UNIVERSITY OF MUMBAI
No. UG/33 of 2015

CIRCULAR:-

The Principals of affiliated Colleges in Engineering are hereby informed that the recommendation made by the Faculty of Technology at its meeting held on 23rd February, 2015 has been accepted by the Academic Council at its meeting held on 26th February, 2015 **vide** item Nos. 4.68 and subsequently approved by the Management Council as its meeting held on 28th May, 2015 **vide** item Nos. 16 relating to the details of equivalent/alternative subjects between M.E. revised 2002-2003 and M.E. revised 2012-2013, , which is available on the University's web site (www.mu.ac.in) and that the same has been brought into force with effect from the academic year 2015–2016.

Sd/-
REGISTRAR

MUMBAI – 400 032
27th July, 2015

To,

The Principals of affiliated Colleges in Engineering.

A.C/ 4.68/26/02/2015.
M.C/16/28/05/2015.

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No. UG/33 -A of 2015 MUMBAI-400 032 27th July, 2015

Copy forwarded with compliments for information to:-

1. The Dean, Faculty of Technology,
2. The Chairmen/Chairpersons of various Board of the Studies in Engineering and Technology.
3. The Director, Board of College and University Development,
4. The Controller of Examinations,
5. The Co-Ordinator, University Computerization Centre.

REGISTRAR

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AC 26/2/2015

Item No. 4.68

Equivalence / Alternative Subjects at M.E.

The syllabus for M.E. in all branches is revised with CBGS from A.Y. 2012-13.The previous scheme was effective from A.Y. 2002-03. The no. of students of scheme of 2002-03 are very less and for some of branches may not be any candidate. However the appointment of these examiners is necessary and all these paper setters are suppose to set Question papers for all subjects of all branches. Hence it is necessary to reduce the task of setting approx.450 Question papers, merely to complete formalities.

Technology is changing very fast and is being reflected it in the Revised syllabus. Hence it is not possible to give equivalent subject for each and every subject. However whenever possible it is given equivalent subject, and where it is not possible to give equivalent, Alternative subject are given.

Students/ Learners are suppose to study the equivalent / Alternative subjects and appear for Examination. In Revised scheme of A.Y. 2012-13 the weightage of Question paper is 80 marks where as for old scheme (i.e. A.Y. 2002-03) it 100 marks . Hence the 80 marks shall be converted to 100 marks from equivalence point of view.

Details of equivalent / alternative subjects between M.E. R-2002-03 and M.E. R-2012-13 scheme.

M. E. (Electronics Engineering)

Details of equivalent / alternative subjects between M.E. (Electronics Engineering) R-2002-03 and M.E. (Electronics Engineering) R-2012-13 scheme.

	R-2002-03 Subjects	**R-2012-13 Subjects**
	Sem I	
1	Discrete time Signal Processing and Applications	Application of DSP and IP (ExC 203)
2	Microprocessor and System I	Digital System Design (ExE 1024)
3	Communication Theory	Advanced Digital Communication (ExE 1011)
4	**Elective Group I**	
(i)	Digital System Design	Application Specific IC Design (ExE 2024)
(ii)	Image Processing	Advanced Digital Image Processing (ExE 1022)
(iii)	Electronics in Medicine	Advance Networking Technologies (ExE 1024)
	Sem II	
1	Process Instrumentation and Controller Design	Instrumentation System Design (ExE 1022)
2	Microprocessor and System II	Advance Processor Architecture (ExC 202)
3	VLSI Design	Embedded System (ExC 103)
4	**Elective Group II**	
(i)	Advanced Communication Theory	Wireless and Mobile Network (ExE 1021)
(ii)	Modern Digital Signal Processing	Relative Operating System (ExE 2021)
(iii)	Power Electronics	Power Electronics Devices and Design (ExC 201)

M. E. (Civil Engineering)

Details of equivalent / alternative subjects between M.E. (Civil Engineering) R-2002-03 and M.E. (Civil Engineering) R-2012-13 scheme.

