Indian Institute Of Technology, Madras.

3.1.1 B.Tech Aerospace Engineering Curriculum (for 2015 batch)

SEMESTER I

No	Title	Credit	Cat
AM1101	Engineering Mechanics	10	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1120	Engineering Drawing	3	BES
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	28	

Remarks

SEMESTER II

No	Title	Credit	Cat
AS1300	Thermodynamics for Aerospace Engineering	11	BET
CS1100	Introduction to Programming	12	BET
CY1002	Chemistry Lab I	3	SCY
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	BES
PH1020	Physics II	3	SPH
FRE1	Free Elective 1	10	
	TOTAL	45	

Remarks

SEMESTER III

No	Title	Credit	Cat
AS1020	Fluid Mechanics	4	PMT
AS2010	Basic Strength of Materials	4	PMT
AS2100*	Basic Aerospace Engineering Lab	4	PML
AS2101	Introduction to Aerospace Engineering	2	PMT
MA2010	Complex Variables and Transform Techniques	3	SMA
HSE1	Humanities Elective 1	9	HSS
	TOTAL	26	

Remarks:

Electives

No.	Course Title	Credit
AE5700	Spacecraft Electric Propulsion	3
AE6999	Special Topics in Aerospace Engineering	3
AE7999	Special Topics in Aerospace Engineering	3
AM5490+	Project II	17
AS1020*	Fluid Mechanics	4
AS2010*	Basic Strength of Materials	4
AS2020	Structures	4
AS203N	Vibrations	3
AS2070	Aerospace Structural Mechanics	4
AS2100+	Basic Aerospace Engineering Lab	4
AS2101*	Introduction to Aerospace Engineering	2
AS2260	Propulsion I	3
AS3030	Aerospace Structures	3
AS3060	Experimental Stress Analysis	3
AS4550	Project	0
AS4590*	Project (Under Honours course)	3
AS4600*	Project II	12
AS5012	Dynamics and control of rotorcraft	3
AS5200+	Project III	26
AS5211	Design of Subsonic Aircraft	3
AS5212	Design of Supersonic Aircraft	3
AS5213	Design of MAVs and UAVs	3
AS5300	Physical Gas Dynamics	3
AS5310	Obj. Oriented Prog. for Sci. & Engrs.	3
AS5320	Boundary Layer Theory	3
AS5330	Computational Aerodynamics	3
AS5340	Advanced Flight Mechanics	3
AS5370	Helicopter Aerodynamics	3
AS5400	Theory & Comptn of Vortex Domin. Flows	3
AS5410	Grid Generation	3
AS5420	Introduction to CFD	3
AS5430	Stability of Shear Flows	3
AS5440	Hydrodynamic Stability,Transition and Flow Control	3
AS5450	Wind Turbines	3
AS5470	Unsteady Aerodynamis of Moving Bodies	3
AS5550	Aerospace Systems Control and Estimation	3
AS5560	Dynamical Systems Stability & Bifurcations	3
AS5610	Rocket Propulsion	3
AS5640	Combustion, Explosion and Detonation	3
AS5670	Transport Processes in Reacting flows	3
AS5680	High Temperature Gas Dynamics	3
AS5690	Radiation Heat Transfer	3
AS5810	Theories of Modern Plate Structures	3
AS5830	Approx. Methods in Structural Analysis	3
AS5840	Thermal Stress Analysis	3

Electives

AS5850	Finite Element Analysis	3
AS5860	Composite Structures	3
AS5880	Mechanics of Damage Tolerance	3
AS5900	Elasticity	3
AS5950	Continuum Mechanics	3
AS5960	Advanced Strength of Materials	3
AS5970	Structural Dynamics and Aero-elasticity	3
AS5980	Contact Mechanics and Tribology	3
AS5990	Micromechanics	3
AS6000	Basic Concepts in Aerospace Engineering	3
AS6010	Hypersonic Flow Theory	3
AS6015	Aerodynamics of Missiles and Launch Vehicles	3
AS6020	Int. to Turbulent Flows & their Predictions	3
AS6030	Experimental Methods in Aero/ Gas Dynami	3
AS6040	Adv.course in Turbulent Flows & their Computation	3
AS6050	Dynamic Fluid Structure Interaction	3
AS6060	Shockwave Dynamics	3
AS6320	Acoustic Instabilities in Aerospace Prop	3
AS6330	Aero-acoustics	3
AS6340	Combustion and Flow Diagnostics	3
AS6342	Spectroscopic Reactive Flow Diagnostics	3
AS6510	Experimental Techniques in Struc. Mech.	3
AS6520	Mathematics for Aerospace Engineers	3
CT7200	Composite Product Design	3
CT7220	Comp. Analy. & Des. Using Computers.	3
ID5040	Engineering Plasticity	3
ID6080	Impact Mechanics	3
NC1020	NCC	0
NS1020	NSO	0
NS1030	NSS	0

Electives

No.	Course Title	Credit
BT201N	Microbiology	3
BT204N	Genetics and Molecular Biology	3
BT303N	Analytical Techniques in Biotechnology	3
BT304N	Downstream Processing in Biotechnology	3
BT307N	Biochemical Engineering	3
BT3150	Biotechnology for Healthcare	3
BT3220	Animal Biotechnology	3
BT3230	Biotechnology for Healthcare	3
BT3240	Metabolic Regulation	3
BT4021	Metabolic Engineering	3
BT403N	Plant Biotechnology	3
BT4050	Animal Biotechnology	3
BT4210	Unit Operations in Biochemical Engg.	3
BT4220	Systems Theory	3
BT4230	Environmental Biotechnology	3
BT4240	Food Biotechnology	3
BT4260	Spectroscopic Methods in Biotechnology	3
BT4270	Bioethics (Self Study)	3
BT4280	IPR Issues in Bio-technology	3
BT4310	Current Topics in Synthetic Biology	3
BT4560*	Project II	7
BT4560+	Project	6
BT5010	Advanced Cellular & Molecular Biology	3
BT5040	Advanced Bioprocess Technology	3
BT5080	Genomics and Proteomics	3
BT5130	Tissue Engineering	4
BT5170	Membrane Biology and Signal Transduction	3
BT5210	Bioprocess Control	3
BT5230	Molecular Modeling and Drug Design	3
BT5250	Synthetic Biology	3
BT5260	Plant Cell Bioprocessing	3
BT5270	Principles of Neuroscience	3
BT5280	Biocatalysis and Biotransformation	3
BT5320	Medicinal Chemistry and Drug Design	3
BT5321	Sustainability in Environmental Biotechnology	3
BT5330	Human Physiology	3
BT5340	Protein Folding and Stability	3
BT5360	Reactive Species in Medical and Related Technologies	3
BT5370	Fermentation Technology	3
BT5380	Technical communication in Biology	3
BT5390	Introduction to Developmental Biology	3
BT5410	Infection Biology	3
BT5420	Computer Simulations of Biomolecular Systems	3
BT5430	Drug Delivery	3
BT5540#	Project II	20

Electives

BT5540+	Project II - DD	22
BT6021	Introduction to Research	2
BT6090	Intro. to Bioinformatics & Computational Biology	3
BT6100	Biocatalysis and Enzyme Mechanism	3
BT6210	Statistical Mechanics in Biology	3
BT6220	Introduction to Computational Neuroscience	3
BT6230	Vascular Biology	3
BT6240	Bioprocess Modelling and Simulation	3
BT6270	Computational Neuroscience	3
BT6290	Molecular Basis to Diseases	3
BT6310	Cancer Biology	3
BT6320	Protein Interactions: Computational Techniques	3
BT6330	Developmental Biology	3
BT6730	Biomechanics and Ergonomics	3
BT6740	Computer Applications in Biology & Medicine	3
BT6780	Human Genetics	3
BT6999	Special Topics in Biotechnology	3
BT7210	Protein Structure and Functions	3
BT7220	Advanced Biochemistry	3
BT7230	Advanced Molecular and Cellular Biology	3
BT7999	Special Topics in Biotechnology	3
MA2030	Linear Algebra & Numerical Analysis	3
NC1020	NCC	0
NS1020	NSO	0
NS1030	NSS	0

