SYLLABUS

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M. Tech
Telecommunication Engineering

MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY

Mar Ivanios Vidyanagar, Nalanchira, Thiruvananthapuram – 695 015

October 2020

MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Vision and Mission of the Institution

Vision:

To be an Institution moulding globally competent professionals as epitomes of Noble Values.

Mission:

To transform the Youth as technically competent, ethically sound and socially committed professionals, by providing a vibrant learning ambience for the welfare of humanity.

Vision and Mission of the Department of Electronics and Communication Engineering

Vision:

To be a Centre of Excellence in Electronics and Communication Engineering Education and Research for the service of humanity.

Mission:

To provide quality Engineering Education and to carry out Research in the field of Electronics and Communication Engineering addressing the challenges faced by the society.

CURRICULUM UNDER AUTONOMY STATUS

Medium of instruction: English

i) Knowledge Segments and Credits

Every course of MTech Programme is placed in one of the seven categories as listed in table below. No semester shall have more than six lecture-based courses and two laboratory courses, and/or drawing/seminar/project courses in the curriculum.

Sl. No.	Category	Category Code	Number of Courses	Total Credits
1	Programme Core Courses	PCC	7	24
2	Laboratory Courses		2	02
3	Program Elective Courses	PEC	5	15
4	Mandatory Credit Course (Research Methodology)	MCC	1	02
5	Mini Project	PWS	1	02
6	Seminar		2	04
7	Project		2	18
			Total Mandatory Credits	**67**

Programme Core: Applied Linear Algebra, Random Processes and Applications, Advanced Digital Communication, Advanced Digital Signal Processing, Advanced Digital Signal Processing, Antenna Theory and Design, Wireless Communication and Networks.

Lab Courses: Telecommunication Lab I, Telecommunication Lab II

ii) Semester-wise Credit Distribution

Semester	***I***	***II***	***III***	***IV***	***Total Credits***
Credits for Courses	*22*	*19*	*14*	*12*	***67***

Semester I							
Slot	**Category Code**	**Course Number**	**Course Name**	**L**	**T**	**P**	**Credit**
A	PCC	MA0P60C	Applied Linear Algebra	3	0	0	3
B	PCC	EC1P60A	Random Processes and Applications	3	1	0	4
C	PCC	EC1P60B	Advanced Digital Communication	3	1	0	4
D	PCC	EC1P60C	Advanced Digital Signal Processing	3	0	0	3
E	PEC	EC1PXXX	Elective I	3	0	0	3
S	MCC	MC0P60A	Research Methodology	0	2	0	2
T	PCC	EC1P68A	Telecommunication Lab I	0	0	2	1
U	PWS	EC1P69A	Seminar I	0	0	2	2
			Total	**15**	**4**	**4**	**22**

Elective I

Slot	**Category Code**	**Course Number**	**Course Name**	L	T	P	Credit
E	PEC	EC1P61A	Optical Communication Systems	3	0	0	3
		EC1P61B	Modelling and Simulation of Communication Systems	3	0	0	3
		EC1P61C	Spread Spectrum and CDMA Systems	3	0	0	3

Semester II							
Slot	**Category Code**	**Course Number**	**Course Name**	L	T	P	**Credit**
A	PCC	EC1P60D	Estimation and Detection Theory	3	1	0	4
B	PCC	EC1P60E	Antenna Theory and Design	3	0	0	3
C	PCC	EC1P60F	Wireless Communication and Networks	3	0	0	3
D	PEC	EC1PXXX	Elective II	3	0	0	3
E	PEC	EC1PXXX	Elective III	3	0	0	3
T	PCC	EC1P68B	Telecommunication Lab II	0	0	2	1
W	PWS	EC1P69B	Mini Project	0	0	4	2
			Total	**15**	**1**	**6**	**19**

Elective II

Slot	Category Code	Course Number	Course Name	L	T	P	Credit
D	PEC	EC1P62A	Adaptive Signal Processing	3	0	0	3
		EC1P62B	Digital Microwave Communication	3	0	0	3
		EC1P62C	Embedded Systems for Communication	3	0	0	3

Elective III

Slot	Category Code	Course Number	Course Name	L	T	P	Credit
E	PEC	EC1P63A	Information Theory	3	0	0	3
		EC1P63B	Image and Video Processing	3	0	0	3
		EC1P63C	High Performance Communication Networks	3	0	0	3