M.E. Civil (With Structural Engineering Subjects)

Sr. No.	Old Scheme (2002-2003)		Revised Scheme (R-2012 CBGS)	
	Subject Code	Subject Name	Subject Code	Subject name
Semester I				
1.	STR - 1	Theory of Elasticity and Plasticity	STC102	Theory of Elasticity and Plasticity
2.	STR -2	Experimental Stress Analysis	STE101X	**Elective – I:** Experimental Stress Analysis
3.	STR - 3	Non-Linear Analysis	STC101	Non Linear Analysis
4.	STR - 4	Advanced Structural Mechanics	STC103	Advanced Structural Mechanics
5.	STR – 5.1	**Elective – I** Structural Optimization	STE102X	**Elective – II:** Structural Optimization
	STR – 5.2	**Elective – I** Advanced Foundation Engineering	STE102X	**Elective – II:** Advanced Foundation Engineering
Semester II				
6.	STR - 6	Finite Element Analysis	STC201	Finite Element Analysis
7.	STR - 7	Theory of Plates and Shells	STC202	Theory of Plates and Shells
8.	STR - 8	Advanced Design of Concrete Structures	STC203	Advanced Design of Concrete Structures
9.	STR – 9.1	**Elective – II:** Structural Dynamics	STE202X	**Elective – IV:** Structural Dynamics
	STR – 9.2	**Elective – II:** Off-Shore Structures	STE202X	**Elective – IV:** Off-Shore Structures
10.	STR – 10.1	**Elective – III:** Prestressed Concrete	STE201X	**Elective – III:** Prestressed Concrete
	STR – 10.2	**Elective – III:** Analysis of Composite Structures	STE101X	**Elective – I:** Analysis of Composite Structures

M.E. Civil (With Construction Management Subjects)

Sr. No.	Old Scheme (2002-2003)		Revised Scheme (R-2012 CBGS)	
	Subject Code	Subject Name	Subject Code	Subject name
Semester I				
1.	1.1	Construction Management and Organization	MCM-C101	Principles and Practices of Management
2.	1.2	Applied Statistics and Research Methodology	MCM-E 102X	**Elective-II:** Applied Statistics and Research Methodology
3.	1.3	Project Appraisal, Planning and Scheduling	MCM-C 103	Project Planning and Scheduling
4.	1.4	Advanced Construction Techniques	MCM-E 101X	**Elective –I** :Advanced Construction Techniques
5.	1.5	Quantitative Methods for Construction Managers	MCM-C 203	Quantitative Methods for Construction Managers
Semester II				
6.	2.1	Legal Aspects of Construction	MCM-E 101 X	**Elective-I:** Value Engineering
7.	2.2	Management of Construction Resources	MCM-C202	Management of Construction Resources
8.	2.3	Project Accounting and Finance Management	MCM-C102	Project Accounting and Economics
9.	2.4	Project Monitoring and Control	MCM-C201	Project Monitoring and Control
10.	2.5	**Elective:**		
	2.5.1	International Construction Business		**Elective IV:** International Contracting
	2.5.2	Management of Infrastructure Services	MCM-E 202X	**Elective-IV:** Management of Infrastructure Services
	2.5.3	Management of Housing Projects		
	2.5.4	Construction Marketing	MCM-E 201X	**Elective-III:** Construction Marketing
	2.5.5	Risk Management in Construction	MCM-E 202X	**Elective-IV:** Risk Management

M.E. Civil (With Environmental Engineering Subjects)

Sr. No.	Old Scheme (2002-2003)		Revised Scheme (R-2012 CBGS)	
	Subject Code	Subject Name	Subject Code	Subject name
Semester I				
1.	1.1	Environmental Chemistry	EVC101	Environmental Chemistry
2.	1.2	Environmental Microbiology and Ecology	EVC201	Environmental Microbiology and Ecology
3.	1.3	Hydraulics and Hydrology of Water and Wastewater	EVC103	Hydraulics and Hydrology of Water and Wastewater
4.	1.4	Quantitative Techniques and Project Appraisal	EVE202X	**Elective IV:** Numerical Methods and Statistics
5.	1.5	Environment Legislation and Management	EVE102X	**Elective II:** Environment Legislation and Management
Semester II				
6.	2.1	Advanced Water Treatment	EVC102	Advanced Water Treatment
7.	2.2	Advanced Wastewater Treatment	EVC202	Advanced Wastewater Treatment
8.	2.3	Solid Wastes and Hazardous Waste Management	EVC203	Solid Wastes and Hazardous Waste Management
9.	2.4	Air Pollution and Control	EVE101X	**Elective I:** Air Pollution and Control
10.	2.5	Industrial Wastewater Treatment	EVE 202X	**Elective IV:** Industrial Wastewater Treatment

M. E. (Mechanical Engineering)

Details of equivalent / alternative subjects between M.E. (Mechanical Engineering) R-2002-03 and M.E. (Mechanical Engineering) R-2012-13 scheme.