SEMESTER I

No	Title	Credit	Cat
CE1010	Introduction to Civil Eng. Profession	2	PMT
CS1100	Computational Engineering	3	BET
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1120	Engineering Drawing	3	BES
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	19	

Remarks

SEMESTER II

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CE2330	Civil Engg Materials & Construction	4	PMT
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
CY1002	Chemistry Lab I	3	PML
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
PH1020	Physics II	3	SPH
	TOTAL	24	

Remarks

SEMESTER III

No	Title	Credit	Cat
CE2040	Hydraulic Engineering	4	PMT
CE2080	Surveying	4	PMT
CE2310	Mechanics of Materials	4	BET
CE3010	Transportation Engineering I	3	PMT
MAE1	Mathematics Elective 1	9	SMA
	TOTAL	24	

Remarks:

Electives

No.	Course Title	Credit
CE202N	Structural Analysis	4
CE2030	Functional Design of Buildings	2
CE206N	Geology and Soil Mechanics	4
CE208N	Surveying	4
CE210N	Surveyign Practical	1
CE224N	Building Drawing	1
CE301N	Transportation Engineering (1)	3
CE304N	Environmental Engg.	4
CE305N	Basic Design of Steel Design	3
CE306N	Basic Reinforced Concrete Design	4
CE3241	Approaches for Sustainable Infrastructure and Environmental Systems	3
CE3242	Introduction to structural Mechanics	3
CE3310	Advanced Structural Analysis	3
CE3320	Design of Steel Structural System	3
CE3330	Computer Methods in Civil Engineering	3
CE3420	Concrete Technology	3
CE3510	Ground Improvement	3
CE3520	Foundation Engineering	3
CE3530	Introductory Rock Mechanics	3
CE3610	Flow Measurements	3
CE4011	Introduction to Atmospheric and Climate Sciences	3
CE4060+	Project	7
CE4111	Sustainable Technologies for Env.Systems Management	3
CE4230	Project	1
CE4240	Project	6
CE4310	Design of Concrete Structural Systems	3
CE4410	Structural Masonry	3
CE4420	Introduction to GIS and Remote Sensing	3
CE4440	Introduction to Rock Mechanics	3
CE4510	Dynamics of Foundations	3
CE4520	Principles of Reinforced Soil Structures	3
CE4610	Water Management	3
CE461N	Water Management	3
CE4640	Anal & Design for Wind & Earthquake Effe	3
CE4670	Case Studies in Structural Engg.	3
CE4720	Computer Appls. in Traffic & Highway Engg	3
CE4780	Prefabricated Structures	3
CE4810	Air Pollution Control & Solid Waste Management	3
CE4820	Advanced Environmental Engg.	3
CE4961*	Project II	15
CE4961+	Project II	15
CE4962+	Project II	15
CE4990	Project III	15
CE5011	Advanced Design of Masonry Structures	3
CE5013	Bituminous Technology	3

Electives

CE5014	Sustainable Construction	3
CE5015	Environmental Monitoring and Data Analysis	3
CE5016	Sustainability in River Basin Management	3
CE5017	Urban Transport and the Environment	3
CE502N	Construction Planning & Control	3
CE505N	Construction Project Management	4
CE5080	Geographical Information System	3
CE5120	Main. & Rehab. Const.facilities	3
CE5140	Building Acoustics & Noise Control	3
CE5210	Transport of Water & waste water	3
CE5260	Models of Water & Air Quality	3
CE5280	Hazardous Waste Management	3
CE5290	Transportation Network Analysis	3
CE5337	Non-destructive Evaluation of Strucutures	3
CE5338	Underground Space Technology	3
CE5350	Geosynthetics & Reinforced Soil Structures	3
CE5360	Soil Exploration & Field Tests	3
CE5370	Geotechnics for Infrastructure	3
CE5380	Struc.design Foundations	3
CE5390	Analytical Tech. in Transportation Engg	3
CE5510	Irrigation Technology	3
CE5550	Urban Hyd.&storm Drainage Des&mgmt	3
CE5560	Hydraulic Modelling	3
CE5680	Soil Structure Interaction Analysis	3
CE5690	Theory & Design of Plates & Shells	3
CE5710	Prestressed Concrete Design	3
CE5720	Stability of Structures	3
CE5730	Probability Methods in Civil Engg	3
CE580N	Pavement Engineering	4
CE5900	Intelligent Transportation Systems	3
CE5930	Pavement Construction Technology	3
CE5950	Characterization of Construction Materials	3
CE5960	Remote Sensing of Earth Resources	3
CE5970	Barrier Systems for Waste Containment	3
CE6011	Smart buildings and automation	3
CE6015	Solid Waste Management	9
CE6070	Construction Project Modelling	3
CE6100	Structural Systems Design	3
CE6110	Advanced Concrete Technology	3
CE6310	Earthquake Geotech.engg	3
CE6320	Engg. Seismology and Hazard Assessment	3
CE6330	Rock Engineering	3
CE6350	Critical State Soil Mechanics	3
CE6370	Comp.methods in Geotech.engg	3
CE6420	Ground Improvement Techniques	3

Electives

CE6480	Contaminant Transport Modelling	3
CE6520	Simulation Modelling in Water Resources	3
CE6690+	Project	20
CE6710	Bridge Engineering	3
CE6740	Advanced Analysis & Design for Wind & Earthquake	3
CE6750	CAD in Civil Engineering	3
CE6760	Structures for Power Plant	3
CE681N	Geometric Design of Highways	3
CE6870	Transportation Systems Analysis	3
CE6930$	Project	19
CE693P	Project	12
CE6999	Special Topics in Civil Engineering	3
CE7011	Advanced Transportation Network Analysis	3
CE7012	Computer Integrated Project Delivery	3
CE7013	Advanced Topics in Project Delivery Finance	3
CE7014	Structural Safety of Historical Monuments	3
CE7015	Design of Structures for Ductility	3
CE7016	Nonlinear Analysis of Frame Structures	3
CE7120	Advanced Topics in Structural Concrete	3
CE7130	Project	12
CE7200	Fracture Mechanics of Concrete	3
CE7620	Rheology of Civil Engineering Materials	3
CE7640	Elastic and Plastic Stress Analysis	3
CE7710	Advanced Structural Dynamics	3
CE7720	Structural Reliability	3
CE7730	Advanced Finite Element Analysis	3
CE7770	Computational Fracture Mechanics	3
CE7999	Special topics in Civil Engineering	3
CT7200	Composite Product Design	3
GN5001	Self-Awareness	3
GN6001	Integral Karmayoga	3
ID6010	Constitutive Modelling in Continuum Mechanics	3
ID6030	An introduction to Nanoscience and Nanotechnology	3
ID6090	Composite Materials and Manufacturing	3

SEMESTER I

No	Title	Credit	Cat
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
CY1002	Chemistry Lab I	3	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1100	Thermodynamics	3	BET
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	21	

Remarks

SEMESTER II

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CH1020	Principles & Calculations in Chemical	10	PMT
CS1100	Introduction to Programming	12	BET
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
PH1020	Physics II	3	SPH
	TOTAL	35	

Remarks

SEMESTER III

No	Title	Credit	Cat
CH2010	Chemical Engineering Thermodynamics	4	PMT
CH2012	Continuum Mechanics & Transport Phenomena	4	PMT
CH2061	Computational Techniques	4	PMT
HSE1	Humanities Elective 1	9	HSS
MAE1	Mathematics Elective 1	9	SMA
	TOTAL	30	

Remarks:

