year)							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
1	Professional Core Courses	PCC-CS601	Database Management Systems	3	0	0	3
2	Professional Core Courses	PCC-CS602	Computer Networks	3	0	0	3
3	Professional Elective courses	PEC-IT601A/B/C/D	(Elective-II) Advanced Algorithms/ Distributed Database Management System/ Signals & Systems / Image Processing	3	0	0	3
4	Professional Elective courses	PEC-IT602A/B/C/D	(Elective-III) Parallel and Distributed Algorithms/ Data Warehousing & Data Mining/Human Computer Interaction/Pattern Recognition	3	0	0	3

5	Open Elective courses	OEC-IT601A/B	(Open Elective-) Numerical Methods/ Human Resource Development and Organizational Behavior	3	0	0	3
6	Project	PROJ-CS601	Research Methodology	3	0	0	3
Practical							
7	Professional Core Courses	PCC-CS691	Database Management Systems	0	0	4	2
8	Professional Core Courses	PCC-CS692	Computer Networks	0	0	4	2
			Total credits				**22**

Semester VII (Fourth year]							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
1	Professional Elective courses	PEC-CS701A/B/C/D/E	(Elective-IV) Quantum Computing/ Cloud Computing/ Digital Signal Processing/Multi-agent Intelligent Systems/Machine learning	3	0	0	3
2	Professional Elective courses	PEC-CS702A/B/C/D/E	(Elective-V) Neural Networks and Deep Learning/ Soft Computing/ Ad-Hoc and Sensor Networks/Information Theory and Coding/Cyber Security	3	0	0	3
3	Open Elective courses	OEC-CS701A/B/C	(Open Elective-II) Operations Research/Multimedia Systems/Introduction to Philosophical Thoughts	3	0	0	3
4	Humanities &Social	HSM	Project Management and	2	1	0	3

	Sciences including Management courses	C 701	Entrepreneurship				
5	Project	PROJ-CS781	Project-II	0	0	12	6
			Total credits				**18**

Semester VIII (Fourth year)							
[Summer Industry Internship]							
Sl. No.	**Type of course**	**Code**	**Course Title**	**Hours per week**			**Credits**
				L	**T**	**P**	
1	Professional Elective courses	PEC-CS801A/ B/C/D/E	(Elective-VI) Signals and Networks/Cryptography & Network Security/ Speech and Natural Language Processing/ Web and Internet Technology/Internet of Things	3	0	0	3
2	Open Elective courses	OEC-CS801A/B/C/D/E	Open Elective-III Big Data Analysis/Cyber Law and Ethics/ Mobile Computing/Robotics/Soft Skill & Interpersonal Communication	3	0	0	3
3	Open Elective courses	OEC-CS802A/B/C	(Open Elective-IV) E-Commerce and ERP/Micro-electronics and VLSI Design/Economic Policies in India	3	0	0	3
4	Project	PROJ-CS881	Project-III	0	0	12	6
			Total credits				**15**

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Syllabus for B. Tech in Civil Engineering

(Applicable from the academic session 2018-2019)

Curriculum Structure
Semester III (Second year)

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Basic Science courses	CE(BS)301	Biology for Engineers	2	1	0	3
2	Engineering Science Courses	CE(ES)301	Engineering Mechanics	3	1	0	4
3	Engineering Science Courses	CE(ES)302	Energy Science & Engineering	1	1	0	2
4	Basic Science courses	CE(BS)301	Mathematics-III (Transform & Discrete Mathematics)	2	0	0	2
5	Humanities and Social Sciences including Management courses	CE(HS)301	Humanities-I (Effective Technical Communication)	3	0	0	3
6	Humanities and Social Sciences including Management courses	CE(HS)302	Introduction to Civil Engineering	1	1	0	2
						Theory credits	**16**
Practical/ Sessional							
1	Engineering Science Courses	CE(ES)391	Basic Electronics	1	0	2	2
2	Engineering Science Courses	CE(ES)392	Computer-aided Civil Engineering Drawing	1	0	2	2
3	Engineering Science Courses	CE(ES)393	Life Science	1	0	2	2
						Practical credits	**6**
						Total credits	**22**

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Syllabus for B. Tech in Civil Engineering

(Applicable from the academic session 2018-2019)

Semester IV (Second year]

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Engineering Science Courses	CE(ES)401	Introduction to Fluid Mechanics	2	0	0	2
2	Engineering Science Courses	CE(ES)402	Introduction to Solid Mechanics	2	0	0	2
3	Professional Core courses	CE(PC)401	Soil Mechanics – I	2	1	0	3
4	Professional Core courses	CE(PC)402	Environmental Engineering -I	2	1	0	3
5	Professional Core courses	CE(PC)403	Surveying & Geomatics	2	1	0	3
6	Professional Core courses	CE(PC)404	Concrete Technology	2	1	0	3
7	Humanities and Social Sciences including Management courses	CE(HS)401	Civil Engineering - Societal & Global Impact	2	0	0	2
8	Mandatory Courses (non-credit)	CE(MC)401	Management I (Organizational Behavior)	2	0	0	0
						Theory credits	**18**
Practical/ Sessional							
1	Professional Core courses	CE(ES)491	Fluid Mechanics Laboratory	0	0	2	1
2	Professional Core courses	CE(ES)492	Solid Mechanics Laboratory	0	0	2	1
3	Professional Core courses	CE(ES)493	Engineering Geology Laboratory	0	0	2	1
4	Professional Core courses	CE(PC)493	Surveying & Geomatics	0	0	2	1
5	Professional Core courses	CE(PC)494	Concrete Technology Laboratory	0	0	2	1
						Practical credits	**5**
						Total credits	**23**

Semester V (Third year]

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Professional Core courses	CE(PC)501	Design of RC Structures	2	1	0	3
2	Professional Core courses	CE(PC)502	Engineering Hydrology	2	1	0	3
3	Professional Core courses	CE(PC)503	Structural Analysis – I	2	1	0	3
4	Professional Core courses	CE(PC)504	Soil Mechanics – II	2	1	0	3
5	Professional Core courses	CE(PC)505	Environmental Engineering – II	2	1	0	3
6	Professional Core courses	CE(PC)506	Transportation Engineering	2	1	0	3
7	Mandatory courses (non-credit)	CE(MC)501	Constitution of India/ Essence of Indian Knowledge Tradition	-	-	-	0
						Theory credits	**18**
Practical/ Sessional							
1	Professional core courses	CE(PC)591	RC Design Sessional	0	0	2	1
2	Professional core courses	CE(PC)594	Soil Mechanics Laboratory	0	0	2	1
3	Professional core courses	CE(PC)595	Environmental Engineering Laboratory	0	0	2	1
4	Professional core courses	CE(PC)596	Transportation Engineering Laboratory	0	0	2	1
5	Professional core courses	CE(PC)597	Computer Application in CE	0	0	2	1
						Practical credits	**5**
						Total credits	**23**

Semester VI (Third year]

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Professional Core courses	CE(PC)601	Construction Engineering & Management	2	0	0	2
2	Professional Core courses	CE(PC)602	Engineering Economics, Estimation & Costing	2	0	0	2
3	Professional Core courses	CE(PC)603	Water Resources Engineering	2	0	0	2
4	Professional Core courses	CE(PC)604	Design of Steel Structures	2	0	0	2
5	Professional Elective courses	CE(PE)601	Elective-I	2	0	0	2
6	Professional Elective courses	CE(PE)602	Elective-II	2	0	0	2
7	Open Elective courses	CE(OE)601	Open Elective-I (Humanities)	2	0	0	2
						Theory credits	**14**
Practical/ Sessional							
1	Professional Core courses	CE(PC)693	Water Resource Engineering Laboratory	0	0	2	1
2	Professional Core courses	CE(PC)694	Steel Structure Design Sessional	0	0	2	1
3	Professional Core courses	CE(PC)695	Quantity Survey Estimation and Valuation Sessional	0	1	2	2
						Practical credits	**4**
						Total credits	**18**

