



Dr. Vishwanath Karad

**MIT WORLD PEACE  
UNIVERSITY** | PUNE

TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

# **SYLLABUS**

**DR VISHWANATH KARAD**

**MIT-WORLD PEACE UNIVERSITY**

**SCHOOL OF CIVIL ENGINEERING**

**M. TECH. CIVIL**

**(CONSTRUCTION ENGINEERING AND MANAGEMENT)**

**BATCH—2018-19**

***Preamble:***

Engineering is the profession in which knowledge of mathematics and natural sciences is used to the benefit of mankind. Engineers develop solutions to the problems of society within the constraints of economy and environment. Their primary job function includes activities such as design, analysis, manufacturing, research, sales, management, consulting and many more. New generation engineers are required to cope with rapid changes in both domain knowledge and nature of problems to be solved. Engineering profession is becoming increasingly interdisciplinary; making demands on knowledge, skills as well as personality. A civil engineer has to work in diverse fields viz. industrial structures, bridges, docks, harbours etc. The civil engineer is also responsible for management of various resources, administration, finance and construction.

The M. Tech ( Civil-Construction Engineering and Management) curriculum offers a varied range of subjects that falls into the core, specialization and basic Civil Engineering stream. The course also has provisions for pursuing seminars, projects, internships, interdisciplinary subjects for the students as a prudential aspect of the course curriculum. The value based education is ensured by offering peace related subjects and yoga practice.

The curriculum is based on the theme of continuous evaluation. Theory and laboratory components are given appropriate importance. The communication skills are enhanced through seminar component. Industry exposure is given through internships/ projects.

The curriculum will transform the students into winning personalities.

**Dr. Mrudula S. Kulkarni**  
Professor & Program Head,  
School of Civil Engineering,  
MIT-WPU, Pune.

**Dr. L. K. Kshirsagar**  
Dean,  
Engineering and Technology  
MIT-WPU, PUNE,

## ***Vision and Mission of the Programme***

### ***Vision***

- To create a responsible Civil Engineer with a technical competence and managerial ability for the nation building.

### ***Mission***

- To be a centre of excellence in the field of civil engineering education, research and development & to develop an analytical minds ready for accepting challenges and finding solutions through use of new materials, processes and technology.

### ***Programme Educational Objectives***

1. The M Tech Civil –Construction Engineering and Management under MIT WPU is a 2 year 6 Semester Choice Based Credit System Pattern Program with Industry Training to make Industry ready Engineer.
2. It is an ideal blend of practical Academics with Corporate pattern, Philosophy, Extra Curricular and Co Curricular Activities.
3. Student can choose his elective subjects wide spectrum of subjects to meet his individual professional targets.
4. Opportunity to see and work with Corporate World through industry visits& live projects& also can explore possibilities of higher studies and research, while visiting research organizations and premium institutes of National and International repute.
5. International Study Tours to Foreign Universities with unique Modular Certificate Course will help in developing global competencies among students.

## Programme Structure :

(a) Programme duration: 2 Year

(b) System followed: Trimester

(c) Credits System:

Year	Trimester I	Trimester II	Trimester III	Total
FY M Tech	11	11	13	35
SY M Tech	11	10	10	31
<b>Total : 35 + 31 = 66</b>				

(d). Credits for activities other than academics - *Not Applicable*

(e) Internship: *Not Applicable*

(f) Assessment Criteria:

### As per norms of MIT-WPU

(g) Branches or Specialisations: Civil – Construction Engineering and Management

(h) Mandatory Attendance to appear for examination: <90>%

*(Para 13.1. of AO : 2017)*

(j) Medium of Instruction and Examination: English

(k) Eligibility criteria for admission to the programme

*<as per para 4 of AO 2017)*

## M. Tech. Civil-Construction Engineering and Management (2018-19)

### A. Definition of Credit:-

<i>3 Hr. Lecture / Tutorial per week</i>	<i>2credit</i>
<i>2HoursPractical(Lab) per week</i>	<i>1credit</i>

### B. Credits:-

Total number of credits for Two year postgraduate **M. Tech** Civil- Construction Engineering and Management would be 66.

