

## Details of Courses for Semester-I, 2024-25 (UG)

### B.Tech Semester-I

Course Code	Course Name	L-T-P-C	Offered By Discipline	Remarks
NS1001	Mathematics-I (4 Sections)	3-1-0-4	NS	Common for all
NS1002	Engineering Mechanics (4 Sections)	2-1-2-4	NS	Common for all
HS1001	Effective Communications (4 Sections)	1-2-0-2	LA	Common for all
IT1001	Introduction to Programming In C (02 Batches)	2-0-3-3	CSE	only for CSE
IT1002	Introduction to Programming In Python	2-0-3-3	ECE	only for ECE
IT1002	Introduction to Programming In Python (02 Batches)	2-0-3-3	ME	Common for ME, SM and DS
ES1002	Fundamentals of Electrical and Electronics Engineering	3-0-2-4	ECE	only for CSE
DS1005	Engineering Graphics (02 Batches)	2-0-3-3	ME	Common for ECE,ME,SM and DS
CS1001	Introduction to Profession (02 Batches)	1-0-0-1	CSE	Common for CSE
EC1001	Introduction to Profession	1-0-0-1	ECE	Common for ECE
ME1001	Introduction to Profession	1-0-0-1	ME	Common for ME
SM1001	Introduction to Profession	1-0-0-1	ME	Common for SM

### B.Des Semester-I

Course Code	Course Name	L-T-P-C	Offered By Discipline	Remarks
DS1002	Design Fundamentals 1	2-0-2-3	DS	Common for Design
DS1003	Design Drawing	1-0-3-2	DS	Common for Design
DS1004	Representation Technique	2-0-2-3	DS	Common for Design
DS1005	Engineering Graphics (02 Batches)	2-0-3-3	ME	Common for ECE,ME,SM and DS
HS1001	Effective Communications (4 Sections)	1-2-0-2	LA	Common for all
IT1002	Introduction to Programming In Python (02 Batches)	2-0-3-3	ME	Common for ME, SM and DS
DS1001	Introduction to Profession	1-0-0-1	DS	Common for Design

### Year Long Courses (common for B.Des. and B.Tech.)

ES1003	Innovation Theory and Practice	1-0-2-2	IA	To be checked with IIC & PCC
PC1001	Professional Development Course	1-0-0-1	PLACEMENT	To be given by Placement

### B.Tech Semester III

Course Code	Course Name	L-T-P-C	Offered By Discipline	Pre-requisites for Elective courses
NS2001	Biology for Engineers	2-0-0-2	LA	For CSE only
IT2001	Data Structure in C (02 Batches)	3-0-2-4	CSE	For CSE only
IT2002	Data Structure in Python	3-0-2-4	ECE	Common for ECE
IT2002	Data Structure in Python	3-0-2-4	ME, SM & DS	Common for ME, SM & DS

#### DC1 (Discipline Core 1)

CS2002	Computer Organization and Architecture (02 Batches)	3-0-0-3	CSE	Common for CSE
EC2002	Digital Electronics and Microprocessor Interfacing	3-0-2-4	ECE	Common for ECE
ME2002	Manufacturing Process	3-0-2-4	ME	Common for ME & SM
SM2002	Manufacturing Process	3-0-2-4	SM	Common for ME & SM

#### DC2 (Discipline Core 2)

CS2003	Database Management Systems (02 Batches)	3-0-2-4	CSE	Common for CSE
EC203a	Principle of Analog Communications	2-0-0-2	ECE	Common for ECE
EC203b	Network Theory (Analysis and Synthesis)	2-0-0-2	ECE	Common for ECE
ME2003	Solid Mechanics	2-2-2-4	ME	Common for ME
SM2003	Solid Mechanics + Design of Mechanical Components	3-1-2-4	SM	Common for SM

#### DC3 (Discipline Core 3)

CS2004	Introduction to Data Science (02 Batches)	3-0-2-4	CSE	Common for CSE
EC204a	Electronics Devices and Circuits	2-0-0-2	ECE	Common for ECE
EC204b	Instrumentation and Measurement	2-0-0-2	ECE	Common for ECE
ME2004	Engineering Thermodynamics	3-2-0-4	ME	Common for ME
SM2004	Engineering Thermodynamics + Heat Transfer	3-1-0-4	SM	Common for SM

#### OE1 (Choose any one course from below electives)

OE2C09	Discrete Structures	3-0-0-3	CSE	Pre-requisites is not required	Open for all
OE2E01	Introduction to Sensors and Actuators	3-0-0-3	ECE	Pre-requisites is not required	Open for all

OE2E03	Fundamentals of Signals and Systems	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE2M07	Operations Research	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE2M09	Probabilistic Approaches to Machine Learning	3-0-0-3	SM	Pre-requisites is not required	Open for all
OE2D11	Design Thinking	3-0-0-3	DS	Pre-requisites is not required	Open for all
OE2N12	Numerical Methods for Engineers	3-0-0-3	NS	Pre-requisites is not required	Open for all
OE2N13	Semiconductor Optoelectronic Devices	3-0-0-3	NS	Pre-requisites is not required	Open for all
OE2D14	SCIENCE AND CULTURE - A COMPARISON	3-0-0-3	English/LA	Pre-requisites is not required	Open for all