Semester III							
Slot	**Category Code**	**Course Number**	**Course Name**	L	T	P	Credit
A	PEC	EC1PXXX	Elective IV	3	0	0	3
B	PEC	EC1PXXX	Elective V	3	0	0	3
U	PWS	EC1P79A	Seminar II	0	0	2	2
W	PWS	EC1P79B	Project (Phase I)	0	0	12	6
			Total	**6**	**0**	**14**	**14**

Elective IV

Slot	Category Code	Course Number	Course Name	L	T	P	Credit
A	PEC	EC1P71A	Neuro Fuzzy systems	3	0	0	3
		EC1P71B	Secure Communication	3	0	0	3
		EC1P71C	Space Time Coding and MIMO Systems	3	0	0	3

Elective V

Slot	Category Code	Course Number	Course Name	L	T	P	Credit
B	PEC	EC1P72A	WDM Optical Network and Optical switching	3	0	0	3
		EC1P72B	RF MEMS	3	0	0	3
		EC1P72C	Radio Frequency System Design	3	0	0	3

Semester IV							
Slot	**Category Code**	**Course Number**	**Course Name**	L	T	P	Credit
W	PWS	EC1P79C	Project (Phase II)	0	0	24	12
Total				**0**	**0**	**24**	**12**

Evaluation Framework
Pattern of Grading

A student will be eligible for the award of M. Tech. Degree of the University on meeting the following requirements;

i) Registered and earned the minimum credits, as prescribed in the curriculum, for the stream of specialization.

ii) No pending disciplinary action.

Students registered for a course have to attend the course regularly and undergo the Continuous Assessment and appear for the End Semester Examinations. Credits for the course are deemed to be earned only on getting at least a pass grade 'P' or better in the composite evaluation.

Eligibility criteria to appear for the semester examination are the attendance requirements in the course, 45% or more marks in the internal evaluation and having no pending disciplinary action. The minimum attendance for appearing for the semester examination is 85% in the course. Those who do not meet the eligibility criteria shall be awarded an FE Grade and have to register again for the course. A student should have a minimum of 45% marks in the end semester examination to be eligible for grading in a course. Otherwise he/she will be considered to have failed in the course and an F grade will be awarded.

Students who received F grade in an End Semester Examination shall have to appear for the End Semester Examination at the next opportunity and earn the credits. They shall not be permitted to register for the course again.

Grading is based on the percentage marks obtained by the student in a course. The grade card will only show the grades against the courses the student has registered. The semester grade card will show the grade for each registered course, Semester Grade Point Average (SGPA) for the semester as well as Cumulative Grade Point Average (CGPA).

There is no provision for revaluation of the semester answer books or for improving the grade.

Grade cards shall be issued by the College to the student for the registered courses, in every semester. On earning the required credits for the degree, the College shall issue the final consolidated grade sheet for the M.Tech programme including CGPA.

Grade and Grade Points

Grading and grade points is based on the marks obtained by the student in a course. A student will become eligible for the award of M Tech degree, once he has passed in all courses registered for the programme. The grades and Grade Points are listed below.

Grades	Grade Point (GP)	% of Total Marks obtained in the Course
O	10	90% and above
A+	9.0	85% and above but less than 90%
A	8.0	80% and above but less than 85%
B+	7.0	70% and above but less than 80%
B	6.0	60% and above but less than 70%
C	5.0	50% and above but less than 60%
P	4.0	45% and above but less than 50%
F	0	Less than 45%
FE	0	Failed due to eligibility criteria
I	0	Course incomplete

Calculation of SGPA/CGPA

Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) are calculated as follows.

$$SGPA = \frac{\sum C_i \times GP_i}{\sum C_i}$$

where 'C_i' is the credit assigned for a course and 'GP_i'is the grade point for that course. Summation is done for all courses registered by the student in the semester. Here the failed courses are also accounted.

$$CGPA = \frac{\sum C_i \times GP_i}{\sum C_i}$$

where 'C_i' is the credit assigned for a course and 'GP_i' is the grade point for that course. Summation is done for all courses registered by the student during all the semesters for which the CGPA is needed. Here the failed courses are also accounted. CGPA of all courses passed may also be given

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{Subject to Approval by the competent Authorities}