CE(PE)601 (Elective-I)	**CE(PE)602 (Elective-II)**
601A: Stability of Slopes 601B: **Foundation Engineering** 601C: Ground Improvement Technique	602A : Building Construction Practice 602B : **Structural Analysis-II** 602C : Industrial Structures
CE(OE)601 (Open Elective-I)	
601A: Soft Skills and Interpersonal Communication – I 601B: Introduction to Philosophical Thoughts	

Semester VII (Fourth year]

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Open Elective courses	CE(OE)701	Open Elective-II	2	0	0	2
2	Professional Elective courses	CE(PE)701	Elective III	2	1	0	3
3	Professional Elective courses	CE(PE)702	Elective IV	2	1	0	3
4	Professional Elective courses	CE(PE)703	Elective V	2	1	0	3
5	Professional Elective courses	CE(PE)704	Elective-VI	2	1	0	3
6	Professional Elective courses	CE(PE)705	Elective-VII	2	0	0	2
						Theory credits	**16**
Practical/ Sessional							
1	Internship	CE(IN)791	Industrial Internship (after sixth semester)				1
2	Project	CE(PROJ)792	Project-1 (Project work)	0	0	10	5
						Practical credits	**6**
						Total credits	**22**

CE(OE)701 (Open Elective-II)	**CE(PE)701 (Elective-III)**
A: Metro Systems & Engineering	701A: Computational Hydraulics
B: ICT for Development	701B: Disaster Preparedness and Planning
C: Cyber Law & Ethics	701C: Hydraulic Structure
CE(PE)702 (Elective-IV)	**CE(PE)703 (Elective-V)**
702A: Prestressed Concrete	703A: Air and Noise Pollution and Control
702B: Repairs & Rehabilitation of Structures	703B: Physico-Chemical Processes for Water and Wastewater Treatment
702C: Finite Element Method	703C: Water and Air Quality Modelling
CE(PE)704 (Elective-VI)	**CE(PE)705 (Elective-VII)**
704A: Structural Dynamics	705A: Railway and Airport Engineering
704B: Advanced Structural Analysis	705B: Pavement Design
704C: Coastal Hydraulics and Sediment Transport	705C: Transport System Planning

Semester VIII (Fourth year]

Sl. No.	Category	Code	Course Title	Hours per week			Credits
				L	**T**	**P**	
Theory							
1	Humanities and Social Sciences including Management courses	CE(HS)801	Professional Practice, law & Ethics	2	0	0	2
2	Professional Elective Courses	CE(PE)801	Elective VIII	2	0	0	2
3	Open Elective courses	CE(OE)801	Open Elective-III	2	0	0	2
4	Open Elective courses	CE(OE)802	Open Elective-IV	2	0	2	2
						Theory credits	**8**
Practical/ Sessional							
1	Comprehensive Viva Voce	CE(CV)881	Comprehensive Viva Voce				1
2	Project	CE(PROJ)882	Project-2 (Continued from VII)	0	0	10	5
						Practical credits	**6**
						Total credits	**14**

CE(PE)801 (Elective-VIII)	
801A: GIS & Remote Sensing 801B: Rock Mechanics 801C: Environmental laws and Policy 801D: Pavement Materials and Design	
CE(OE)801 (Open Elective-III)	**CE(OE)802 (Open Elective-IV)**
A: Human Resource Development and Organizational Behavior **B: Bridge Engineering** C: Deep Foundations D: Groundwater Contamination	A: Soft Skills and Personality Development B: Earthquake Engineering C: Urban Transport Planning D: Environmental Impact Assessment and Life cycle Analysis

TOTAL CREDITS – [38 +(22+23)+(23+18)+(21+15)]=160

SEM 1 & SEM 2	SEM3	SEM4	SEM5	SEM6	SEM7	SEM8	Total
38	22	23	23	18	21	15	160

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Syllabus for B. Tech in Electronics & Communication Engineering

(Applicable from the academic session 2018-2019)

Curriculum Structure

2nd Year: 3rd Semester

A. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC301	Electronic Devices	3	0	0	3	3
2.	EC302	Digital System Design	3	0	0	3	3
3.	EC303	Signals and Systems	3	0	0	3	3
4.	EC304	Network Theory	3	0	0	3	3
5.	ES-CS301	Data Structure & Algorithm (ES)	3	0	0	3	3
6.	BS-M301	Probability & Statistics(BS)	3	0	0	3	3
Total Theory						18	18
B. Practical							
7.	EC391	Electronic Devices Lab.	0	0	2	2	1
8.	EC392	Digital System Design Lab.	0	0	2	2	1
9	ES-CS391	Data Structure Lab(ES)	0	0	2	2	1
Total Practical						6	3
Total Credits						24	21
C. Non Credit Course							
	MC381	Environmental Science	0	0	2	2	0

2ndYear: 4th Semester

A. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC401	Analog Communication	3	0	0	3	3
2.	EC402	Analog Electronic Circuits	3	0	0	3	3
3.	EC403	Microprocessor &Microcontrollers	3	0	0	3	3
4.	ES-CS401	Design and Analysis of Algorithm(ES)	3	0	0	3	3
5.	BS-M401	Numerical Methods(BS)	2	0	0	2	2
6.	BS-B401	Biology for Engineers	2	1	0	3	3
Total Theory						14	17
B. Practical							
7.	EC491	Analog Communication Lab	0	0	2	2	1
8.	EC492	Analog Electronic Circuits Lab.	0	0	2	2	1
9.	EC493	Microprocessor & Microcontrollers Lab	0	0	2	2	1
10.	BS-M(CS)491	Numerical Methods Lab	0	0	2	2	1
11.	HS-HU481	Soft Skill Development Lab	0	0	2	2	1
Total Practical						10	5
Total Credits						24	22

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3rd Year: 5th Semester

A. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC501	Electromagnetic Waves	3	0	0	3	3
2.	EC502	Computer Architecture	3	0	0	3	3
3.	EC503	Digital Communication & Stochastic Process	3	1	0	4	3.5
4.	EC504	Digital Signal Processing	3	0	0	3	3
5.	PE-EC505	Program Elective I	3	0	0	3	3
6.	OE-EC506 A/B/C/D	Open Elective I	3	0	0	3	3
Total Theory						19	18.5
B. Practical							
7.	EC591	Electromagnetic Wave Lab	0	0	2	2	1
8.	EC592	Digital Communication Lab.	0	0	2	2	1
9.	EC593	Digital Signal Processing Lab.	0	0	2	2	1
Total Practical						6	3
C. Sessional							
10.	MC-HU581	Effective Technical Communication	0	0	3	3	0
Total Credits						28	21.5

3rd Year: 6th Semester

C. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC601	Control System & Instrumentation	3	0	0	3	3
2.	EC602	Computer Network	3	0	0	3	3
3.	PE-EC603	Program Elective II	3	0	0	3	3
4.	OE-EC604	Open Elective II	3	0	0	3	3
5.	HS-HU601	Economics for Engineers	3	0	0	3	3
Total Theory						15	15
D. Practical							
6.	EC692	Computer Network Lab.	0	0	2	2	1
7.	EC691	Control System and Instrumentation Lab.	0	0	2	2	1
8.	EC681	Mini Project/ Electronic Design Workshop	0	0	4	4	2
Total Practical						8	4
Total Credits						23	19
9	MC681	Universal Human Values	2	0	0	2	0

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4th Year: 7th Semester

D. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	PE-EC701	Program Elective -3	3	0	0	3	3
2.	PE-EC702	Program Elective -4	3	0	0	3	3
3.	PE-EC703	Program Elective -5	3	0	0	3	3
4.	OE-EC704	Open Elective - 3	3	0	0	3	3
5.	HS-HU701	Principles of Management	2	0	0	2	2
Total Theory						14	14
E. Practical							
6	EC781	Industrial Training	During Semester Break(6th & 7th)				1
7.	EC782	Project Stage – I	0	0	8	8	4
Total Practical						8	5
Total Credits						22	19