<b>IT workshop I</b>					
IT2C01	IT workshop I	0-0-3-2	CSE		Common for CSE
IT2E01	IT workshop I	0-0-3-2	ECE		Common for ECE
IT2M01	IT workshop I	0-0-3-2	ME		Common for ME
IT2S01	IT workshop I	0-0-3-2	ME		Common for SM

<b>B.Des Semester-III</b>					
Course Code	Course Name	L-T-P-C	Offered By Discipline	Pre-requisites for Elective courses	
DS2005	Studies in Form	2-0-2-3	DS		only for B.Des
DS2006	Industrial Design 1	2-0-2-3	DS		only for B.Des
DS2007	Communication Design 1	2-0-2-3	DS		only for B.Des
DS2008	Design Project 1	0-0-6-3	DS		only for B.Des
DS2010	Material and Processes	2-0-2-3	DS		only for B.Des

<b>OE1 (Choose any one course from below electives)</b>					
OE2C09	Discrete Structures	3-0-0-3	CSE	Pre-requisites is not required	Open for all
OE2E01	Introduction to Sensors and Actuators	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE2E03	Fundamentals of Signals and Systems	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE2M07	Operations Research	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE2M09	Probabilistic Approaches to Machine Learning	3-0-0-3	SM	Pre-requisites is not required	Open for all
OE2D11	Design Thinking	3-0-0-3	DS	Pre-requisites is not required	Open for all
OE2N12	Numerical Methods for Engineers	3-0-0-3	NS	Pre-requisites is not required	Open for all
OE2N13	Semiconductor Optoelectronic Devices	3-0-0-3	NS	Pre-requisites is not required	Open for all
OE2D14	SCIENCE AND CULTURE - A COMPARISON	3-0-0-3	English/LA	Pre-requisites is not required	Open for all

<b>Year Long Courses (common for B.Des. and B.Tech.)</b>					
PR2002	Discipline Project	0-0-0-2			Specific to Discipline
PC2002	Professional Development Course	1-0-0-1	Placement		To be given by Placement

<b>B.Tech Semester V</b>					
Course Code	Course Name	L-T-P-C	Offered By Discipline	Pre-requisites for Elective courses	
HS3004	Ecology & Environment Science	2-0-0-2	LA		CSE Only
DS3001	Engineering Design –Including Design and Fabrication Project	1-0-6-4			Common for all
<b>DC8 (Discipline Core 8)</b>					
CS3009	Network Security & Cryptography (02 Batches)	3-0-0-3	CSE		Common for CSE
EC3009	VLSI System Design (VLSI IC desien, logic synthesis using VHDL)	3-0-0-3	ECE		Common for ECE
ME3009	Design of Mechanical Components	2-2-0-3	ME		Common for ME
SM3009	Additive and Subtractive Manufacturing Processes	2-0-2-3	SM		Common for SM
<b>DC9 (Discipline Core 9)</b>					
CS3010	Software Engineering (02 Batches)	3-0-0-4	CSE		Common for CSE
EC3010	Fundamentals of Electromagnetic Theory	3-0-0-3	ECE		Common for ECE
ME3010	Industrial Internet of Things	2-0-2-3	ME		Common for ME
SM3010	Computer Aided Product Development	2-0-2-3	SM		Common for SM
<b>DC10 (Discipline Core 10)</b>					
CS3011	Artificial Intelligence (02 Batches)	3-0-0-3	CSE		Common for CSE
EC3011	Digital Communications	3-0-0-3	ECE		Common for ECE
ME3011	Heat Transfer	3-0-2-4	ME		Common for ME
SM3011	Industrial Automation	2-0-2-3	SM		Common for SM
<b>DC11 (Discipline Core 11)</b>					
SM3012	Advanced Cyber Physical System	2-0-2-3	ME		Common for SM

**OE3 (Choose any one course from below elective)**

CS8028	Hardware Security (02 Batches)	3-0-0-3	CSE	CS2002 - Computer Organization and Architecture	Those who have done pre-requisites
OE3E40	Computation Genomic & Proteomic	3-0-0-3	ECE	MATLAB/C++/Python and Biology for Engineers	Those who have done pre-requisites
OE4E50	Detection and Estimation Theory	3-0-0-3	ECE	(OE2E02)Probability and random Process	Those who have done pre-requisites
OE3M26	Computer-Aided Design (CAD)	3-0-0-3	ME	ME2002/SM2002	Those who have done pre-requisites
OE3M33	Electrical Drives and Devices	3-0-0-3	ME	ME2006/SM2006	Those who have done pre-requisites
OE4M23	Business Analytics using R	3-0-0-3	SM	ME2007/SM2007/OE2M07	Those who have done pre-requisites
OE3N36	Probability and Statistics	3-0-0-3	NS	Only for ECE, ME & SM Discipline	Those who have done pre-requisites
OE3D15	Applied Ergonomics	2-0-2-3	DS	DS1002- Design Fundamentals 1 and DS1006 - Design Fundamentals II	Those who have done pre-requisites
OE3D16	Visual Ergonomics	2-0-2-3	DS	DS1002- Design Fundamentals 1 and DS1006 - Design Fundamentals II	Those who have done pre-requisites