### C. Structure of Credits for Postgraduate **M. Tech** Civil- Construction Engineering and Management program:-

No.	Category	Suggested Break up of Credits(Total 66)
1	<i>Humanities and Social Sciences and Peace Programmes including Management courses</i>	08
2	<i>Engineering Science courses</i>	04
3	<i>Professional core courses</i>	22
4	<i>Professional Elective courses relevant to chosen specialization/branch</i>	10
5	<i>Project work, seminar</i>	22
<b>Total</b>		<b>66</b>

## M. Tech. (First Year Civil – Construction Engineering and Management) (Batch 2018-19)

### Trimester – I

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment, Marks			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM511	Research Methodology	Engg. Science	3	--	--	2	--	50	--	50	100
2	CEM512	Life Cycle Analysis of Construction Projects	Core	3	--	--	2	--	50	--	50	100
3	CEM513	Advanced Construction Processes, Equipment, Technologies	Core	3	--	--	2	--	50	--	50	100
4	WPC1	World Famous Philosophers, Sages/Saints and Great Kings	Humanities -WPC	1	--	2	1	1	25	25	--	50
5	CEM514	Lab Practice-I	Core	--	--	6	--	3	--	50	50	100
6		Practicing Yoga and Meditation	WPC	--	--	--	--	--	---	--	--	--
<b>Total :</b>				<b>10</b>	<b>--</b>	<b>8</b>	<b>7</b>	<b>4</b>	<b>175</b>	<b>75</b>	<b>200</b>	<b>450</b>

**Type: (Refer Para 11 of Academic Ord. 2017)**

**Weekly Teaching Hours: 18**

**Total Credits: First Year M. Tech Trimester I: 11**

**\*\*Assessment Marks are valid only if Attendance criteria are met**

**\* CCA : Class Continuous Assessment**

**\* LCA : Laboratory Continuous Assessment**

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 Professor Program Head,  
 M.Tech. Civil (Construction Engg. & Mgmt.),  
 MIT-WPU, Pune.

**Prof. Dr. Mrs. M. S. Kulkarni**  
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 Dean,  
 Engineering and Technology,  
 MIT-WPU, Pune.

## M. Tech. (First Year Civil – Construction Engineering and Management) (Batch 2018-19) Trimester – II

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks **			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM521	Project Scheduling and Materials Management	Management	3	--	--	2	--	50	--	50	100
2	CEM522	Project Finance and Accounting Systems	Core	3	--	--	2	--	50	--	50	100
3	CEM523	Elective-I	Departmental Elective	3	--	--	2	--	50	--	50	100
4	WPC4	Philosophy of Science & Religion/Spirituality	WPC	3	--	--	2	--	50	--	50	100
5	CEM524	Lab Practice-II	Core	--	--	6	--	3	--	50	50	100
6		Practicing Yoga and Meditation	WPC	--	--	--	--	--	--	--	--	--
		Total :		<b>12</b>	--	<b>6</b>	<b>8</b>	<b>3</b>	<b>225</b>	<b>50</b>	<b>250</b>	<b>500</b>

**Type: (Refer Para 11 of Academic Ord. 2017)**

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**Weekly Teaching Hours: 18**

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## M. Tech. (First Year Civil – Construction Engineering and Management) (Batch 2018-19)

### Trimester – III

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM531	Statistical Methods in Project Management	Core	3	--	--	2	--	50	--	50	100
2	CEM532	Elective-II	Departmental Elective	3	--	--	2	--	50	--	50	100
3	CEM533	Elective-III	Departmental Elective	3	--	--	2	--	50	--	50	100
4	WPC2	Study of Languages, Peace in Communications and Human Dynamics	WPC	3	--	--	2	--	50	--	50	50
5	CEM534	Contract Law, Administration and Management	Core	3	--	1	2	1	50	--	50	100
6	CEM535	Seminar-I	Inter-disciplinary	--	--	4	--	2	--	50	50	100
		Practicing Yoga and Meditation	WPC	--	--	--	--	--	--	--	--	--
				<b>15</b>	--	<b>05</b>	<b>10</b>	<b>03</b>	<b>250</b>	<b>50</b>	<b>300</b>	<b>600</b>

**Type: (Refer Para 11 of Academic Ord. 2017)**

Weekly Teaching Hours: 20

Total Credits: First Year M.Tech. Trimester III: 13

**Total First Year M. Tech. Credits: 35**

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## M. Tech. (Second Year Civil – Construction Engineering and Management) (Batch 2018-19)