Electives

No.	Course Title	Credit
CA5310	Preparation and Properties of Catalysis	3
CA5320	Homogeneous Catalysis	3
CA5330	Bio-Catalysis	3
CA5340	Computational Methods in Catalysis	3
CA5350	Catalysis in Petroleum Technology	3
CA5360	Catalysis in Production of Chemicals	3
CA5370	Nano-materials in Catalysis	3
CA6110	Catalysis in Green Chemistry & Envt.	3
CA6120	Photo-Catalysis	3
CH2060	Process Heat Transfer	4
CH3050	Computational Techniques	4
CH305N	Computational Techniques	4
CH3150	Renewable Energy Sources	3
CH3160	Polymeric Materials	3
CH3170	Ecological Engineering	3
CH3240	Introduction to Semiconductor Mfg Processes	3
CH3250	Innovation and Social Enterprises Lab	2
CH4110	Biochemical Engineering	3
CH4150	Advanced Momentum Transfer	3
CH4170	Catalyst Science & Technology	3
CH454N	Project II	4
CH5011	Colloids and Surfaces	3
CH5012	Modelling and Simulation of Particulate Processes	3
CH5013	Principles of Fuel Cells	3
CH5014	Interfacial Science and Engineering	3
CH5015	Process Safety	3
CH5040	Industrial Practice/ Chemical Engineering Lab.	4
CH5070	Computer Process Control	3
CH5080	Theory & Appln. of Multi Component Mass Transfer	3
CH5090	Bioprocess Engineering	3
CH5120	Modern Control Theory	3
CH5130	Rheology of Complex Materials	3
CH5160	Chemical and Catalytic Reaction Engg.	3
CH5170	Process Optimization	3
CH5180	Steady State & Dynamic Analysis of Physiochemical	3
CH5190	Introduction of Macromolecules	3
CH5200	Bioreactor Design and Analysis	3
CH5230	System Identification	3
CH5240	Upstream & Downstream Bioprocessing	3
CH5250	Chemical Engg Principles of CVD Processes	3
CH5270	Polymers for Devices	3
CH5310	Molecular Science and Engineering	3
CH5350	Applied Time Series Analysis	3
CH5370	Environmental Quality Monitoring & Analysis	3
CH5400	Microelectronic Fabrication	3

Electives

CH5410	Polymers	3
CH5440	Multivariate Data Analysis for Process Modeling	3
CH5460	Unit Operation and Processes in Env.Engg.	3
CH5470	Graph Theory & Its Applns. in Process Design	3
CH5480	Bioprocesses in Environmental Mgmt.	3
CH5510	Project	20
CH5541	Advanced Topics in Momentum Transfer	9
CH5640*	Project	5
CH5660	Project I	4
CH568	Project III - DD	16
CH6020	Computational Fluid Dynamics Tech	3
CH6021	Introduction to Research	2
CH6030	Simulation, Optimization & Control of Mineral Proc	3
CH6050	Molecular Thermodynamics of Fluid Phase	3
CH6060	Numerical Tech for Engrs	3
CH6110	Finite Element Methods in Engg	3
CH6120	Particle Characterization	3
CH6140	Advanced Topics in Trans.phenomena	3
CH6160	Advances in Fluidized Bed Chemical Process	3
CH6180	Molecular Theory of Solutions	3
CH6250	Analysis of Rotary Reactors	3
CH6260	Carbon Capture and Sequestration	3
CH6760	Hydrodynamics of complex fluids	3
CH6999	Special Topics in Chemical Engineering	3
CH7320	Intro.to Statistical Thermodynamics	3
CH7999	Special Topics in Chemical Engineering	3
CH8010	Advanced Topics in CFD	3
GN5001	Self-Awareness	3
GN6001	Integral Karmayoga	3
ID6010	Constitutive Modelling in Continuum Mechanics	3
ID6030	An introduction to Nanoscience and Nanotechnology	3
ID6070	Mechanics of Viscoelastic Materials	3
NE6340	Nuclear Materials Processing	3
NE6370	Radiation Protection, Reactor Shielding & Radioati	3
NS1020	NSO	0
PE6080	Petroleum Refining Technology	3

SEMESTER I

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CS1100	Computational Engineering	3	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	22	

Remarks

SEMESTER II

No	Title	Credit	Cat
CS1200	Discrete Mathematics for Computer Science	3	PMT
CY1002	Chemistry Lab I	3	PML
EE1100	Basic Electrical Engineering	3	BET
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
ME1120	Engineering Drawing	3	BET
PH1020	Physics II	3	SPH
	TOTAL	21	

Remarks

SEMESTER III

No	Title	Credit	Cat
CS2300	Switching Theory & Digital Design	3	PMT
CS2310	Digital Logic and Design Lab	2	PML
CS2700	Programming and Data Structures	4	PMT
CS2710	Programming and Data Structures Lab	2	PML
MA2130	Basic Graph Theory	3	SMA
HSE1	Humanities Elective 1	9	HSS
	TOTAL	23	

Remarks:

Electives

No.	Course Title	Credit
CS4810	Introduction to Computer Networks	4
CS4970	Mini Project	2
cs4990	Project	12
CS5011	Introduction to Machine Learning	4
CS510P	M.F.C.S.	4
CS5991	Project II	23
CS6010	Higher Level Language Laboratory	2
CS6011	Kernel Methods for Pattern Analysis	4
CS6012	Social Network Analysis	4
CS6013	Modern Compilers-Theory&Practice	4
CS6014	Advanced Theory of Computation	4
CS6015	Linear Algebra and Random Processes	4
CS6015+	Linear Algebra and Random Processes	4
CS6021	Introduction to Research	2
CS6030	Logic and Combinatorics for Computer Science	4
CS6040	Advanced Computer Networks	5
CS6040	Advanced Computer Networks	4
CS6045	Software Defined Networking	4
CS6090	Tech. Enhanced Learning & Teaching Theory & Prac.	3
CS6100	Topics in Design & Analysis of Algorithms	4
CS610P	Topics in Design & Analysis of Algorthms	4
CS6110	Computational Geometry	4
CS6111	Foundations of cryptography	4
CS6120	Wireless Communication and Networks	4
CS6120	Wireless Communication and Networks	4
CS612P	Mathematical Foundations of Cs	4
CS6170	Parallel and Randomized Algorithms	4
CS6180	Adv. Topics in Formal Lang. & Automata	4
CS6190	Recent Dev. in Theoretical Computer Scie	4
CS6200	Advanced Computer Architecture	4
CS6210	Perf. Evaluation of Comp. Systems	4
CS621P	Performance Evaluation of Comp Systems & Networks	4
CS6230	CAD for VLSI Systems	4
CS6250	Memory Based Reasoning in Art.Int.	4
CS6300	Speech Technology	4
CS6310	Artificial Neural Networks	4
CS6320	Signals and Systems	4
CS6330	Digital System Testing & Testable Design	4
CS6350	Computer Vision	4
CS6360	Computer Graphics	4
CS636P	Computer Graphics	4
CS6370	Natural Language Processing	4
CS6380	Artificial Intelligence	4
CS638P	Computational Intelligence	4
CS6410	Real Time Computing and Communication	4

Electives

CS6430	Optical Networks	4
CS6440	Distributed Computing	4
CS6470	Network Management Systems	4
CS6480	E Commerce	4
CS6490	Device Drivers Practicum	4
CS6500	Cryptography & Network Security	4
CS6510	Advances in Database Technology	4
CS6560	Parallel Computer Architecture	4
CS6600	Computer Architecture	4
CS665P	Software Project Management	4
CS6660	Unconventional Models of Computing	4
CS6680	Planning and Constraint Satisfaction	4
CS6690	Pattern Recognition	4
CS6700	Reinforcement Learning	4
CS6710	Advances in Visual Perception	4
CS6720	Data Mining	4
CS6730	Probabilistic reasoning	4
CS6740	Indexing and Searching in Large Datasets	4
CS6741	Algorithmic Foundations of Data Science	4
CS6750	Grid Computing	4
CS6760	Digital Design Verification	4
CS6770	Knowledge Representation & Reasoning	4
CS6777	Optimization Methods for Computer Vision Applications.	4
CS6790	Geometry & Photometry-based Computer Vision	4
CS6800	VLSI Design Automation Algorithms	4
CS6810	Information Theory and Coding	4
CS6840	Advanced Complexity Theory	4
CS6841	Advanced Algorithms	4
CS6842	Algorithmic Algebra	4
CS6843	Program Analysis	4
CS6844	Advanced Wireless Communications and Networks	4
CS6845	Modern Techniques in Theory of Computation	4
CS6846	Quantum Algorithms and Quantum Complexity	4
CS6847	Cloud Computing	4
CS6848	Principles of Programming Languages	4
CS6849	Modern Trends in Computer Graphics	4
CS6850	Topics in Complexity Theory	4
CS6851	Distributed Algorithms	4
CS6852	Theory and Applications of Ontologies	4
CS6860	Algorithms for Computational Biology	4
CS6868	Concurrent Programming	4
CS6870	Digital Video Processing	4
CS6999	Special Topics in Computer Science and Engineering	3
CS7030	Recent Topics in Compilers	4
CS7700	Management Information Systems	4

