

Walchand College of Engineering

(Government Aided Autonomous Institute)

Vishrambag, Sangli. 416415



***** Platinum Jubilee Year *****

**Credit System for
S.Y. M.Tech. (Design Engineering)
Sem-III and IV**

2021-22



Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

Credit System for S.Y. M.Tech. (Design Engineering) Sem-III AY 2021-22

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	T1/LA1	T2/LA2	ESE	
Professional Core (Theory)													
1	PC	5DE601	Legal, Financial aspects of Industrial Project	2	0	0	0	2	2	20	20	60	
Professional Core (Lab)													
2	PR	5DE690	Dissertation Phase 1	0	0	20	0	20	10	30	30	40	
3	PC	5DE602	Industry Orientation Course	0	0	0	1	1	1	30	30	40	
Professional Elective (Theory)													
4	PE	Refer list	Elective 5	2	0	0	0	2	2	20	20	60	
Professional Elective (Lab)													
5	PR	Refer list	Activity Based Elective Lab 2	0	0	2	0	2	1	30	30	40	
Value Added Professional Courses # (Listed separately)													
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Value Added Life-Skill Courses # (Listed separately)													
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Total				4	0	22	1	27	16				



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Elective Course List for S.Y. M.Tech. (Design Engineering) Sem-III AY 2021-22

Sr.No.	Track	Course Code	Course Name
Activity Based Elective Lab 2			
1	Stress Analysis	5DE651	Advanced Finite Element Method Lab
2	Vibration Analysis	5DE652	Multi-body Dynamics Lab
3	Stress Analysis	5DE653	Experimental Stress Analysis lab
Elective 5			
1	Stress Analysis	5DE611	Advanced Finite Element Method
2	Vibration Analysis	5DE612	Multi-body Dynamics
3	Stress Analysis	5DE613	Experimental Stress Analysis

Notes:

For Lab courses: There shall be only internal continuous assessment (LA1, LA2, ESE). LA1 and LA2 together shall be Lab ISE. The ESE is a separate head of passing.

For Theory courses: There shall be two tests (T1 and T2) and one ESE. The ESE is a separate head of passing.

The Value Added Courses are Optional Courses. The mode of teaching (LTPI) is decided by the resource person.

The credits earned from these courses will be shown on grade card. For SGPA and CGPA calculation, these courses will be excluded.

The list of Value added courses will be updated from time to time. The courses may be on paid basis. These courses will be offered as per availability of faculty.

The contact hours of each dissertation with the guide (research supervisor) shall be of one hour per week.

For further details, refer to Academic and Examination rules and regulations.



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Credit System for S.Y. M.Tech. (Design Engineering) Sem-IV AY 2021-22

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	T1/LA1	T2/LA2	ESE
Professional Core (Theory)												
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Professional Core (Lab)												
1	PR	5DE691	Dissertation Phase 2	0	0	24	0	24	12	30	30	40
2	PR	5DE671	Techno-Socio Activity	0	0	0	1	1	1	30	30	40
Professional Elective (Theory)												
3	PE	Refer list	Elective 6	3	0	0	0	3	3	20	20	60
Value Added Professional Courses # (Listed separately)												
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Value Added Life-Skill Courses # (Listed separately)												
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Total				3	0	24	1	28	16			



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Elective Course List for S.Y. M.Tech. (Design Engineering) Sem-IV AY 2021-22

Sr.No.	Track	Course Code	Course Name
Elective 6			
1	Design of Machines and Products	5DE621	Design for Manufacturing and Assembly
2	Design of Machines and Products	5DE622	Product Life Cycle Management (PLM)
3	Materials	5DE623	Advanced Engineering Materials

Notes:

For Lab courses: There shall be only internal continuous assessment (LA1, LA2, ESE). LA1 and LA2 together shall be Lab ISE. The ESE is a separate head of passing.

For Theory courses: There shall be two tests (T1 and T2) and one ESE. The ESE is a separate head of passing.

The Value Added Courses are Optional Courses. The mode of teaching (LTPI) is decided by the resource person.

The credits earned from these courses will be shown on grade card. For SGPA and CGPA calculation, these courses will be excluded.

The list of Value added courses will be updated from time to time. The courses may be on paid basis. These courses will be offered as per availability of faculty.

@ Minimum two AICTE mandatory courses need to be completed for award of degree.

The contact hours of each dissertation with the guide (research supervisor) shall be of one hour per week.

For further details, refer to Academic and Examination rules and regulations.