4th Year: 8th Semester

E. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	PE-EC801	Program Elective – 6	3	0	0	3	3
2.	PE-EC802	Program Elective - 7	3	0	0	3	3
3.	OE-EC803	Open Elective - 4	3	0	0	3	3
4.	OE-EC804	Open Elective - 5	3	0	0	3	3
Total Theory						12	12
F. Practical							
5.	EC881	Project Stage – II	0	0	15	15	7.5
6.	EC882	Grand Viva					1.5
Total Practical						15	9
Total Contact /Credits						27	21

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Professional Electives

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester
			L	T	P		
1	PE-EC505A	Nano Electronics	3	0	0	3	V
2	PE-EC505B	Speech and Audio Processing	3	0	0	3	
3	PE-EC505C	Power Electronics	3	0	0	3	
4	PE-EC505D	Scientific Computing	3	0	0	3	
5	PE-EC603A	Introduction to MEMS	3	0	0	3	VI
6	PE-EC603B	Bio-Medical Electronics	3	0	0	3	
7	PE-EC603C	CMOS VLSI Design	3	0	0	3	
8	PE-EC603D	Information Theory & Coding	3	0	0	3	
9	PE-EC701A	Microwave Theory and Techniques	3	0	0	3	VII
10	PE-EC701B	Satellite Communication	3	0	0	3	
11	PE-EC701C	Mobile Communication and Networks	3	0	0	3	
12	PE-EC702A	Adaptive Signal Processing	3	0	0	3	
13	PE-EC702B	Digital Image and Video Processing	3	0	0	3	
14	PE-EC702C	Neural Network and Fuzzy Logic Control	3	0	0	3	
15	PE-EC703A	Embedded System	3	0	0	3	
16	PE-EC703B	Wireless Sensor Networks	3	0	0	3	
17	PE-EC703C	Wavelet Transforms	3	0	0	3	
18	PE-EC801A	Antennas and Propagation	3	0	0	3	VIII
19	PE-EC801B	Fibre Optic Communication	3	0	0	3	
20	PE-EC801C	Error Correcting Codes	3	0	0	3	
21	PE-EC802A	Mixed Signal Design	3	0	0	3	
22	PE-EC802B	Industrial Automation and Control	3	0	0	3	
23	PE-EC802C	VLSI Design Automation	3	0	0	3	

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List of Open Elective

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester
			L	T	P		
1	OE-EC506A	Soft Skill and Interpersonal Communication	3	0	0	3	V
2	OE-EC506B	Cyber Law & Intellectual Property Rights	3	0	0	3	
3	OE-EC506C	Human Resource Management	3	0	0	3	
4	OE-EC604A	Electronic Measurements and Measuring Instruments	3	0	0	3	VI
5	OE-EC604B	Operating System	3	0	0	3	
6	OE-EC604C	Object Oriented Programming	3	0	0	3	
7	OE-EC704A	Web Technology	3	0	0	3	VII
8	OE-EC704B	Optimisation Technique	3	0	0	3	
9	OE-EC704C	Entrepreneurship	3	0	0	3	
10	OE-EC803A	Internet of Things(IoT)	3	0	0	3	VIII
11	OE-EC803B	Big Data Analysis	3	0	0	3	
12	OE-EC803C	Cyber Security	3	0	0	3	
13	OE-EC804A	Artificial Intelligence	3	0	0	3	
14	OE-EC804B	Microwave Integrated Circuits	3	0	0	3	
15	OE-EC804C	Organisational Behaviour	3	0	0	3	

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Syllabus for B. Tech in Electrical Engineering

(Applicable from the academic session 2018-2019)

3rd Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 301	Electric Circuit Theory	3	1	0	4	4
2	PC-EE 302	Analog Electronics	3	0	0	3	3
3	PC-EE 303	Electromagnetic field theory	3	0	0	3	3
4	ES-ME 301	Engineering Mechanics	3	0	0	3	3
5	BS-M 301	Mathematics-III	3	0	0	3	3
6	BS-EE301	Biology for Engineers	3	0	0	3	3
7	MC-EE 301	Indian Constitution	3	0	0	3	0
		TOTAL OF SEMESTER:				22	19

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 391	Electric Circuit Theory Laboratory	0	0	2	2	1
2	PC-EE 392	Analog Electronics laboratory	0	0	2	2	1
3	PC-CS 391	Numerical Methods laboratory	0	0	2	2	1
		Total of Practical / Sessional				06	3
TOTAL OF SEMESTER:						28	22

Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

Syllabus for B. Tech in Electrical Engineering

(Applicable from the academic session 2018-2019)

4th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 401	Electric machine-I	3	0	0	3	3
2	PC-EE 402	Digital Electronic	3	0	0	3	3
3	PC-EE 403	Electrical and Electronics Measurement	3	0	0	3	3
4	ES-EE 401	Thermal Power Engineering	3	0	0	3	3
5	HM-EE401	Values and Ethics in profession	3	0	0	3	3
6	MC- EE401	Environmental Science	3	0	0	3	0
		TOTAL OF SEMESTER:				18	15

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 491	Electric machine-I laboratory	0	0	2	2	1
2	PC-EE 492	Digital electronics laboratory	0	0	2	2	1
3	PC-EE 493	Electrical and electronic measurement laboratory	0	0	2	2	1
4	ES-ME 491	Thermal power engineering laboratory	0		2	2	1
		Total of Practical / Sessional				08	4
TOTAL OF SEMESTER:						26	19

Maulana Abul Kalam Azad University of Technology, West Bengal

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(Applicable from the academic session 2018-2019)

5th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 501	Electric machine-II	3	0	0	3	3
2	PC-EE 502	Power system-I	3	0	0	3	3
3	PC-EE 503	Control system	3	0	0	3	3
4	PC-EE 504	Power electronics	3	0	0	3	3
5	PE-EE 501	A. High voltage Engineering B. Power Plant Engineering C. Renewable & Non conventional energy	3	0	0	3	3
6	OE-EE 501	A. Data structure & algorithm B. Object oriented programming C. Computer organization & architecture	3	0	0	3	3
		TOTAL OF SEMESTER:				18	18

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 591	Electric Machine-II laboratory	0	0	2	2	1
2	PC-EE 592	Power system-I laboratory	0	0	2	2	1
3	PC-EE 593	Control system laboratory	0	0	2	2	1
4	PC-EE 594	Power Electronics laboratory	0	0	2	2	1
		Total of Practical / Sessional				08	4
TOTAL OF SEMESTER:						26	22

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Syllabus for B. Tech in Electrical Engineering

(Applicable from the academic session 2018-2019)

6th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 601	Power System-II	3		0	3	3
2	PC-EE-602	Micro processor & micro controller	3	0	0	3	3
3	PE-EE 601	A. Digital control system B. HVDC transmission C. Electrical Machine Design	3	0	0	3	3
4	PE-EE 602	A. Electrical and Hybrid vehicle B. Power quality & FACTS C. Industrial Electrical systems	3	0	0	3	3
5	OE-EE 601	A. Digital Signal Processing B. Communication Engineering C. VLSI & Microelectronics	3	0	0	3	3
6	HM-EE 601	Economics for Engineers	3	0	0	3	3
		TOTAL OF SEMESTER:				18	18

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 691	Power system-II laboratory	0	0	2	2	1
2	PC-EE692	Micro processor & microcontroller laboratory	0	0	2	2	1
2	PC-EE 681	Electrical & Electronic design laboratory	1	0	4	5	3
		Total of Practical / Sessional				09	05
TOTAL OF SEMESTER:						27	23

Summer Internship of 3-week duration after 6th semester. Students will be assessed based on submission of report on internship and presentation in a seminar in 7th semester