Electives

CS7999	Special Topics in Computer Science and Engineering	3
HS451N	Political Philosophy	3
INSA01	Analog Devices	2
INSA02	Semiconductor Devices	5
INSA03	Intensive French Courses	4

SEMESTER I

No	Title	Credit	Cat
CS1100	Computational Engineering	3	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
CY1002	Chemistry Lab I	3	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	21	

Remarks

SEMESTER II

No	Title	Credit	Cat
EE1101	Signals and Systems	10	BET
EE2001	Digital Systems & Lab	16	PML
EE2001	Digital Systems	4	PML
ID1200	Ecology and Environment	2	BET
MA1020	Series and Matrices	4	SMA
PH1020	Physics II	3	SPH
HSE1	Humanities Elective 1	9	HSS
	TOTAL	48	

Remarks

SEMESTER III

No	Title	Credit	Cat
EE2015	Electric Circuits & Networks	4	PMT
EE2016	Microprocessor Theory+Lab	5	PMT
EE2025	Engineering Electromagnetics	3	PMT
HSE2	Humanities Elective 2	9	HSS
	TOTAL	21	

Remarks:

Electives

No.	Course Title	Credit
EC1040	Digital Systems	4
EC2010	Analog Circuits I	4
EC2102	Networks and Systems	4
EC312N	Microprocessor Lab	1
EC5410	Fibre Optic Communication Technology	4
EE3040	Power Electronics	4
EE3110	Probability Foundations for Electrical Engineers	4
EE3203	Power Electronics	4
EE3301	Introduction to Semiconductor Devices	3
EE3313	Device Modelling	4
EE4131	Analog and Digital Filters	3
EE4371	Introduction to Data Structures and Algorithms	3
EE4504	Fibre Optic Communication	3
EE4706	Advanced Power Systems Lab I	3
EE4801	Honours Self-Study Elective I	3
EE4902	Mini Project	3
EE5000	Laboratory I	2
EE5002	Analysis of Networks & Systems	4
EE5011	Computer Methods in Electrical Engineering	4
EE5050	Microwave Circuit Theory	3
EE5110	Probability Foundations for Electrical Engineers	4
EE5111	Estimation Theory	4
EE5113	Detection and Estimation Theory	4
EE5120	Applied Linear Algebra I for EE	4
EE5121	Optimization Methods in Signal Processing and Communications	4
EE5131	Selected Topics in Digital Signal Processing	3
EE5133	VLSI Technology	4
EE5134	Digital IC Design	4
EE5140	Digital Modulation and Coding	4
EE5141	Introduction to Wireless and Cellular Communication	4
EE5142	Introduction to Information Theory and Coding	4
EE5150	Communication Networks	4
EE5151	Communication Techniques	4
EE5154	Complex Network Analysis	12
EE5160	Error Control Coding	4
EE5161	Modern Coding Theory	4
EE5162	Information Theory	3
EE5170	Speech Signal Processing	4
EE5175	Image Signal Processing	4
EE5176	Computational Photography	4
EE5201	Modelling and Analysis of Electric Machines	3
EE5202	Computer Aided Design of Electrical Machines	4
EE5210	Semiconductor Device Modelling	4
EE5212	Digital Controller for power Applications	4
EE5255	High Voltage Power Transmission	4

Electives

EE5257	Energy Management Systems and SCADA	3
EE5258	Power System Optimization	3
EE5260	Power Quality	3
EE5261	Flexible AC Transmission Systems	3
EE5290	High Speed ICs	3
EE5323	Advanced Electrical Networks	4
EE5330	Computer-Aided Design and Analysis of Digital ICs	4
EE5331	DSP Architectures & Embedded Systems	4
EE5332	Mapping Signal Processing Algorithms to DSP Architectures	4
EE5340	MicroElectroMechanical Systems	3
EE5341	MOS Device Modeling & Characterization	3
EE5342	Compound Semiconductors â€“ Properties & Applications	3
EE5343	Solar Cell Device Physics and Materials Technology	3
EE5346	Introduction to Plastic Electronics	3
EE5350	Mathematical Methods for Circuit Analysis	3
EE5560	Laboratory (Power & Control)	2
EE5580	Project	20
EE5580*	Project	10
EE6010	Smart Power Grids	3
EE6030	Seminar - VLSI Stream	1
EE6070	Seminar	1
EE6110	Adaptive Signal Processing	4
EE6112	Topics in Random Processes and Concentrations	3
EE6130	Advanced Topics in Signal Processing	3
EE6131	Digital Filter Design	4
EE6132	Advanced Topics in Signal Processing	9
EE6141	Multicarrier Communications	4
EE6142	Advanced Topics in Communications	3
EE6150	Stochastic Modeling and the Theory of Queues	4
EE6151	Advanced Topics in Networks	3
EE6200	Power Electronic Control of Electric Machines	4
EE6254	Advanced Topics in Electrical Insulation	3
EE6258	DC Power Transmission Systems	3
EE6261	RESTRUCTURED POWER SYSTEMS	3
EE6320	RF Integrated Circuits	3
EE6321	VLSI Data Conversion Circuits	4
EE6322	VLSI Broadband Communication Circuits	4
EE6323	Wireless System Design	4
EE6343	Special Electronic Devices	4
EE6346	Advanced CMOS Devices and Technology	3
EE6361	Advanced Topics in VLSI	3
EE6402	Biomedical Electronic Systems	3
EE6403	Transducers for Instrumentation	3
EE6404	Power System Instrumentation	3
EE6412	Adaptive & Optimal Control	3

Electives

EE6415	Nonlinear Control Systems	3
EE6417	Allied Topics in Control Systems	3
EE6419	Geometric Nonlinear Control Theory	3
EE6470	Optical Signal Processing	3
EE6491	Advanced Topics in Instrumention	3
EE6500	Integrated Optoelectronic Devices and Circuits	4
EE6501	Optical Sensors	4
EE6502	Optical Signal Processing and Quantum Communication	3
EE6505	Waveguides, Microwave Circuits, and Antennas	4
EE6506	Computational Electrogmagnetics	4
EE6700	Advanced Photonics Laboratory	3
EE6999	Special Topics in Electrical Engineering	3
EE7001	Directed Study on Research Topics	4
EE7030	Advanced Topics in VLSI	3
EE7401	Directed Study on Research Topics	4
EE7500	Advanced Topics in RF and Photonics	4
EE7999	Special Topics in Electrical Engineering	3
EL5223	Laboratory (Power)	2
EP3200	Photonics	3
ID3010	Sensory, Motor and Language Disorders	3
ID3020	Design of Assistive Devices	3
ID4100	Creative Engineering Project	3
NC1020	NCC	0
NS1020	NSO	0
NS1030	NSS	0
PH5650	Laser Theory	3
PH5840	Quantum Computation and Quantum Information	3

