

# **SYLLABUS**

(2016-2017)



## **Master of Technology In**

## **Digital Communication & Networking**



**NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY**  
**Govindapur, Gollahalli, Yelahanka**  
**Bangalore - 560064**

## PROGRAM OUTCOME

**P01: Scholarship of Knowledge:** The graduates will acquire in-depth knowledge and requisite skills in designing communication and network systems and also will be able to develop new design methodology.

**P02: Critical Thinking:** The graduates will develop expertise in analyzing digital wired and wireless communication system requirement, convert it into design specification, and implement with network systems and also formulate standard for design, verification and testing methodologies.

**P03: Problem Solving:** The graduate will be able to analyze problems related to communication system requirement, formulate alternate design solutions and arrive at optimal solution considering cost, reliability, safety and environmental factors.

**P04: Research Skill:** The graduates will be able to perform literature survey, review research papers and reports, extract desired information, use NS2 and Qualnet tools to design, verification and testing of network systems.

**P05: Usage of modern tools:** The graduates will be able to use latest tools, software and hardware to design, verify and test communication and network systems .

**P06: Collaborative and Multidisciplinary work:** The graduates will be able to work in large multidisciplinary design teams to achieve the goals of developing and integrating communication systems and also will be able to communicate with other team members sharing knowledge and expertise.

**P07: Project Management and Finance:** The graduate will be able to manage effectively the communication design projects within given financial and time constraints.

**P08: Communication:** The graduate will be able to write effective reports, make presentations, prepare design documentation as per the required standards and communicate effectively with team members and stakeholders.

**P09: Life-long Learning:** The graduate will engage in life-long learning and upgrade their knowledge and skills in design, verification and testing.

**P010: Ethical Practices and Social Responsibility:** The graduate will have professional and intellectual integrity and engage in fruitful environment considering sustainable development of society.

**P011: Independent and Reflective Learning:** The graduate will observe and examine critically the impact of one's actions and make amends.

**NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY, BANGALORE**  
**SCHEME OF TEACHING AND EXAMINATION FOR**  
**M.Tech. Digital Communication and Networking**

**SEMESTER: I**

Sl.No	Subject Code	Subject Name	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			Credits
					L#	T#	P#	CIE*	SEE**	Total	
1.	16DCN101	Advanced Mathematics	PC	ECE	4	0	0	50	50	100	4
2.	16DCN102	Advanced Digital Communication	PC	ECE	4	0	2	50	50	100	5
3.	16DCN103	Advanced Embedded System	PC	ECE	4	0	2	50	50	100	5
4.	16DCN104	Antenna Theory & Design	PC	ECE	4	0	2	50	50	100	5
5.	16DCN105Ex	Program Elective– Group A	PE	ECE	4	0	0	50	50	100	4
6.	16DCN106P	TERM PROJECT	PE	ECE	0	0	6	50	50	100	3
7.	16DCN107S	SEMINAR	PC	ECE	0	0	4	50	50	100	2
<b>TOTAL</b>								<b>350</b>	<b>350</b>	<b>700</b>	<b>28</b>

**PROGRAM ELECTIVE – GROUP A**

Sl No	Subject Code	Subject Name
1	16DCN105E1	Applied information theory & coding
2	16DCN105E2	Satellite communication
3	16DCN105E3	Optical Fiber Communication

Note:

1. Department can swap the credits between the core and elective but make sure that the total credits for the semester remains same.
2. External examination should be combined for Seminar and Mini project (Viva Voce) but separate marks sheet should be submitted.

\* Continuous Internal Evaluation    \*\* Semester End Exam

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**SEMESTER: II**

Sl.No	Subject Code	Subject Name	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			Credits
					L#	T#	P#	CIE*	SEE**	Total	
1.	16DCN201	Advanced signal processing	PC	ECE	4	0	2	50	50	100	5
2.	16DCN202	Wireless Communication	PC	ECE	4	0	2	50	50	100	5
3.	16DCN203	RF & Microwave Circuit Design	PC	ECE	4	0	2	50	50	100	5
4.	16DCN204EX	Program elective – Group B	PC	ECE	4	0	0	50	50	100	4
5.	16DCN205EX	Program elective – Group C	PE	ECE	4	0	0	50	50	100	4
6.	16DCN206P	TERM PROJECT	PE	ECE	0	0	6	50	50	100	3
7.	16DCN207S	SEMINAR	PE	ECE	0	0	4	50	50	100	2
<b>TOTAL</b>								<b>350</b>	<b>350</b>	<b>700</b>	<b>28</b>

PROGRAM ELECTIVE – GROUP B			PROGRAM ELECTIVE – GROUP C		
Sl.No	Subject Code	Subject Name	Sl.No	Subject Code	Subject Name
1.	16DCN204E1	Error control coding	1.	16DCN205E1	<b>Advanced computer networks</b>
2.	16DCN204E2	Multimedia communication	2.	16DCN205E2	Multimedia networks
3.	16DCN204E3	Network programming	3.	16DCN205E3	Spread spectrum communication
4.	16DCN204E4	<b>Artificial Neural networks</b>	4.	16DCN205E4	Cryptography and network security

**Note:**

1. Department can swap the credits between the core and elective but make sure that the total credits for the semester remains same.
2. External examination should be combined for Seminar and Mini project (Viva Voce) but separate marks sheet should be submitted.

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**SEMESTER: III**

**CREDIT BASED**

Sl.No	Subject Code	Subject Name	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			Credits
					L#	T#	P#	CIE*	SEE**	Total	
1.	16DCN301S	SEMINAR/FIELD WORK/PROFESSIONAL TRAINING/ SELF STUDY/TERM PAPER	PC	ECE	0	0	8	50	50	100	4
2.	16DCN302P	PROJECT PHASE -1	PC	ECE	0	0	32	50	50	100	16
<b>Total</b>								<b>100</b>	<b>100</b>	<b>200</b>	<b>20</b>

Note:

- External examination should be combined for SEMINAR/FIELD WORK/PROFESSIONAL TRAINING/ SELF STUDY/TERM PAPER and PROJECT PHASE -1 (Viva Voce) but separate marks sheet should be submitted.
- The Project will commence immediately after the II semester.

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**SEMESTER: IV**

**CREDIT BASED**

Sl.No	Subject Code	Subject Name	Course Type	Teaching Dept.	Teaching Hours/Week			Examination			Credits
					L#	T#	P#	CIE*	SEE**	Total	
1.	16DCN401P	PROJECT PHASE -2- THESIS ASSESMENT*	PC	ECE	0	0	15	100 <sup>§</sup>	100 <sup>#</sup>	200	08
2.	16DCN402P	PROJECT PHASE -2- INTERNAL EVALUATION AND VIVO VOCE <sup>§</sup>	PC	ECE	0	0	24	100	100	200	16
<b>TOTAL</b>								<b>200</b>	<b>200</b>	<b>400</b>	<b>24</b>

Note:

1. PROJECT PHASE -2- THESIS ASSESMENT\* : The evaluation under this title involves two components
  - a. Thesis evaluation by the external examiner will be considered as SEE
  - b. Thesis evaluation by the internal examiner will be considered as CIE
2. PROJECT PHASE -2- INTERNAL EVALUATION AND VIVO VOCE<sup>§</sup> : The evaluation under this title involves two components:
  - a. Final Viva Voce jointly conducted by the Internal and External examiner will be considered as SEE
  - b. Continuous evaluation of the project throughout the semester by a committee (at departmental level) will be considered as CIE.

\* Continuous Internal Evaluation    \*\* Semester End Exam

§ - Internal evaluation by the guide, # - External Examiner Evaluation (Thesis)