Maulana Abul Kalam Azad University of Technology, West Bengal

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Syllabus for B. Tech in Electrical Engineering

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7th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 701	Electric Drive	3	0	0	3	3
2	PE-EE 701	A. Control system Design B. Electrical Energy conservation & Auditing C. Power generation economics	3	0	0	3	3
3	OE-EE701	A. Artificial intelligence B. Internet of things C. Computer graphics	3	0	0	3	3
4	OE-EE702	A. Embedded system B. Digital image processing C. Computer network	3		0	3	3
5	HM-EE701	Principle of Management	3	0	0	3	3
		TOTAL OF SEMESTER:				15	15

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 791	Electric Drive laboratory	0	0	2	2	1
2	PW-EE 781	Project stage-I	0	0	4	4	2
3	PW-EE782	Seminar	0	0	0	0	1
		Total of Practical / Sessional				06	04
TOTAL OF SEMESTER:						21	19

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(Applicable from the academic session 2018-2019)

8th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EE 801	Utilization of Electric Power	3	0	0	3	3
2	PE- EE 801	A. Line –commutated and active PWM rectifiers B. Power system dynamics & control C. Advanced Electric Drives D. Industrial Automation and Control	3	0	0	3	3
3	OE-EE 801	A. Soft computing Techniques B. Biomedical Instrumentation. C. Introduction to Machine learning D. Sensors and Transducers	3	0	0	3	3
		TOTAL OF SEMESTER:				09	09

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PW-EE 881	Project stage-II	0	0	16	16	8
		Total of Practical / Sessional				16	08
TOTAL OF SEMESTER:						25	17

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Syllabus for B. Tech in Electrical & Electronics Engineering (EEE)

(Applicable from the academic session 2018-2019)

Curriculum Structure

3rd Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-301	Electric Circuit Theory	3	1	0	4	4
2	PC-EEE-302	Analog Electronics	3	0	0	3	3
3	PC-EEE-303	Electromagnetic field theory	3	0	0	3	3
4	ES-ME-301	Engineering Mechanics	3	0	0	3	3
5	BS-M-301	Mathematics-III	3	0	0	3	3
6	BS-EEE-301	Biology for Engineers	3	0	0	3	3
7	MC-EEE-301	Indian Constitution	3	0	0	3	0
		TOTAL OF SEMESTER:				22	19

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-391	Electric Circuit Theory Laboratory	0	0	2	2	1
2	PC-EEE-392	Analog Electronics laboratory	0	0	2	2	1
3	PC-CS-391	Numerical Methods laboratory	0	0	2	2	1
		Total of Practical / Sessional				06	3
TOTAL OF SEMESTER:						28	22

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Syllabus for B. Tech in Electrical & Electronics Engineering (EEE)

(Applicable from the academic session 2018-2019)

4th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-401	Electric machine-I	3	0	0	3	3
2	PC-EEE-402	Digital Electronics	3	0	0	3	3
3	PC-EEE-403	Electrical and Electronic Measurement	3	0	0	3	3
4	ES-EEE-401	Thermal Power Engineering	3	0	0	3	3
5	HM-EEE-401	Values and Ethics in profession	3	0	0	3	3
6	MC- EEE-401	Environmental Science	3	0	0	3	0
		TOTAL OF SEMESTER:				18	15

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-491	Electric Machine-I laboratory	0	0	2	2	1
2	PC-EEE-492	Digital Electronics laboratory	0	0	2	2	1
3	PC-EEE-493	Electrical and Electronic measurement laboratory	0	0	2	2	1
4	ES-ME-491	Thermal Power Engineering laboratory	0		2	2	1
		Total of Practical / Sessional				08	4
TOTAL OF SEMESTER:						26	19

Maulana Abul Kalam Azad University of Technology, West Bengal

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Syllabus for B. Tech in Electrical & Electronics Engineering (EEE)

(Applicable from the academic session 2018-2019)

5th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-501	Electric machine-II	3	0	0	3	3
2	PC-EEE-502	Power System-I	3	0	0	3	3
3	PC-EEE-503	Control system	3	0	0	3	3
4	PC-EEE-504	Power Electronics	3	0	0	3	3
5	PE-EEE-501A/B/C	High Voltage Engineering/Power Plant Engineering/Renewable& Non Conventional Energy	3	0	0	3	3
6	**OE-EEE-501A/B/C**	Data Structure & Algorithm/Object Oriented Programming/Computer Organization	3	0	0	3	3
		TOTAL OF SEMESTER:				18	18

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-591	Electric Machine-II laboratory	0	0	2	2	1
2	PC-EEE-592	Control system laboratory	0	0	2	2	1
3	PC-EEE-593	Power Electronics laboratory	0	0	2	2	1
		Total of Practical / Sessional				06	3
TOTAL OF SEMESTER:						24	21

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6th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-601	Power System-II	3		0	3	3
2	PC-EEE-602	Microprocessor & Micro controller	3	0	0	3	3
3	PE-EEE-601	A. Nano Electronics B. Electrical Machine Design C. VLSI & Microelectronics	3	0	0	3	3
4	PE-EEE-602	A. Electrical & Hybrid vehicle B. Power Quality & FACTS C. Industrial Electrical Systems	3	0	0	3	3
5	OE-EEE-601	A. Artificial Intelligence B. Database Management Systems C. Analytical Instrumentation	3	0	0	3	3
6	HM-EEE-601	Economics for Engineers	3	0	0	3	3
		TOTAL OF SEMESTER:				18	18

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-691	Power system laboratory	0	0	2	2	1
2	PC-EEE-692	Microprocessor &Microcontroller laboratory	0	0	2	2	1
3	PC-EEE-681	Electrical & Electronic design laboratory	1	0	4	5	3
		Total of Practical / Sessional				09	05
TOTAL OF SEMESTER:						27	23

Summer Internship of 3-week duration after 6th semester. Students will be assessed based on submission of report on internship and presentation in a seminar in 7th semester

Maulana Abul Kalam Azad University of Technology, West Bengal

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Syllabus for B. Tech in Electrical & Electronics Engineering (EEE)

(Applicable from the academic session 2018-2019)

7th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-701	Analog and digital communication	3	0	0	3	3
2	PE-EEE-701	A. Electric Drive B. Digital Control system C. HVDC transmission System	3	0	0	3	3
3	OE- EEE-701	A. Embedded system B. Computer network C. Introduction to Machine learning	3	0	0	3	3
4	OE- EEE-702	A. Internet of Things B. Computer Graphics C. Soft computing Techniques	3		0	3	3
5	HM- EEE-701	Principle of Management	3	0	0	3	3
		TOTAL OF SEMESTER:				15	15

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE 791	Analog and digital Communication laboratory	0	0	2	2	1
2	PW-EEE 781	Project stage-I	0	0	4	4	2
3	PW-EEE782	Seminar	0	0	0	0	1
		Total of Practical / Sessional				06	04
TOTAL OF SEMESTER:						21	19

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Syllabus for B. Tech in Electrical & Electronics Engineering (EEE)

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8th Semester

Theory:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
1	PC-EEE-801	Digital signal processing	3	0	0	3	3
2	PE- EEE-801	A. Utilization of Electric Power B. Advanced Electric Drives C. Power system dynamics and control D. Industrial Automation and Control	3	0	0	3	3
3	OE- EEE-801	A. Digital Image Processing B. Biomedical Instrumentation C. Cryptography and Network Security D. Sensors and Transducers	3	0	0	3	3
		TOTAL OF SEMESTER:				09	09

Practical / Sessional:

Sl. No.	CODE	Paper	Contact periods Per week			Total Contact Hrs	Credits
			L	T	P		
	PC-EEE-891	Digital signal processing laboratory	0	0	2	2	1
1	PW-EEE-881	Project stage-II	0	0	16	16	8
		Total of Practical / Sessional				18	09
TOTAL OF SEMESTER:						27	18