Mechanical Engineering-Manufacturing Systems Engineering (Sem. I)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Material Removal Science	Exempted
2	Manufacturing System Simulation	Exempted
3	Product Design and Development	Product Design & Development
4	CAD,CAM,CIM	Computer Integrated Manufacturing Systems
5	Elective- I	Any Elective course from group of Elective –I and II: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

Mechanical Engineering-Manufacturing Systems Engineering (Sem. II)

Sr. No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Quantitative Techniques in Management	Advanced Quantitative Techniques
2	Advanced Material Joining and Sheet Metal Processing	exempted
3	Advanced Material Science	Elective-I: Advance Material Science
4	Industrial Automation	Mechatronics and Industrial Automation
5	Elective-II	Any Elective course from group of Elective –III and IV: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

Mechanical Engineering-Thermal Engineering (Sem. I)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Advanced Thermodynamics*	Advanced Thermodynamics & Heat Transfer
2	Advanced Heat Transfer*	Advanced Thermodynamics & Heat Transfer
3	Instrumentation in Thermal Engineering	Experimental Techniques and Instrumentation in Thermal & Fluids Engineering
4	Computational Fluid Dynamics	Computational Fluid Dynamics (Sem.II)
5	Elective- I	Any Elective course from group of Elective –I and II: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

*Students who have cleared Advanced Thermodynamics & Heat Transfer of Sem I in view of failing either in Advanced Thermodynamics (sem I) OR Advanced Heat Transfer (sem I) can be exempted in the other subject, as applicable.

Mechanical Engineering-Thermal Engineering (Sem. II)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Design of Heat Exchanger	Elective- III: Heat Exchanger Design
2	Fuels and Combustion	Fuels, Combustion and Emission Control
3	Cryogenics	Elective- III: Cryogenic Engineering
4	Environmental Engineering and Thermal Pollution	Elective –II: Environmental Engineering & Pollution Control
5	Elective-II	Any Elective course from group of Elective –III and IV: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

Mechanical Engineering-CAD/CAM (Sem. I)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Computer Aided Design	Computer Aided Design
2	Object Oriented Methodology and Operating Systems	Exempted
3	Mechatronics	Mechatronics
4	Control Theory	Control Engineering
5	Elective-I	Any Elective course from group of Elective –I and II: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

Mechanical Engineering-CAD/CAM (Sem. II)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Finite Element Methods	Elective-I: Advanced Finite Element Analysis
2	Optimization	Optimization
3	Computer Integrated Manufacturing	Computer Aided Machining(CAM)
4	Concurrent Engineering of Products and Process	Elective-III: Concurrent Engineering
5	Elective-II	Any Elective course from group of Elective –III and IV: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

Mechanical Engineering-Machine Design (Sem. I)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	Machine Dynamics and Vibration	Mechanical Vibration
2	Theory of Elasticity and Material Behavior	Advanced Stress Analysis
3	Engineering Experimentation and Reliability Engineering	Elective-I : Reliability Engineering
4	Tribology	Elective-II :Tribology
5	Finite Element Analysis	Elective-I : Advanced Finite Element Analysis

Mechanical Engineering-Machine Design (Sem. II)

Sr.No.	Course/Subjects from Old Program(R-2002-03)	Equivalent Courses/Subjects from Revised Program (R-2012)
1	System Modelling and Analysis	System Modelling and Analysis
2	Optimization for Engineering Design	Optimization
3	Design of Power Transmission Systems	Elective-IV : Advanced Machine Design
4	CAD/CAM	Exempted
5	Elective	Any Elective course: (Student can select any other course except already assigned Equivalent Courses in Semester I and II from the Elective groups)

M. E. (Electronics and Telecommunication Engineering)

Details of equivalent / alternative subjects between M.E. (Electronics and Telecommunication Engineering) R-2003-04 and M.E. (Electronics and Telecommunication Engineering) R-2012-13 scheme.