Electives

No.	Course Title	Credit
EC1040	Digital Systems	4
EC2010	Analog Circuits I	4
EC2102	Networks and Systems	4
EC312N	Microprocessor Lab	1
EC5410	Fibre Optic Communication Technology	4
EE3040	Power Electronics	4
EE3110	Probability Foundations for Electrical Engineers	4
EE3203	Power Electronics	4
EE3301	Introduction to Semiconductor Devices	3
EE3313	Device Modelling	4
EE4131	Analog and Digital Filters	3
EE4371	Introduction to Data Structures and Algorithms	3
EE4504	Fibre Optic Communication	3
EE4706	Advanced Power Systems Lab I	3
EE4801	Honours Self-Study Elective I	3
EE4902	Mini Project	3
EE5000	Laboratory I	2
EE5002	Analysis of Networks & Systems	4
EE5011	Computer Methods in Electrical Engineering	4
EE5050	Microwave Circuit Theory	3
EE5110	Probability Foundations for Electrical Engineers	4
EE5111	Estimation Theory	4
EE5113	Detection and Estimation Theory	4
EE5120	Applied Linear Algebra I for EE	4
EE5121	Optimization Methods in Signal Processing and Communications	4
EE5131	Selected Topics in Digital Signal Processing	3
EE5133	VLSI Technology	4
EE5134	Digital IC Design	4
EE5140	Digital Modulation and Coding	4
EE5141	Introduction to Wireless and Cellular Communication	4
EE5142	Introduction to Information Theory and Coding	4
EE5150	Communication Networks	4
EE5151	Communication Techniques	4
EE5154	Complex Network Analysis	12
EE5160	Error Control Coding	4
EE5161	Modern Coding Theory	4
EE5162	Information Theory	3
EE5170	Speech Signal Processing	4
EE5175	Image Signal Processing	4
EE5176	Computational Photography	4
EE5201	Modelling and Analysis of Electric Machines	3
EE5202	Computer Aided Design of Electrical Machines	4
EE5210	Semiconductor Device Modelling	4
EE5212	Digital Controller for power Applications	4
EE5255	High Voltage Power Transmission	4

Electives

EE5257	Energy Management Systems and SCADA	3
EE5258	Power System Optimization	3
EE5260	Power Quality	3
EE5261	Flexible AC Transmission Systems	3
EE5290	High Speed ICs	3
EE5323	Advanced Electrical Networks	4
EE5330	Computer-Aided Design and Analysis of Digital ICs	4
EE5331	DSP Architectures & Embedded Systems	4
EE5332	Mapping Signal Processing Algorithms to DSP Architectures	4
EE5340	MicroElectroMechanical Systems	3
EE5341	MOS Device Modeling & Characterization	3
EE5342	Compound Semiconductors â€“ Properties & Applications	3
EE5343	Solar Cell Device Physics and Materials Technology	3
EE5346	Introduction to Plastic Electronics	3
EE5350	Mathematical Methods for Circuit Analysis	3
EE5560	Laboratory (Power & Control)	2
EE5580	Project	20
EE5580*	Project	10
EE6010	Smart Power Grids	3
EE6030	Seminar - VLSI Stream	1
EE6070	Seminar	1
EE6110	Adaptive Signal Processing	4
EE6112	Topics in Random Processes and Concentrations	3
EE6130	Advanced Topics in Signal Processing	3
EE6131	Digital Filter Design	4
EE6132	Advanced Topics in Signal Processing	9
EE6141	Multicarrier Communications	4
EE6142	Advanced Topics in Communications	3
EE6150	Stochastic Modeling and the Theory of Queues	4
EE6151	Advanced Topics in Networks	3
EE6200	Power Electronic Control of Electric Machines	4
EE6254	Advanced Topics in Electrical Insulation	3
EE6258	DC Power Transmission Systems	3
EE6261	RESTRUCTURED POWER SYSTEMS	3
EE6320	RF Integrated Circuits	3
EE6321	VLSI Data Conversion Circuits	4
EE6322	VLSI Broadband Communication Circuits	4
EE6323	Wireless System Design	4
EE6343	Special Electronic Devices	4
EE6346	Advanced CMOS Devices and Technology	3
EE6361	Advanced Topics in VLSI	3
EE6402	Biomedical Electronic Systems	3
EE6403	Transducers for Instrumentation	3
EE6404	Power System Instrumentation	3
EE6412	Adaptive & Optimal Control	3

Electives

EE6415	Nonlinear Control Systems	3
EE6417	Allied Topics in Control Systems	3
EE6419	Geometric Nonlinear Control Theory	3
EE6470	Optical Signal Processing	3
EE6491	Advanced Topics in Instrumention	3
EE6500	Integrated Optoelectronic Devices and Circuits	4
EE6501	Optical Sensors	4
EE6502	Optical Signal Processing and Quantum Communication	3
EE6505	Waveguides, Microwave Circuits, and Antennas	4
EE6506	Computational Electrogmagnetics	4
EE6700	Advanced Photonics Laboratory	3
EE6999	Special Topics in Electrical Engineering	3
EE7001	Directed Study on Research Topics	4
EE7030	Advanced Topics in VLSI	3
EE7401	Directed Study on Research Topics	4
EE7500	Advanced Topics in RF and Photonics	4
EE7999	Special Topics in Electrical Engineering	3
EL5223	Laboratory (Power)	2
EP3200	Photonics	3
ID3010	Sensory, Motor and Language Disorders	3
ID3020	Design of Assistive Devices	3
ID4100	Creative Engineering Project	3
NC1020	NCC	0
NS1020	NSO	0
NS1030	NSS	0
PH5650	Laser Theory	3
PH5840	Quantum Computation and Quantum Information	3

Electives

No.	Course Title	Credit
EC1040	Digital Systems	4
EC2010	Analog Circuits I	4
EC2102	Networks and Systems	4
EC312N	Microprocessor Lab	1
EC5410	Fibre Optic Communication Technology	4
EE3040	Power Electronics	4
EE3110	Probability Foundations for Electrical Engineers	4
EE3203	Power Electronics	4
EE3301	Introduction to Semiconductor Devices	3
EE3313	Device Modelling	4
EE4131	Analog and Digital Filters	3
EE4371	Introduction to Data Structures and Algorithms	3
EE4504	Fibre Optic Communication	3
EE4706	Advanced Power Systems Lab I	3
EE4801	Honours Self-Study Elective I	3
EE4902	Mini Project	3
EE5000	Laboratory I	2
EE5002	Analysis of Networks & Systems	4
EE5011	Computer Methods in Electrical Engineering	4
EE5050	Microwave Circuit Theory	3
EE5110	Probability Foundations for Electrical Engineers	4
EE5111	Estimation Theory	4
EE5113	Detection and Estimation Theory	4
EE5120	Applied Linear Algebra I for EE	4
EE5121	Optimization Methods in Signal Processing and Communications	4
EE5131	Selected Topics in Digital Signal Processing	3
EE5133	VLSI Technology	4
EE5134	Digital IC Design	4
EE5140	Digital Modulation and Coding	4
EE5141	Introduction to Wireless and Cellular Communication	4
EE5142	Introduction to Information Theory and Coding	4
EE5150	Communication Networks	4
EE5151	Communication Techniques	4
EE5154	Complex Network Analysis	12
EE5160	Error Control Coding	4
EE5161	Modern Coding Theory	4
EE5162	Information Theory	3
EE5170	Speech Signal Processing	4
EE5175	Image Signal Processing	4
EE5176	Computational Photography	4
EE5201	Modelling and Analysis of Electric Machines	3
EE5202	Computer Aided Design of Electrical Machines	4
EE5210	Semiconductor Device Modelling	4
EE5212	Digital Controller for power Applications	4
EE5255	High Voltage Power Transmission	4

Electives

EE5257	Energy Management Systems and SCADA	3
EE5258	Power System Optimization	3
EE5260	Power Quality	3
EE5261	Flexible AC Transmission Systems	3
EE5290	High Speed ICs	3
EE5323	Advanced Electrical Networks	4
EE5330	Computer-Aided Design and Analysis of Digital ICs	4
EE5331	DSP Architectures & Embedded Systems	4
EE5332	Mapping Signal Processing Algorithms to DSP Architectures	4
EE5340	MicroElectroMechanical Systems	3
EE5341	MOS Device Modeling & Characterization	3
EE5342	Compound Semiconductors â€“ Properties & Applications	3
EE5343	Solar Cell Device Physics and Materials Technology	3
EE5346	Introduction to Plastic Electronics	3
EE5350	Mathematical Methods for Circuit Analysis	3
EE5560	Laboratory (Power & Control)	2
EE5580	Project	20
EE5580*	Project	10
EE6010	Smart Power Grids	3
EE6030	Seminar - VLSI Stream	1
EE6070	Seminar	1
EE6110	Adaptive Signal Processing	4
EE6112	Topics in Random Processes and Concentrations	3
EE6130	Advanced Topics in Signal Processing	3
EE6131	Digital Filter Design	4
EE6132	Advanced Topics in Signal Processing	9
EE6141	Multicarrier Communications	4
EE6142	Advanced Topics in Communications	3
EE6150	Stochastic Modeling and the Theory of Queues	4
EE6151	Advanced Topics in Networks	3
EE6200	Power Electronic Control of Electric Machines	4
EE6254	Advanced Topics in Electrical Insulation	3
EE6258	DC Power Transmission Systems	3
EE6261	RESTRUCTURED POWER SYSTEMS	3
EE6320	RF Integrated Circuits	3
EE6321	VLSI Data Conversion Circuits	4
EE6322	VLSI Broadband Communication Circuits	4
EE6323	Wireless System Design	4
EE6343	Special Electronic Devices	4
EE6346	Advanced CMOS Devices and Technology	3
EE6361	Advanced Topics in VLSI	3
EE6402	Biomedical Electronic Systems	3
EE6403	Transducers for Instrumentation	3
EE6404	Power System Instrumentation	3
EE6412	Adaptive & Optimal Control	3