BACHELOR OF TECHNOLOGY
IN
MECHANICAL ENGINEERING

(Applicable from the academic session 2018-2019)

Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly West Bengal University of Technology)
Haringhata-741249, Nadia, West Bengal, INDIA

Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

First Year First Semester							
Mandatory Induction Program- 3 weeks duration							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Basic Science course	BS-PH101	Physics-I	3	1	0	4
2	Basic Science course	BS-M102	Mathematics –IB	3	1	0	4
3	Engineering Science Courses	ES-EE101	Basic Electrical Engineering	3	1	0	4
	Total Theory			**9**	**3**	**0**	**12**
Practical							
1	Basic Science course	BS-PH191	Physics-I Laboratory	0	0	3	1.5
2	Engineering Science Courses	ES-EE191	Basic Electrical Engineering Laboratory	0	0	2	1
3	Engineering Science Courses	ES-ME192	Workshop/Manufacturing Practices	1	0	4	3
	Total Practical			**1**	**0**	**9**	**5.5**
	Total of First Semester			**10**	**3**	**9**	**17.5**

First Year Second Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Basic Science course	BS-CH201	Chemistry-I (Gr-A)	3	1	0	4
2	Basic Science course	BS-M202	Mathematics –IIB	3	1	0	4
3	Engineering Science Courses	ES-CS201	Programming for Problem Solving	3	0	0	3
4	Humanities and Social Sciences including Management courses	HM-HU201	English	2	0	0	2
	Total Theory			**11**	**2**	**0**	**13**
Practical							
1	Basic Science course	BS-CH291	Chemistry-I Laboratory	0	0	3	1.5
2	Engineering Science Courses	ES-CS291	Programming for Problem Solving	0	0	4	2
3	Engineering Science Courses	ES-ME291	Engineering Graphics & Design (Gr-A)	1	0	4	3
4	Humanities and Social Sciences including Management courses	HM-HU291	Language Laboratory	0	0	2	1
	Total Practical			**1**	**0**	**13**	**7.5**
	Total of Second Semester			**12**	**2**	**13**	**20.5**

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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

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Curriculum Structure

Second Year Third Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Basic Science course	BS-M301	Mathematics III	3	1	0	4
2	Basic Science course	BS-BIO301	Biology	3	0	0	3
3	Engineering Science Courses	ES-ECE301	Basic Electronics Engineering	3	0	0	3
4	Engineering Science Courses	ES-ME301	Engineering Mechanics	3	1	0	4
5	Professional Core courses	PC-ME301	Thermodynamics	3	1	0	4
6	Professional Core courses	PC-ME302	Manufacturing Processes	4	0	0	4
	Total Theory			**19**	**3**	**0**	**22**
Practical							
1	Professional Core courses	PC-ME391	Practice of Manufacturing Processes	0	0	3	1.5
	Total Practical			**0**	**0**	**3**	**1.5**
			Total of Third Semester	**19**	**3**	**3**	**23.5**

Second Year Fourth Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Engineering Science Courses	ES-ME401	Materials Engineering	3	0	0	3
2	Professional Core courses	PC-ME401	Applied Thermodynamics	3	1	0	4
3	Professional Core courses	PC-ME402	Fluid Mechanics & Fluid Machines	3	1	0	4
4	Professional Core courses	PC-ME403	Strength of Materials	3	1	0	4
5	Professional Core courses	PC-ME404	Metrology andInstrumentation	3	1	0	4
	Total Theory			**15**	**4**	**0**	**19**
Practical							
1	Professional Core courses	PC-ME491	Practice of Manufacturing Processes and Systems Laboratory	0	0	3	1.5
2	Professional Core courses	PC-ME492	Machine Drawing- I	0	0	3	1.5
3	Mandatory courses	MC 481	Environmental Science	-	-	2	0
	Total Practical			**0**	**0**	**8**	**3**
			Total of Fourth Semester	**15**	**4**	**8**	**22**

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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

Third Year Fifth Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Professional Core courses	PC-ME501	Heat Transfer	3	1	0	4
2	Professional Core courses	PC-ME502	Solid Mechanics	3	1	0	4
3	Professional Core courses	PC-ME503	Kinematics & Theory of Machines	3	1	0	4
4	Humanities and Social Sciences including Management courses	HM-HU501	Effective Technical Communication	3	0	0	3
5	Mandatory courses	MC501	Essence of Indian Knowledge Tradition	-	2	-	0
	Total Theory			**12**	**5**	**0**	**15**
Practical/ Sessional							
1	Professional Core courses	PC-ME591	Mechanical Engineering Laboratory I (Thermal)	0	0	3	1.5
2	Professional Core courses	PC-ME592	Machine Drawing-II	0	0	3	1.5
3	Project (Summer internship)	PW-ME581	Project-I (30 hrs. Total)	0	0	2	1
	Total Practical			**0**	**0**	**8**	**4**
			Total of Fifth Semester	**12**	**5**	**8**	**19**

Third Year Sixth Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Professional Core courses	PC-ME601	Manufacturing Technology	4	0	0	4
2	Professional Core courses	PC-ME602	Design of Machine Elements	3	1	0	4
3	Professional Elective courses	PE-ME601	Elective-I	3	0	0	3
4	Professional Elective courses	PE-ME602	Elective-II	3	0	0	3
5	Humanities and Social Sciences including Management courses	HM-HU601	Operations Research	3	0	0	3
6	Mandatory courses	MC601	Constitution of India	-	2	-	0
	Total Theory			**16**	**3**	**0**	**17**
Practical/ Sessional							
1	Professional Core courses	PC-ME691	Mechanical Engineering Laboratory II (Design)	0	0	3	1.5
2	Project (or Summer internship)	PW-ME681	Project-II (90 hrs. Total)	0	0	4	2
	Total Practical			**0**	**0**	**7**	**3.5**
			Total of Sixth Semester	**16**	**3**	**7**	**20.5**

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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

Fourth Year Seventh Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Professional Core courses	PC-ME701	Advanced Manufacturing Technology	3	0	0	3
2	Professional Elective courses	PE-ME701	Elective III	3	0	0	3
3	Professional Elective courses	PE-ME702	Elective-IV	3	0	0	3
4	Open Elective courses	OE-ME 701	Open Elective- I	3	0	0	3
5	Humanities and Social Sciences including Management courses	HM-HU701	Economics for Engineers	2	0	0	2
	Total Theory			**14**	**0**	**0**	**14**
Practical/ Sessional							
1	Professional Core courses	PC-ME791	Mechanical Engineering Laboratory III (Manufacturing)	0	0	3	1.5
2	Project	PW-ME781	Project-III	0	0	6	3
	Total Practical			**0**	**0**	**9**	**4.5**
	Total of Seventh Semester			**14**	**0**	**9**	**18.5**

Fourth Year Eighth Semester							
Sl No.	**Category**	**Subject Code**	**Subject Name**	**Total No. of contact hours**			**Credits**
				L	**T**	**P**	
Theory							
1	Professional Elective courses	PE-ME801	Elective V	3	0	0	3
2	Professional Elective courses	PE-ME802	Elective VI	3	0	0	3
3	Open Elective courses	OE-ME 801	Open Elective-II	3	0	0	3
4	Open Elective courses	OE-ME 802	Open Elective- III	3	0	0	3
	Total Theory			**12**	**0**	**0**	**12**
Practical/ Sessional							
1	Project	PW-ME881	Project-IV	0	0	10	5
2	Professional Core courses	PW-ME882	Comprehensive viva	0	0	0	1.5
	Total Practical			**0**	**0**	**10**	**6.5**
	Total of Eighth Semester			**12**	**0**	**10**	**18.5**
Total Credit							**160**

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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

List of Professional Electives

There are six Professional Electives in Semester VI, VII and VIII as follows:
(Elective-I) PE-ME601, (Elective-II) PE-ME602,
(Elective-III) PE-ME701, (Elective-IV) PE-ME702,
(Elective-V) PE-ME801 and (Elective VI) PE-ME802.