### Trimester – I

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM611	Operations Research	Core	3	1	--	3	--	50	--	50	100
2	CEM612	Elective-IV	Inter disciplinary	3	--	--	2	--	50	--	50	100
3	CEM613	Project Stage-I Seminar	Core	--	--	4	--	2	--	50	50	100
4	CEM614	Total Quality Management in Construction	Management	3	--	--	2	--	50	--	50	100
5	CEM615	IQ, EQ, SQ applications in Project Management	Core	3	---	---	2					
6		Practicing Yoga and Meditation	WPC	--	--	--	--	--	--	--	--	--
		Total :		<b>12</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>2</b>	<b>200</b>	<b>50</b>	<b>250</b>	<b>500</b>

**Type: (Refer Para 11 of Academic Ord. 2017)**

**Weekly Teaching Hours: 17**

**Total Credits: Second Year M. Tech. Trimester I: 11**

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## M. Tech. (Second Year Civil – Construction Engineering and Management) (Batch 2018-19) Trimester – II

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM621	Elective-V	Self-Study	2	--	--	1	--	--	--	50	50
2	CEM622	Project Stage-II Seminar	Core	--	--	18	--	9	--	100	50	150
3		Practicing Yoga and Meditation	WPC	--	--	--	--	--	--	--	--	--
<b>Total :</b>				<b>02</b>	<b>--</b>	<b>18</b>	<b>01</b>	<b>09</b>	<b>--</b>	<b>100</b>	<b>100</b>	<b>200</b>

**Type: (Refer Para 11 of Academic Ord. 2017)**

**Weekly Teaching Hours: 20**

**Total Credits: Second Year M. Tech. Trimester II: 10**

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## Second Year M. Tech. (Civil – Construction Engineering and Management) (Batch 2018-19) Trimester – III

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th	Lab	CCA*	LCA*	End Term Test/OR	Total
1	CEM631	Elective-VI	Web Based	2	--	--	1	--	--	--	50	50
2	CEM632	Project Stage-III Seminar	Core	--	--	18	--	9	--	100	100	200
3		Practicing Yoga and Meditation	WPC	--	--	--	--	--	--	--	--	--
<b>Total :</b>				<b>02</b>	<b>--</b>	<b>18</b>	<b>01</b>	<b>09</b>	<b>--</b>	<b>100</b>	<b>150</b>	<b>250</b>

**Type: (Refer Para 11 of Academic Ord. 2017)    \*\*Assessment Marks are valid only if Attendance criteria are met**

**Weekly Teaching Hours: 20**

\* CCA : Class Continuous Assessment

**Total Credits: Second Year M. Tech. Trimester III: 10**

\* LCA : Laboratory Continuous Assessment

**Total Second Year M. Tech Credits = 31**

**Total M. Tech Credits: 35 + 31 = 66**

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### Elective Courses:

Name of Specialisation :			M. Tech. Civil [Construction Engineering and Management]					
	Code	Title	Code	Title	Code	Title	Code	Title
<i>Elect I</i>	CEM523 A	Advanced Construction Management Techniques	CEM523 B	Advanced Construction Technologies, Methods	CEM523 C	Sustainable Construction Materials	CEM523 D	Repairs, Retrofitting, Rehabilitation Methods
<i>Elect II</i>	CEM 532 A	OSHAS and Safety Management	CEM 532 B	Earned Value Analysis for Project Management	CEM 532 C	Thrust Areas in Project Management	CEM 532 D	Disaster Management
<i>Elect III</i>	CEM 533 A	Value Engineering	CEM 533 B	Entrepreneur Development, Patents and IPR	CEM 533 C	Soft Computing tools, methods	CEM 533 D	Management for Infrastructure Projects
<i>Elect IV</i>	CEM612 A	Green Building Materials, Design and Simulation	CEM612 B	Principle Centered Leadership	CEM612 C	Alternative Dispute Resolution Method	CEM612 D	Project Risk Management
<i>Elect V</i>	CEM621 A	International Contracts and Arbitration	CEM621 B	Construction Delays: Prevention Remedies	CEM621 C	Professional Ethics and Practices	CEM621 D	GIS Applications in Construction management
<i>Elect VI</i>	CEM631	Online Courses—MOOC, Courser and the like						

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