Electives

EE6415	Nonlinear Control Systems	3
EE6417	Allied Topics in Control Systems	3
EE6419	Geometric Nonlinear Control Theory	3
EE6470	Optical Signal Processing	3
EE6491	Advanced Topics in Instrumention	3
EE6500	Integrated Optoelectronic Devices and Circuits	4
EE6501	Optical Sensors	4
EE6502	Optical Signal Processing and Quantum Communication	3
EE6505	Waveguides, Microwave Circuits, and Antennas	4
EE6506	Computational Electrogmagnetics	4
EE6700	Advanced Photonics Laboratory	3
EE6999	Special Topics in Electrical Engineering	3
EE7001	Directed Study on Research Topics	4
EE7030	Advanced Topics in VLSI	3
EE7401	Directed Study on Research Topics	4
EE7500	Advanced Topics in RF and Photonics	4
EE7999	Special Topics in Electrical Engineering	3
EL5223	Laboratory (Power)	2
EP3200	Photonics	3
ID3010	Sensory, Motor and Language Disorders	3
ID3020	Design of Assistive Devices	3
ID4100	Creative Engineering Project	3
NC1020	NCC	0
NS1020	NSO	0
NS1030	NSS	0
PH5650	Laser Theory	3
PH5840	Quantum Computation and Quantum Information	3

SEMESTER I

No	Title	Credit	Cat
CS1100	Computational Engineering	3	BET
CY1002	Chemistry Lab I	3	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1100	Thermodynamics	3	BET
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	20	

Remarks

SEMESTER II

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
ME1120	Engineering Drawing	3	BET
PH1020	Physics II	3	SPH
HSE1	Humanities Elective 1	9	HSS
	TOTAL	29	

Remarks

SEMESTER III

No	Title	Credit	Cat
AM2200	Strength of Materials	4	PMT
AM2530	Foundations of Fluid Mechanics	4	PMT
AM2540	Applied Mechanics Lab	2	PML
EE1100	Basic Electrical Engineering	3	PMT
MA2020	Differential Equations	3	SMA
ME2220	Kinematics and Dynamics of Machinery	4	PMT
	TOTAL	20	

Remarks:

Electives

No.	Course Title	Credit
ID3020	Design of Assistive Devices	3
ID5020	Multi Body Dynamics & Applications	3
ID6010	Constitutive Modelling in Continuum Mechanics	3
ID6070	Mechanics of Viscoelastic Materials	3
ME 5001	Prognostics and Health Management of Machine Tools	3
ME207N	Advanced Workshop	3
ME222N	Kinematics and Dynamics of Machinery	4
ME3290	Machine Tools & Metrology Lab	1
ME3380	Trends in Manufacturing	3
ME3480	CNC Machining	3
ME3610	Introduction to Renewable Energy Technologies	3
ME3620	Introduction to Energy and Environment	3
ME3940	Dynamic Modeling of Engineering Systems	3
ME4001	Project (Under Honours Program)	3
ME4002	Fundamentals of Tribology	3
ME4003	Applied Mechanics of Materials	3
ME4020	Combustion Engineering	3
ME4080	Modelling of Heat Transfer Processes	3
ME4110	Project I	1
ME4180	Automobile Engineering	3
ME4260	Cryogenic Systems	3
ME4400	Manufacturing Planning	3
ME4410	Tooling for Production	3
ME4420	Unconventional Mfg Techniques	3
ME4450	Fluid Mechanics in Turbomachines	3
ME4490	Mini Project	1
ME4500	Project II	6
ME4560A	Project II	8
ME4980	Project	7
ME5001	Composite Materials	3
ME5520	Explosion & Safety	3
ME5530	Introduction to Atmospheric Science	3
ME5550	Flow and Thermal Instabilities	3
ME5560	Heat and Mass Transfer in Biological Systems	3
ME5570	Jet Flow and Acoustics	3
ME6001	Theory of Fire Propogation	3
ME6002	Turbomachinery Noise and Control	3
ME6003	Variational Principles in Mechanics	3
ME6004	Micro & Nanoscale Energy Transport	3
ME6005	Solar Energy For Process Heat & Power Generation	3
ME6006	Computational Heat & Fluid Flow	3
ME6008	Microfluidics and Microsystems	3
ME6009	Rediative Heat Transfer	3
ME6011	Convective Heat Transfer	3
ME6012	Mechanics of Human Movement	3

Electives

ME6013	Boiling Condensation and Two Phase Flow	3
ME6014	Micro Manufacturing Technology	3
ME6015	Elastic Waves and Ultrasonics	3
ME6016	Mechanics of Thin Films for Microsystem Design	3
ME6017	Additive Manufacturing	3
ME6250	Heat Transfer in Ener. Sys	3
ME6330	Cavitation	3
ME6370	Exp. Methods in Hydroturbomachines	3
ME6390	Micro Hydro Power	3
ME6420	Simulation of IC Engine Processes	3
ME6440	Alternate Fuels for IC Engines	3
ME6460	CFD & its Applications to Engine Processes	3
ME6470	Engine Inst. & Elec.Mgmt	3
ME6480	Transport Process in IC Engines	3
ME6490	Laser Diagnostics in Engines	3
ME6530	HVAC Systems & Applications	3
ME6540	Food Processing, Storage & Transport	3
ME6560	Advanced Cryogenics Systems	3
ME6580	Utilisation of Solar Energy	3
ME6590+	Renewable Energy Technology	3
ME6600	Aerodyn. Design of Axial Compressors & Turbines	3
ME6650	Computational Fluid Dynamics of Turbomachinery	3
ME6660	Fans, Blowers & Compressors	3
ME6670	Gas Trubine Engineering	3
ME6680	Meas. Tech. in Ther. Turbomachinery	3
ME6750	Gear Design	3
ME6770	Design of Pressure Vessels & Piping	3
ME690N	Seminar	1
ME6999	Special Topics in Mechanical Engineering	3
ME7021	Nonlinear Finite Element Analysis of Solild Continua	3
ME7022	Droplet and Spray Dynamics	3
ME7023	Foundations of Computational Materials Modelling	3
ME7080	Compact Heat Exchangers	3
ME7170	Flexible Manufacturing Systems	3
ME7180	Machine Vision & its Applns.	3
ME7190	Introduction to Fracture Mechanics	3
ME7220	Metal Removal Processes	3
ME7270	Microscale Fluid Flow & Machinery	3
ME7520	Prop. & Servo Hyd. Controls	3
ME7640	Tribology in Design	3
ME7660	Nonlinear Solid Mechanics	3
ME7680	Optimization Methods for Mechanical Design	3
ME7710	Advanced Vibration and Acoustics	3
ME7740	Structural Health and Integrity Monitoring	3
ME7750	Automotive Technology Lab II	2

Electives

ME7770	Theory and Technology of Fuel Cells	3
ME7790	Heat and Mass Transport in Porous Media	3
ME7840	Signal Processing of Mechanical Systems	3
ME7850	Modal Analysis of Mechanical Systems	3
ME7880	Vehicular Vibration	3
ME7890	Advanced Applied Finite Element	3
ME7920	Applied Finite Element Analysis	3
ME7930	Chaotic Vibrations	3
ME7970	Vehicle Systems Design	3
ME7980#	PROJECT I	5
ME7999	Special Topics in Mechanical Engineering	3
ME8001	Mechanics of Mixtures	3
NE6310	Advanced Non-destructive Evaluation	3
NE6330	CFD for Nuclear Engg. Applications	5
NE6350	Codes, Stds., & Regulatory Practises in the Design	3
NE6360	Radiation Effects on Materials	3
NE6370	Radiation Protection, Reactor Shielding & Radioati	3
NE6390	Nuclear Power Economics & Fuel Mgmt.	3