There are three baskets of Professional Electives in each of Semester VI, VII and VIII.
Students are to choose two papers from the basket of Professional Electives corresponding to a particular Semester.

List of Professional Electives in Semester VI for (Elective-I) PE-ME601 and (Elective-II) PE-ME602

Subject Code	Subject name
Thermo-Fluid Group	
A	Internal Combustion Engines and Gas Turbines
B	Refrigeration and Air Conditioning
C	Turbo Machinery
D	Fluid Power Control
E	Advanced Fluid Mechanics
Design Group	
F	Composite Materials
G	Mechatronics
Manufacturing Group	
H	Robotics
I	Material Handling
J	Principles and Practices of Management

Note: If a student chooses the paper, **Turbo Machinery (Code: C)** as a **Professional Elective**-I in **Semester VI**, its paper code will be **PE-ME601C**.

Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

List of Professional Electives in Semester VII for (Elective-III) PE-ME701 and (Elective-IV) PE-ME702

Subject Code	Subject name
Thermo-Fluid Group	
A	Automobile Engineering
B	Gas Dynamics and Jet Propulsion
C	Computational Fluid Dynamics
D	Elements of Atmospheric Fluid Dynamics
Design Group	
E	Selection and Testing of Materials
F	Mechanical Vibration
G	Finite Element Analysis
Manufacturing Group	
H	Advanced Welding Technology
I	Quantity Production Methods
J	CAD/CAM

List of Professional Electives in Semester VIII for (Elective-V) PE-ME801 and (Elective-VI) PE-ME802

Subject Code	Subject name
Thermo-Fluid Group	
A	Analysis and Performance of Fluid Machines
B	Power Plant Engineering
C	Cryogenics
D	Introduction to Wind Engineering
Design Group	
E	Tribology
F	3D Printing and Design
Manufacturing Group	
G	Micro and Nano Manufacturing
H	Process Planning and Cost Estimation
I	Maintenance Engineering

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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Curriculum Structure

List of Open Electives

There are three Open Elective Course Papers in Semester VII and VIII as follows:
(Open Elective-I) OE-ME701, (Open Elective-II) OE-ME801 and (Open Elective-III) OE-ME802

There are two baskets of Open Electives one each of Semester VII and VIII.
Students are to choose one paper from the basket of Open Electives corresponding to Semester VII, and two papers from the basket of Open Electives corresponding to Semester VIII.

List of Open Electives (OE-ME701) in Semester VII

Subject Code	Subject Name
A	Industrial Engineering
B	Project Management
C	Introduction to Product Design and Development
D	Non-conventional Energy Sources
E	Biomechanics and Biomaterials
F	Computational Methods in Engineering
G	Artificial Intelligence (AI)
H	Machine Learning
I	Water Resource Engineering

List of Open Electives (OE-ME801 and OE-ME802) in Semester VIII

Subject Code	Subject Name
A	Total Quality Management
B	Entrepreneurship Development
C	Safety and Occupational Health
D	Industrial Pollution and Control
E	Energy Conservation and Management
F	Waste to Energy- An Overview
G	Automation & Control
H	Internet of Things (IoT)
I	Block Chain
J	Cyber Security
K	Quantum Computing
L	Data Sciences
M	Virtual Reality (VR)

Note: If a student chooses the paper, **Industrial Engineering (Code: A)** as an **Open Elective-I in Semester VII**, its paper code will be **OE-ME701A**.

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

MBA PROGRAMME

(Revised Curriculum – 2018)

Objective

To conduct business and industry - oriented MBA Programme following AICTE Model Curriculum for Management (MBA & PGDM), 2018.

Course

- Two – Year full-time MBA course (Four – Semester).
- Minimum number of class room contact teaching for MBA/PGDM programme should be 96 credits (one credit equals 10 hours) and Internship / Project should be 06 credits i.e., Total 96 + 06 = 102 credits.
- Specialization: Students can opt for any two functional specializations (One Major Area and one Minor Area) from Marketing, Finance, HRM, Operations Management, Healthcare Management, MIS and Business Analytics
- Each Paper = 4 credits (40 contact hours), 6 Papers / Semester
- Marks per paper: 100 (70 – University, 30 – College)

Course Structure

- Regular Course

Semester	Paper	Credit (1=4 credit)	Contact Hrs. (1 = 10 hrs.)
I (C*)	6	24	240
II (C*)	6	24	240
III (2 C*+4 E**)	6	24	240
Internship/Project #	2	6	60
IV (6 E**)	6	24	240
Course Total	**26**	**102**	**1020**

(# Project: Project Paper + Presentation + Viva)

(C*: CORE PAPERS/E**: ELECTIVE PAPERS)

- **On – Line Courses** (Non-credit, Paper & Marks to be mentioned in the Mark sheet)
  - Total : 4(1/Semester)
  - Weightage : 4 Credits / Paper = 04 X 4 = 16 credits
  - Courses (any 4): Environment Sciences, Indian Society & Culture, Indian Constitution, Entrepreneurship, English Communication, Data Mining, E-Commerce, Agri-Business, Hospitality Management, Small Business Management, Corporate Social Responsibility.

- **Total Credits**:

Regular	:	102
On-Line (Non-Credit)	:	16

Session

- July – December (Odd Semesters / 1st& 3rd)
- January – June (Even semesters / 2nd& 4th)
- Class / Day : 5 hrs / Day (5 days week)
- Project Work : after 2ndSem Examination, June & July (8 Weeks)

Examination System (Semester – Wise)

- Total Marks = 100 (University – 70, College – 30)
- Internal (College level) : Weightage : 30 (20-Class Test, 10-Presentation & Viva)
- Paperwise Class Test = 2 Tests / every Six weeks
- Average of 2 internal tests (2 components – Test, Presentation& Viva)
- External (University Level) : 70 (20 = MCQ, 20 = Short Q, 30 = Analytical Q and Cases)
- Semester Grade Point Average : SGPA
- Yearly Grade Point Average: YGPA
- Degree Grade Point Average : DGPA
- Odd Semester (1st& 3rd) Examination : 1st Week of December
- Even Semester (2nd& 4th) Examination : 1st Week of May
- Project Marks (100) : Project Report (50), Presentation (30), Viva (20)
- Passmarks : 40 per paper, 50% aggregate

Teaching Methodology

Lecture, Discussion, Presentation, Case Studies, Group Task, Assignments, Projects, Special Lectures by industry professionals.

Internship / Project

Six to Eight weeks Internship Project in industry. Students will be required to submit a Project Report on any area of Elective courses (**Finance, Marketing, HRM, Operations Management, Business Analytics, MIS, Healthcare Management**) under the Faculty guidance. The Project will be examined on Project Report, Presentation and Viva.

General Guidelines

- This MBA curriculum will be applicable from the academic year 2018 – 19.
- All rules and regulations regarding admission, examination, registration, migration and others shall be according to MAKAUT norms.