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Tracks and Semester-wise Elective Courses for M.Tech. (Design Engineering) AY 2021-22

Sr.No.	Sem	Elective	Course Code	Course Name
Design of Machines and Products				
1	1	Elective 1	5DE511	Advanced Machine Design
2	1	Elective 1	5DE513	Reliability Engineering
3	1	Elective 2	5DE516	Process Equipment Design
4	2	Elective 3	5DE524	Robotics
5		Activity Based Elective	5DE576	Robotics Lab
6	4	Elective 6	5DE621	Design for Manufacturing and Assembly
7	4	Elective 6	5DE622	Product Life Cycle Management (PLM)
Materials				
1	1	Elective 2	5DE514	Mechanics of Composite Materials
2	2	Elective 4	5DE526	Advanced Metallurgy
3		Activity Based Elective	5DE578	Advanced Metallurgy Lab
4	4	Elective 6	5DE623	Advanced Engineering Materials
Mathematical Modelling				
1	1	Elective 1	5DE512	Mathematical Methods in Engineering
2	2	Elective 4	5DE528	Optimization Techniques in Design
3		Activity Based Elective	5DE580	Optimization Techniques in Design Lab
Stress Analysis				
1	1	Elective 2	5DE515	Analysis and Synthesis of Mechanisms
2	2	Elective 3	5DE525	Fracture Mechanics
3		Activity Based Elective	5DE577	Fracture Mechanics Lab
4	3	Elective 5	5DE611	Advanced Finite Element Method
5	3	Elective 5	5DE613	Experimental Stress Analysis
6		Activity Based Elective	5DE651	Advanced Finite Element Method Lab
7		Activity Based Elective	5DE653	Experimental Stress Analysis lab

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Tracks and Semester-wise Elective Courses for M.Tech. (Design Engineering) AY 2021-22

Sr.No.	Sem	Elective	Course Code	Course Name
Vibration Analysis				
1	2	Elective 3	5DE523	Tribology in Design
2	2	Elective 4	5DE527	Condition Based Monitoring
3	Activity Based Elective	5DE575	Tribology in Design Lab	
4	Activity Based Elective	5DE579	Condition Based Monitoring Lab	
5	3	Elective 5	5DE612	Multi-body Dynamics
6	Activity Based Elective	5DE652	Multi-body Dynamics Lab	



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List of Professional Core (Theory) Courses for M.Tech. (Design Engineering) AY 2021-22

Sr.No.	Sem	Course Code	Course Name
Professional Core (Theory) Courses			
1	1	5DE501	Advanced Stress Analysis
2	1	5DE502	Advanced Vibrations and Acoustics
3	2	5DE521	Finite Element Method
4	2	5DE522	Computer Aided Design
5	3	5DE601	Legal, Financial aspects of Industrial Project



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List of Professional Core (Lab) Courses for M.Tech. (Design Engineering) AY 2021-22

Sr.No.	Sem	Course Code	Course Name
Professional Core (Lab) Courses			
1	1	5DE560	Research Methodology
2	1	5DE551	Activity Based Lab for Th course 1
3	1	5DE552	Activity Based Lab for Th course 2
4	1	5DE553	Presentation and Technical Report Writing
5	1	5DE554	Professional Skills 1
6	2	5DE571	Activity Based Lab for Th course 3
7	2	5DE572	Activity Based Lab for Th course 4
8	2	5DE573	Industrial Project
9	2	5DE574	Professional Skills 2
10	3	5DE690	Dissertation Phase 1
11	3	5DE602	Industry Orientation Course
12	4	5DE691	Dissertation Phase 2
13	4	5DE671	Techno-Socio Activity



Walchand College of Engineering, Sangli

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Open Electives offered by M.Tech. (Design Engineering) to other programmes AY 2021-22

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Offered				
1	Mech_Design	2	5OE105	Industrial Product Design



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Open Electives available from other programmes to M.Tech. (Design Engineering) AY 2021-22

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Available				
1	Civil_Env	2	5OE101	Solid Waste Management
2	Civil_Struct	2	5OE102	Structural Health Monitoring
3	Mech_Prod	2	5OE103	Advanced Production systems
4	Mech_Heat	2	5OE104	Waste to Energy
5	Elect_Power	2	5OE106	Control Techniques for Electrical Drives
6	Elect_Control	2	5OE106	Control Techniques for Electrical Drives
7	Eln	2	5OE108	Introduction to Embedded Systems
8	CSE	2	5OE109	Machine Learning in Practice
9	IT	2	5OE110	Machine Learning & Applications