SEMESTER I

No	Title	Credit	Cat
CS1100	Computational Engineering	3	BET
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1100	Thermodynamics	3	BET
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
	TOTAL	17	

Remarks

SEMESTER II

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
ME1120	Engineering Drawing	3	BET
MM1001	Introduction to Metallurgical and Materials Engineering	5	PMT
PH1020	Physics II	3	SCY
	TOTAL	25	

Remarks

SEMESTER III

No	Title	Credit	Cat
CY1002	Chemistry Lab I	3	SCY
MM2010	Principles of Physical Metallurgy	4	PMT
MM2013	Structure of Materials	3	PMT
MM2015	Thermodynamics of Materials	4	PMT
HSE1	Humanities Elective 1	9	HSS
	TOTAL	23	

Remarks:

Electives

No.	Course Title	Credit
ID6102	Principles and techniques of Transmission Electron Microscopy	3
ID6103	Practical Transmission electron Microscopy	3
MM2120	Mechanical Metallurgy Lab	1
MM3120	Metal Forming Lab	1
MM3140	Metal Joining Lab	1
MM3180	Advanced Materials & Processes	3
MM3200	Surface Modifications	3
MM3310	Introduction to Materials Science	3
MM3320	Modern Tech. in Materials Characterisation	3
MM3330	Non-Metallic Materials	3
MM3340	Materials Processing Techniques	3
MM4070	Modern Materials	3
MM4120*	Project II	8
MM4120+	Project II	9
MM4150	Defects & Failure in Mfg & Service	3
MM4190	Metallurgical Plant Design	3
MM5001	Composite Materials	3
MM5011	Modeling of Transport Phenomena in Met. Processes	3
MM5012	Welding Processes	3
MM5013	Textures in Materials	3
MM5015	Introduction to Multi-Scale Modeling of Materials	3
MM5017	Electronic materials, devices, and fabrication	3
MM5021	Deformation and Failure of Materials at Elevated Temperatures	3
MM5022	Fundamentals of Iron & Steel Making	3
MM5023	Iron & Steel Making Technology	3
MM5025	Physical Metallurgy of Ferrous Alloys	3
MM5026	Special Topics in Iron & Steel Tech.	3
MM5030	Materials in renewable energy technologies	3
MM5040	Defects in Materials	3
MM5041	Medical Materials	3
MM5104	Aluminum Alloys and their Composites	3
MM5110	Materials Technology	3
MM5130	Materials under Extreme Environments	3
MM5180	Non-Destructive Evaluation	3
MM5190	Non-Destructive Testing Lab	2
MM5210	X-Ray Diffraction Techniques	3
MM5220	X-Ray Diffraction Laboratory	2
MM5240	Electron Diffraction and Microscopy	3
MM5250	Additive Manufacturing	3
MM5290	Stability of Microstructures	3
MM5320	Corrosion Engineering	3
MM5330	Surface Degradation Process	3
MM5340	Surface Engineering	3
MM5350	Advanced Metallurgical Thermodynamics	3
MM5380	Transport Phenomena in Met. Processes	3

Electives

MM5400	Metal Process Modelling	3
MM5410	Ceramic Science & Technology	3
MM5430	Advanced Powder Processing	3
MM5460	Physical Ceramics	3
MM5520	Solidification Phenomena	3
MM5610	Metal Forming Processes	3
MM5620	Metal Forming Equipment	3
MM5630	Plasticity & Plastic Deformation	3
MM5640	Sheet Metal Forming	3
MM5650	Press Tools for Metal Forming	3
MM5660	Metal Forming Laboratory I	2
MM5670	Metal Forming Laboratory II	2
MM5680	Smart Materials	3
MM5700	Topics in Nanomaterials	3
MM5730	Stress Analysis in Weld Design	3
MM5740	Welding Metallurgy	3
MM5750	Welding Application Technology	3
MM5760	Advanced Topics in Metal Joining	3
MM5770	Welding Laboratory I	2
MM5780	Welding Laboratory II	2
MM5900+	Project II	19
MM6001	Brittle Fracture and Indentation Mechanics	3
MM6010	Computational Materials Thermodynamics	3
MM6999	Special Topics in Metallurgical and Materials Engineering	3
MM7999	Special Topics in Metallurgical and Materials Engineering	3
MT1010	Structure of Materials	3
MT4030	Materials Processing Laboratory	2
MT4110	Computational Methods in Materials Engg.	3
NE6310	Advanced Non-destructive Evaluation	3
NE6340	Nuclear Materials Processing	3
NE6350	Codes, Stds., & Regulatory Practises in the Design	3
NE6360	Radiation Effects on Materials	3
NE6370	Radiation Protection, Reactor Shielding & Radioati	3
NE6420	Characterization of Nuclear Materials	3

SEMESTER I

No	Title	Credit	Cat
AM1100	Engineering Mechanics	4	BET
CS1100	Computational Engineering	3	BET
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
ME1100	Thermodynamics	3	BET
OE1101	Introduction to Ocean Engineering	6	PMT
PH1010	Physics I	3	SPH
	TOTAL	25	

Remarks

SEMESTER II

No	Title	Credit	Cat
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
CY1002	Chemistry Lab I	3	SCY
MA1020	Series and Matrices	4	SMA
OE2010	Ship Theory	3	PMT
PH1020	Physics II	3	SPH
PH1030	Physics Laboratory I	2	SPH
HSE1	Humanities Elective 1	9	HSS
	TOTAL	28	

Remarks

SEMESTER III

No	Title	Credit	Cat
AM2200	Strength of Materials	4	PMT
AM2530	Foundations of Fluid Mechanics	4	PMT
EE1100	Basic Electrical Engineering	3	PMT
OE2011	Ship Drawing and Calculations	4	Engineering
OE2012	Marine Instrumentation Lab	1	Engineering
HSE1	Humanities Elective 1	9	HSS
MAE1	Mathematics Elective 1	9	SMA
	TOTAL	34	

Remarks:

Electives

No.	Course Title	Credit
NC1020	NCC	0
NS1010	NSO	0
NS1020	NSO	0
NS1030	NSS	0
OE301N	Ship Hydrodynamics	3
OE3130	Physical Modelling & Instrumentation	3
OE3170	Introduction to Ocean Technology	3
OE3180	Offshore and Coastal Structures	3
OE405N	Project	8
OE4060*	Project II	8
oe4060+	Project II	7
OE4300	Ocean Energy	3
OE430N	Ocean Energy	3
OE4320	Ships and Floating Systems	3
OE4340	Ocean Energy Systems	3
OE5002	Phased Array Systems : Design and Analysis	3
OE5011	Marine Robotics	3
OE5120	Geomechanics for offshore oil and gas applications	4
OE5300	Dynamics of Floating Bodies	3
OE5310	Guidance & Control of Marine Vehicles	3
OE5320	Nonlinear Problems in Ocean Engineering	3
OE5330	Advanced Marine Structures	3
OE5450	Numerical Techniques in Ocean Hydrodynamics	4
OE5500	FEM Applied to Ocean Engineering	3
OE5600	Advanced Wave Dynamics	3
OE5860	Design of Coastal Structures	3
OE5960	Wave Simulation, Measurment and Analysis	4
OE6010	Practical Training	2
OE6020	Meshfree methods applied to hydrodynamics	4
OE6050	Ocean Structures & Materials	3
OE6300	Plated Structures and Shells	3
OE6310	Powering and Propulsion of Marine Vehicles	3
OE6320	Marine Hydrodynamics	4
OE6360	Ship and Offshore Technology Lab	1
OE6500	Marine Corrosion & Control	3
OE6850	Concrete & Concrete Structures for Oceans	3
OE6930	Modeling of Offshore and Coastal Processes	4
OE6930*	Project I	2
OE6940	Project	20
OE6960	Wave Simulation,Measurement&Analysis	3
OE6970	Comp.Aided Analysis of Offshore Struc.&Ships	3
OE6980	Comp. Aid. Surface Dev. for Marine Vehicles	3
OE6990	Advanced Marine Vehicles	3
OE6999	Special Topics in Ocean Engineering	3
OE7999	Special Topics in Ocean Engineering	3