CURRICULUM

Core Courses (Six / Semester)

Semester – I

MB – 101	Managerial Economics (Micro)
MB – 102	Organizational Behaviour
MB – 103	Business Communication
MB – 104	Legal and Business Environment (Micro and Macro)
MB – 105	Indian Ethos and Business Ethics
MB – 106	Quantitative Techniques

Semester – II

MB – 201	Indian Economy and Policy
MB – 202	Financial Reporting, Statements and Analysis
MB – 203	Marketing Management
MB – 204	Operations Management
MB – 205	Management Information System
MB – 206	Human Resource Management

Semester - III

Core Papers:

MB – 301	Entrepreneurship and Project Management
MB – 302	Corporate Strategy

Elective Papers: Two from any one Functional Area (Major) and two from a different Functional Area (Minor)

FM/ MM/HR/OM/BA/ MIS/ HCM– 301
FM/ MM/HR/OM/BA/ MIS/ HCM – 302
FM/ MM/HR/OM/BA/ MIS/ HCM – 303
FM/ MM/HR/OM/BA/ MIS/ HCM – 304

MB – 303 Internship Project and Viva Voce

Semester – IV

Elective Papers (Four from Major Functional Area and Two from Minor Functional area) **

FM/ MM/HR/OM/BA/ MIS/ HCM – 401

FM/ MM/HR/OM/BA/ MIS/ HCM – 402
FM/ MM/HR/OM/BA/ MIS/ HCM – 403
FM/ MM/HR/OM/BA/ MIS/ HCM – 404
FM/ MM/HR/OM/BA/ MIS/ HCM – 405
FM/ MM/HR/OM/BA/ MIS/ HCM – 406

****The Major and Minor Functional areas will be same as chosen in the 3rd Semester.**

Elective Papers for Third Semester

Functional Specialization (3rd Semester)

MARKETING		OPERATIONS	
MM 301	B2B MARKETING	OM 301	SUPPLY CHAIN & LOGISTICS MANAGEMENT
MM 302	DIGITAL & SOCIAL MEDIA MARKETING	OM 302	OPERATIONS STRATEGY
MM 303	IMC/ PROMOTION STRATEGY	OM 303	QUALITY TOOLKIT FOR MANAGERS
MM 304	MARKETING RESEARCH	OM 304	PRICING & REVENUE MANAGEMENT

FINANCE		HUMAN RESOURCE	
FM 301	TAXATION	HR 301	TEAM DYNAMICS AT WORK
FM 302	PROJECT APPRAISAL & FINANCE	HR 302	HR METRICS AND ANALYTICS
FM 303	BEHAVIORAL FINANCE	HR 303	CROSS CULTURAL MANAGEMENT
FM 304	CORPORATE FINANCE	HR 304	ORGANIZATIONAL DESIGN
MIS		**BUSINESS ANALYTICS**	
MIS 301	RELATIONAL DATABASE MANAGEMENT SYSTEM	BA 301	MODELING TECHNIQUES
MIS 302	E-COMMERCE & DIGITAL MARKETS	BA 302	APPLICATION OF ANALYTICS IN BUSINESS
MIS 303	MANAGING SOFTWARE PROJECTS	BA303	BUSINESS FORECASTING
MIS 304	SYSTEM ANALYSIS AND DESIGN	BA 304	DATA SCIENCE USING R
HEALTHCARE MANAGEMENT			
HCM 301	CONCEPT OF HEALTH AND DISEASE		
HCM 302	HOSPITAL SUPPORT SERVICES		
HCM 303	QUALITY ASSURANCE IN HEALTHCARE		
HCM 304	PLANNING AND ORGANISING OF HOSPITALS		

Elective Papers for Fourth Semester

Functional Specialization (4th Semester)

MARKETING		OPERATIONS	
MM 401	CONSUMER BEHAVIOUR	OM 401	SALES & OPERATIONS PLANNING
MM 402	RETAIL MANAGEMENT	OM 402	BEHAVIORAL OPERATIONS MANAGEMENT
MM 403	SALES & DISTRIBUTION MANAGEMENT	OM 403	OPERATIONS RESEARCH APPLICATIONS
MM 404	SERVICE MARKETING	OM 404	SUPPLY CHAIN ANALYTICS
MM 405	PRODUCT & BRAND MANAGEMENT	OM 405	MANAGEMENT OF MANUFACTURING SYSTEM
MM 406	INTERNATIONAL MARKETING	OM 406	SOURCING MANAGEMENT
FINANCE		**HUMAN RESOURCE**	
FM 401	INVESTMENT ANALYSIS & PORTFOLIO MANAGEMENT	HR 401	MANPOWER PLANNING RECRUITMENT & SELECTION
FM 402	MANAGING BANKS & FINANCIAL INSTITUTIONS	HR 402	EMPLOYEE RELATIONS&LABOUR LAWS
FM 403	MERGERS, ACQUISITION & CORPORATE RESTRUCTURING	HR 403	COMPENSATION & BENEFITS MANAGEMENT
FM 404	FINANCIAL DERIVATIVES	HR 404	PERFORMANCE MANAGEMENT SYSTEMS
FM 405	INTERNATIONAL FINANCE	HR 405	STRATEGIC HRM
FM 406	FINANCIAL MARKETS & SERVICES	HR 406	INTERNATIONAL HRM
MIS		**BUSINESS ANALYTICS**	
MIS 401	DATA WAREHOUSING	BA 401	DATA VISUALIZATION FOR MANAGERS
MIS 402	MANAGING DIGITAL PLATFORMS	BA 402	BIG DATA TECHNOLOGY
MIS 403	STRATEGIC MANAGEMENT FOR IT	BA 403	STATISTICS FOR BUSINESS ANALYTICS
MIS 404	BUSINESS DECISIONS USING ADVANCED EXCEL	BA 404	DATA MINING
MIS 405	MANAGEMENT OF INFORMATION TECHNOLOGY	BA 405	DATA ANALYTICS USING PYTHON
MIS 406	MANAGING DIGITAL INNOVATION & TRANSFORMATION	BA 406	OPTIMIZATION TECHNIQUES
HEALTHCARE MANAGEMENT			
HCM 401	EFFECTIVE COMMUNICATION IN HEALTH SECTOR		
HCM 402	MARKETING IN HOSPITALS & HEALTHCARE ORGANIZATIONS		
HCM 403	HR INTERVENTIONS IN HEALTHCARE SECTOR		
HCM 404	FINANCIAL MANAGEMENT IN HEALTHCARE SECTOR		
HCM 405	CONCEPT OF COMMUNITY HEALTH & EPIDEMIOLOGY		
HCM 406	LEGAL ASPECT OF HEALTHCARE ADMINISTRATION		

MASTER OF COMPUTER APPLICATION

Syllabus w.e.f. the Academic Session 2021-2022

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY
WEST BENGAL

Objective:

To conduct software industry, corporate sector, academia, research-oriented MCA program following the AICTE model for MCA

Eligibility:

Candidates with the following eligibility can take admission in the 2-year MCA program approved by AICTE:

A. Students who have passed Bachelor of Computer Application or Bachelor's degree in Computer Science Engineering or equivalent degree
B. Students who have passed Bachelor of Science, Bachelor of Commerce or Bachelor of Arts with mathematics at 10+2 or at the graduation level with additional bridge courses as per the norms of the concerned university
C. Candidates must have obtained at least 50 percent marks, or 45 percent marks in the case of candidates belonging to reserved categories, in the qualifying examination

Duration:

2 Years (4 Semesters)

Program Educational Objectives (PEOs)

PEO 01: Technical Expertise: Develop the ability to plan, analyze, design, code, implement, test and maintain the software product for real time systems that are technically sound, economically feasible and socially acceptable

PEO 02: Successful Career: Exhibit professionalism, ethical attitude with updated technologies in Computer Application based career and capability to set up their own enterprise in various sectors of Computer Applications

PEO 03: Soft Skills: Develop communication skills, team work and leadership quality in their professional multidisciplinary projects and adapt to current trends by engaging in lifelong learning

PEO 04: Life Long Learning: Prepare the students to pursue higher studies by acquiring knowledge in mathematical, computing and engineering principles in the field of computing and related fields and to work in the fields of teaching and research

Program Specific Outcomes (PSOs)

The post-graduates of Master of Computer Application Program will demonstrate:

PSO 01: Software System Design and Development: The ability to apply software development life cycle principles to design and develop the application software that meets the automation needs of society and industry.

PSO 02: Computing and Research ability: The ability to employ modern computer languages, environments and platforms in creating innovative career paths in SMAC (Social, Mobile, Analytics and Cloud) technologies.