Sr. No.	Subjects from 2003-2004 scheme	Equivalent / alternative subjects from R-2012-13 scheme
	Sem I	
1	Statistical theory of communication	Statistical Signal Analysis (ETC 101)
2	Communication Network	Next Generation Network (ETE 1024)
3	Microwave Integrated Circuits	Microwave and Multimeter wave communication system (ETC203)
4	Error Correcting codes	Speech Progressing (ETE 1021)
5	Elective (i) Fiber Optical Communication (ii) Antenna Theory and design	 Optical fiber communication (ETC102) Advanced Antenna and Arrays (ETE2033)
	Sem II	
1	Microwave Devices and amplifier Design	VLSI and Mixed signal circuits and systems (ETE1013)
2	Satellite communication system	Advanced satellite Communication (ETE1014)
3	Advance Digital Communication	Advance Digital Communication (ETC 201)
4	Mobile Communication	Mobile and Wireless Communication (ETC-202)
5	**Elective**	
(i)	Advanced Digital Signal Processing	Adaptive Signal Processing (ETE 2031)
(ii)	Data Compression method	Network Security (ETE 2044)
(iii)	Simulation of Communication System	Modelling and Simulation of communication system (ETE 1012)

M. E. (Computer Engineering)

Details of equivalent / alternative subjects between M.E. (Computer Engineering) R-2002-03 and M.E. (Computer Engineering) R-2012-13 scheme.

SEM I

Sr. No.	Subject R 2002	Alternative subject from R2012
1	Parallel Computer Architecture	Sem I - Parallel Computing
2	Algorithms and Complexity	Sem I - Advanced Algorithms and Complexity
3	Object Oriented Analysis & Design	Sem I - Elective II - Service Oriented Architecture
4	Network Protocol & Networking	Sem I - Network Design and Management
	Elective I	
5	Artificial Intelligence	Sem II - Elective III - Soft Computing
	Neutral Network and Fuzzy	Sem II - Elective III - Soft Computing
	Data mining & Information Retrieval	Sem II - Decision Making and Adaptive Business Intelligence
	Cryptography & Networking Security	Sem II - Cyber Security

SEM II

Sr. No.	Subject R 2002	Alternative subject from R2012
1	Software Engineering	Sem I- Elective I - Software Testing
2	Distributed Operating System	Sem II - Advanced Operating System
3	Advance Database Management Systems	Sem I - Elective I - Advanced Data Base Design
4	Image Processing	Sem II - Elective III - Advance Computer Graphics
	Elective II	
5	Ecommerce	Sem I - Elective II - E-Business Technology
	Advanced Compilers	Sem II - Elective IV - Advanced Compiler Design
	Advances in Management Information System	Sem II - Elective III - Information Retrieval
	Wireless Communication and Networks	Sem II - Elective IV - Emerging wireless Technologies and Future Mobile Internet

M. E. (Information Technology)

Details of equivalent / alternative subjects between M.E. (Information Technology) R-2002-03 and M.E. (Information Technology) R-2012-13 scheme.

ME IT SUBJECTS (R-2002)		ME IT NEW SUBJECTS CBGS (R-2012)	
SR. NO.	OLD Subjects	Equivalent/Alternate Subjects in CGBS	
	Name of Subject in Sem-I	Sem-I	Subject Code
1	Object Oriented Software Engineering	Software Quality Assurance	ITE1021
2	Advanced Database Management System	Advanced Data Mining With BI	ITC101
3	Principles of Network Architecture and Protocols	Network Design and Management	ITC103
Elective -I and Elective-II		**Elective -I and Elective-II**	
1	Information Retrieval and Data Mining	Data Storage Management and Retrieval	ITC102
2	Internetworking and Network Design	Ethical Hacking and Digital Forensic	ITE2022
3	Telecommunication Network Performance Analysis	Next Generation Networks	ITE2023
4	Management Information Systems	Bioinformatics	ITE1022
5	Document Design and Advanced Publishing Technology	Operation Research	ITE1011
6	Analytical Models and Simulation of Systems	Ubiquitous Computing	ITE2021

ME IT SUBJECTS (R2002)		ME IT NEW SUBJECTS CBGS (R-2012)	
SR. NO.	OLD Subjects	Equivalent/Alternate Subjects in CGBS	
	Name of Subject in Sem-II	Sem-II	Subject Code
1	Human Computer Interaction	Usability Engineering	ITE1013
2	Distributed Operating Systems	Soft Computing	ITC203
3	Software Architechure	Advanced Software Architechure	ITC201
	Elective -III and Elective-IV	**Elective -III and Elective-IV**	
1	Information Security	Enterprise Secuirty and Risk Management	ITC202
2	Mobile and Wireless Networking	Wireless Ad-hoc Sensor Network	ITE2011
3	Artificial Intelligence and Knowledge Based Systems	Knowledge Management	ITE2013
4	E-Commerce	E-Business Techniques	ITE1023
5	Image Processing and Applications	Applications of DSP for Multimedia Communications	ITE1012
6	Web Engineering	Virtualization and Cloud Computing	ITE2012