Electives

PE6060	Offshore Oil and Gas Production Systems	3
PE6070	Reservoir Rock Mechanics	3
PE6080	Petroleum Refining Technology	3
PE6310	Well-completion, Production,Testing & Analysis	3
PE6311	Well Logging & Formation Evaluation	3
PE6312	Enhanced Oil Recovery	3
PE6313	Applied Scientific Computing in Ocean & PE	3
PE6314	Drilling Fluid Design and Analysis	3
PE6317	Applied Hydrodynamics in Petroleum Exploration and Production	3
PE6320	Sub sea Engg. for Oil & Gas fields	3

Electives

No.	Course Title	Credit
NC1020	NCC	0
NS1010	NSO	0
NS1020	NSO	0
NS1030	NSS	0
OE301N	Ship Hydrodynamics	3
OE3130	Physical Modelling & Instrumentation	3
OE3170	Introduction to Ocean Technology	3
OE3180	Offshore and Coastal Structures	3
OE405N	Project	8
OE4060*	Project II	8
oe4060+	Project II	7
OE4300	Ocean Energy	3
OE430N	Ocean Energy	3
OE4320	Ships and Floating Systems	3
OE4340	Ocean Energy Systems	3
OE5002	Phased Array Systems : Design and Analysis	3
OE5011	Marine Robotics	3
OE5120	Geomechanics for offshore oil and gas applications	4
OE5300	Dynamics of Floating Bodies	3
OE5310	Guidance & Control of Marine Vehicles	3
OE5320	Nonlinear Problems in Ocean Engineering	3
OE5330	Advanced Marine Structures	3
OE5450	Numerical Techniques in Ocean Hydrodynamics	4
OE5500	FEM Applied to Ocean Engineering	3
OE5600	Advanced Wave Dynamics	3
OE5860	Design of Coastal Structures	3
OE5960	Wave Simulation, Measurment and Analysis	4
OE6010	Practical Training	2
OE6020	Meshfree methods applied to hydrodynamics	4
OE6050	Ocean Structures & Materials	3
OE6300	Plated Structures and Shells	3
OE6310	Powering and Propulsion of Marine Vehicles	3
OE6320	Marine Hydrodynamics	4
OE6360	Ship and Offshore Technology Lab	1
OE6500	Marine Corrosion & Control	3
OE6850	Concrete & Concrete Structures for Oceans	3
OE6930	Modeling of Offshore and Coastal Processes	4
OE6930*	Project I	2
OE6940	Project	20
OE6960	Wave Simulation,Measurement&Analysis	3
OE6970	Comp.Aided Analysis of Offshore Struc.&Ships	3
OE6980	Comp. Aid. Surface Dev. for Marine Vehicles	3
OE6990	Advanced Marine Vehicles	3
OE6999	Special Topics in Ocean Engineering	3
OE7999	Special Topics in Ocean Engineering	3

Electives

PE6060	Offshore Oil and Gas Production Systems	3
PE6070	Reservoir Rock Mechanics	3
PE6080	Petroleum Refining Technology	3
PE6310	Well-completion, Production,Testing & Analysis	3
PE6311	Well Logging & Formation Evaluation	3
PE6312	Enhanced Oil Recovery	3
PE6313	Applied Scientific Computing in Ocean & PE	3
PE6314	Drilling Fluid Design and Analysis	3
PE6317	Applied Hydrodynamics in Petroleum Exploration and Production	3
PE6320	Sub sea Engg. for Oil & Gas fields	3

SEMESTER I

No	Title	Credit	Cat
CS1100	Computational Engineering	3	BET
CY1001	Chemistry: Structure, Bonding & Reactivity	4	SCY
GN1100	Life Skills	2	HPF
MA1010	Calculus I Functions of One Variable	4	SMA
PH1010	Physics I	3	SPH
PH1030	Physics Laboratory I	2	SPH
PH1080	Thermodynamics & Kinetic Theory	3	BET
	TOTAL	21	

Remarks

SEMESTER II

No	Title	Credit	Cat
CY1002	Chemistry Lab I	3	SCY
CY1052	Chemistry II (PH)	9	SCY
EE1101	Signals and Systems	10	BET
EE2001	Digital Systems & Lab	16	PMT
ID1200	Ecology and Environment	2	PMT
MA1020	Series and Matrices	4	SMA
PH1020	Physics II	3	SPH
	TOTAL	47	

Remarks

SEMESTER III

No	Title	Credit	Cat
EP2090	Engineering Physics Lab I	4	PML
EP2110	Introduction to Mathematical Physics	4	PMT
EP3110	Electromagnetics and Applications	3	PMT
HSE1	Humanities Elective 1	9	HSS
MAE1	Mathematics Elective 1	9	SMA
	TOTAL	29	

Remarks:

Electives

No.	Course Title	Credit
EP2140	High Vacuum Science & Technology	3
EP4500	Self Study Elective	3
EP4501	Statistical Physics of Fields	3
EP4600	Self Study (Under Honours Program)	3
ID6030	An introduction to Nanoscience and Nanotechnology	3
ID6102	Principles and techniques of Transmission Electron Microscopy	3
PH1080	Thermodynamics and Kinetic Theory	4
PH3500	Classical Physics	3
PH350N	Classical Physics	3
PH3520	Quantum Physics	3
PH5070	Electronics Laboratory - I	4
PH5081	Nonequilibrium Statistical Mechanics	3
PH5121	Physics Lab II (PG)	5
PH5150	Nuclear and Particle Physics	3
PH5171	Quantum Mechanics II	4
PH5180	Atomic and Molecular Physics	3
PH5212	Self Study Elective	3
PH5400	Comprehensive Viva Voce II	1
PH5460	Classical Field Theory	3
PH5461	Inroduction to Physics of the Cell	3
PH5462	Magnetism in Solids	3
PH5480	Quantum Field Theory	3
PH5490	Advanced Statistical Physics	3
PH5500	Dynamical Systems	3
PH5510	Theory of Atomic Collisions & Spectroscopy	3
PH5520	Advanced Mathematical Physics	3
PH5540	Semiconductor Physics	3
PH5580	Resonance Spectroscopy	3
PH5590	Microwave Physics	3
PH5600	Physics At Low Temperatures	3
PH5620	Coherent and Quantum Optics	3
PH5640	Laser Applications	3
PH5650	Laser Theory	3
PH5660	Non-linear Optical Processes & Devices	3
PH5670	Physics & Tech. of Thin Flims	3
PH5680	Superconductivity & Its Applications	3
PH5690	Applied Magnetics	3
PH5710	Physics of Semicondutor Devices	3
PH5730	Methods of Computational Physics	3
PH5790	Science & Technology of Nanomaterials	3
PH5810	Introduction to Softmatter Physics	3
PH5811	Advanced Particle Physics	3
PH5813	Principles of Nanophoptonics	3
PH5814	Laser Physics and Applications	3
PH5815	Physical Applications of Stochastic Processes	3

Electives

PH5830	Advanced Dynamical Systems	3
PH5840	Quantum Computation and Quantum Information	3
PH5860	Atmospheric & Environmental Physics	3
PH5870	General Relativity and Cosmology	3
PH5890	Ultrafast lasers and Applications	3
PH5900+	Project II	9
PH5920	Viva Voce (Project)	2
PH6021	Introduction to Research	2
PH6999	Special Topics in Physics	3
PH7010	Nuclear and Particle Physics	3
PH7080	Foundations in Theoretical Physics	4
PH7090	Foundations in Experiemntal Physics	4
PH7260	Solid State Ionics	3
PH7500	Solid State Ionics	3
PH7660	Advanced Condensed Matter Physics	4
PH7999	Special Topics in Physics	3
PHPCL0	Preparatory Course - Physics Lab	0
PHPCT0	Preparatory Course - Physics Theory	0