PSO 03: Professionalism and Ethics: Efficient team leaders, effective communicators and capable of working in multi-disciplinary environment following ethical values.

Program Outcomes (POs)

On Completion of MCA program, the post-graduates are expected to

PO 01: Engineering Knowledge: Ability to apply knowledge of computing, science, mathematics and engineering fundamentals appropriate to the discipline

PO 02: Problem Analysis: Ability to identify, critically analyze, formulate the computing requirements appropriate to its solution and develop computer applications

PO 03: Design/Development of Solutions: Ability to design, implement and evaluate a computer-based complex system, process, component, or program to meet desired needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations

PO 04: Conduct Investigations of Complex Problems: Use of research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions and develop Software with complete satisfaction to the Customer.

PO 05: Modern Tool Usage: Ability to apply current technologies, skills, and modern IT tools necessary for computing practice with an understanding of the limitations.

PO 06: The Engineer and Society: Ability to understand the impact of system solutions in a contemporary, global, economical, environmental and societal context for sustainable development.

PO 07: Environment and Sustainability: Ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 08: Ethics: Ability to discharge their duties with professional and ethical responsibilities as an individual as well as in multidisciplinary teams with positive attitude.

PO 09: Individual and Team Work: Ability to function individually in effective manner and on teams, including diverse and multidisciplinary, to accomplish a common goal.

PO 10: Communication: Ability to communicate effectively with a range of audiences and be customer friendly.

PO 11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team to manage projects and in multidisciplinary environments and should be economically feasible.

PO 12: Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

Program Structure:

SEMESTER	THEORY		PRACTICAL		SESSIONAL		Semester Credits [A+B+C]
	Courses	Credits [A]	Courses	Credits [B]	Courses	Credits [C]	
I	4(C) + 1(E)	19	3	6	-	-	25
II	4(C) + 1(E)	19	3	6	-	-	25
III	3(C) + 2(E)	18	1	2	1	5	25
IV	1(O)	3	-	-	2	22	25
TOTAL CREDIT→							**100**

* C → Compulsory Courses
* E → Elective Courses
* O→ Open Elective Courses

Project: Dissertation + Presentation + Project viva

Session:

- Odd Semester/ 1st and 3rd: July - December
- Even Semester/2nd and 4th): January - June
- Lecture Hour: 1 Hour
- Subject wise Lecture per Week: 4

Examination System:

Subject wise Total Marks: 100
Semester Grade Point Average: SGPA
Yearly Grade Point Average: YGPA
Degree Grade Point Average: DGPA

Teaching Methodology:

Lecture, Discussion, Presentation, Case Studies, Group Task, Assignment, Projects, Special Lecture by Industry Professionals

General Guidelines:

The 2-year MCA curriculum will be applicable w.e.f. the academic year 2020 – 2021.
All rules and regulation regarding admission, examination, registration, migration and others shall exist according to MAKAUT norms.

PART – I
COURSE STRUCTURE

Semester – I							
THEORY							
Sl. No	Paper Code	Paper Name	Contact Hours / Week				Credit
			L	T	P	Total	
1	MCAN-101	Programming Concept with Python	3	1	-	4	4
2	MCAN-102	Relational Database Management System	3	1	-	4	4
3	MCAN-103	Computer Organization and Architecture	3	1	-	4	4
4	MCAN-104	Discrete Mathematics	3	1	-	4	4
5	**Elective I**		3	-	-	3	3
	MCAN-E105A	Environment and Ecology					
	MCAN-E105B	Management Accounting					
	MCAN-E105C	Constitution of India					
	MCAN-E105D	Stress Management through Yoga					
	MCAN-E105E	Ethics in Business Profession					
	MCAN-E105F	Managerial Economics					
PRACTICAL							
1	MCAN-190	Soft Skill and Interpersonal Communication	-	-	4	4	2
2	MCAN-191	Python Programming Lab	-	-	4	4	2
3	MCAN-192	Relational Database Management System Lab	-	-	4	4	2
Total Weekly Contact Hours and Credit						**31**	**25**
BRIDGE COURSE **[Only for Students of Category "B" stated in the "Eligibility" Section]**							
A minimum 8-week Online Course on Fundamentals of 'Computer Science' or 'Computer Application' or 'Information Technology' or so							

Semester - II							
THEORY							
Sl. No.	Paper Code	Paper Name	Contact Hours / Week				Credit
			L	T	P	Total	
1	MCAN-201	Data Structure with Python	3	1	-	4	4
2	MCAN-202	Operating System	3	1	-	4	4
3	MCAN-203	Object Oriented Programming with JAVA	3	1	-	4	4
4	MCAN-204	Networking	3	1	-	4	4
5	**Elective II**		3	-	-	3	3
	MCAN-E205A	Numerical and Statistical Analysis					
	MCAN-E205B	Computer Graphics					
	MCAN-E205C	Probability and Statistics					
	MCAN-E205D	Introduction to Cyber Security					
	MCAN-E205E	Introduction to IoT					
	MCAN-E205F	Automata Theory and Computational Complexity					
PRACTICAL							
1	MCAN-291	Data Structure Lab with Python	-	-	4	4	2
2	MCAN-292	Operating System Lab (Unix)	-	-	4	4	2
3	MCAN-293	Object Oriented Programming Lab using JAVA	-	-	4	4	2
Total Weekly Contact Hours and Credit						**31**	**25**
BRIDGE COURSE **[Only for Students of Category "B" stated in the "Eligibility" Section]**							
A minimum 8-week Online Course on Fundamentals of 'Software Engineering' or 'Systems Analysis and Design' or 'Business Systems Applications' or so							

Semester – III							
THEORY							
Sl. No.	Paper Code	Paper Name	Contact Hours / Week				Credit
			L	T	P	Total	
1	MCAN-301	Software Engineering using UML	3	1	-	4	4
2	MCAN-302	Artificial Intelligence	3	1	-	4	4
3	MCAN-303	Design and Analysis of Algorithm	3	1	-	4	4
4	**Elective III**		3	-	-	3	3
	MCAN-E304A	Image Processing					
	MCAN-E304B	Web Enabled JAVA Programming					
	MCAN-E304C	Cloud Computing					
	MCAN-E304D	Web Technology using PHP					
	MCAN-E304E	Android Application Development					
	MCAN-E304F	Basic Data Science					
5	**Elective IV**		3	-	-	3	3
	MCAN-E305A	Information Retrieval					
	MCAN-E305B	Data Warehousing and Data Mining					
	MCAN-E305C	Introduction to Big Data Analytics					
	MCAN-E305D	Graph Theory					
	MCAN-E305E	Operation Research and Optimization Techniques					
	MCAN-E305F	Pattern Recognition					
	MCAN-E305G	Machine Learning					
PRACTICAL							
1	MCAN-E394 (A/B/C/D/E/F)	Elective III Lab	-	-	4	4	2
SESSIONAL							
1	MCAN-381	Minor Project and Viva-voce	-	-	8	8	5
Total Weekly Contact Hours and Credit						**30**	**25**

Semester IV							
THEORY							
Sl. No.	Paper Code	Paper Name	Contact Hours / Week				Credit
			L	T	P	Total	
1	**Open Elective**						
	MCAN-OE401	Open Elective [1] Open Electives preferably be opted from the NPTEL/SWAYAM Platform. [2] While opting for a course for pursuing the Open Elective, a student needs to ensure that: i) The duration of the course must minimum of 12-Weeks. ii) The course must not be covered in previous semesters of the program. iii) Date of Exam and publication of result should be within the tenure of the MCA 4th Semester i.e. January to June of every Year. [3] Student must submit the course details at the time of 4th semester enrollment	-	-	-	-	3
SESSIONAL							
1	MCAN-481	Compressive Viva-voce	-	-	-	-	2
2	MCAN-482	Major Project and Viva-voce	-	-	28	28	20
Total Weekly Contact Hours and Credit						**28**	**25**