**IT workshop III**

IT3C01	IT workshop III	0-0-3-2	CSE
IT3E01	IT workshop III	0-0-3-2	ECE
IT3M01	IT workshop III	0-0-3-2	ME
IT3S01	IT workshop III	0-0-3-2	ME

**B.Des Semester-V**

Course Code	Course Name	L-T-P-C	Offered By Discipline	Pre-requisites for Elective courses
DS3001	Engineering Design –Including Design and Fabrication Project	1-0-6-4	Not Applicable	Common for all
DS3009	Service Design	2-0-2-3	DS	
DS3010	Sustainable Design	2-0-2-3	DS	
DS3011	Design Management	2-0-2-3	DS	
DS3012	Design Project 4 (compulsory)	0-0-6-3	DS	

**OE3 (Choose any one course from below elective)**

CS8028	Hardware Security (02 Batches)	3-0-0-3	CSE	CS2002 - Computer Organization and Architecture	Those who have done pre-requisites
OE3E40	Computation Genomic & Proteomic	3-0-0-3	ECE	MATLAB/C++/Python and Biology for Engineers	Those who have done pre-requisites
OE4E50	Detection and Estimation Theory	3-0-0-3	ECE	(OE2E02)Probability and random Process	Those who have done pre-requisites
OE3M26	Computer-Aided Design (CAD)	3-0-0-3	ME	ME2002/SM2002	Those who have done pre-requisites
OE3M33	Electrical Drives and Devices	3-0-0-3	ME	ME2006/SM2006	Those who have done pre-requisites
OE4M23	Business Analytics using R	3-0-0-3	SM	ME2007/SM2007/OE2M07	Those who have done pre-requisites
OE3N36	Probability and Statistics	3-0-0-3	NS	Only for ECE, ME & SM Discipline	Those who have done pre-requisites
OE3D15	Applied Ergonomics	2-0-2-3	DS	DS1002- Design Fundamentals 1 and DS1006 - Design Fundamentals II	Those who have done pre-requisites
OE3D16	Visual Ergonomics	2-0-2-3	DS	DS1002- Design Fundamentals 1 and DS1006 - Design Fundamentals II	Those who have done pre-requisites

**Year Long Courses (Common for B.Des. and B.Tech.)**

PR3003	Optional Project	0-0-0-2		Optional specific to discipline
PC3003	Professional Development Course	1-0-0-1	Placement	Common for all

**B.Tech Semester VII**

Course Code	Course Name	L-T-P-C	Offered By Discipline	Pre-requisites for Elective courses	
CS8016	Cloud Computing (02 Batches)	3-0-0-3	CSE	CS2008-Computer Networks	Those who have done pre-requisites
EC8033	Radio Frequency Integrated Circuits Design	3-0-0-3	ECE	EC3010 - Fundamentals of Electromagnetic Theory	Those who have done pre-requisites
EC8029	Advanced Digital Filter Design	3-0-0-3	ECE	EC2005 - Digital Signal Processing	Those who have done pre-requisites
OE4M75	Fundamentals of Tribology & Rheology	3-0-0-3	ME	ME2003/SM2003	Those who have done pre-requisites
MT5003	Advance in Sensors and Actuators	3-0-0-3	MT	ME3010/SM3010	Those who have done pre-requisites
ME5D03	Finite Element Methods for Mechanical Engineering	3-0-0-3	ME	ME2003/SM2003	Those who have done pre-requisites

**OE08 (Choose any one course from below elective)**

CS8031	Cyber Security (02 Batches)	2-0-2-3	CSE	CS2008 - Computer Networks and CS2002 - Computer Organization and Architecture	Those who have done pre-requisites
OE4E25	Advance Antenna Theory Design	3-0-0-3	ECE	EC3010 - Fundamentals of Electromagnetic Theory	Those who have done pre-requisites
EC8030	CMOS Memory Design	3-0-0-3	ECE	EC2008 - Analog integrated Circuit	Those who have done pre-requisites
OE4M76	Digital Twins in Manufacturing	3-0-0-3	SM	ME3010/SM3010	Those who have done pre-requisites
ME5D02	Mechanical Vibrations and Condition Monitoring	3-0-0-3	ME	ME2003/SM2003	Those who have done pre-requisites
OE4M35	Advanced Manufacturing Processes and Technologies	3-0-0-3	ME	ME2002/SM2002	Those who have done pre-requisites

**OE09 (Choose any one course from below elective)**

CS8018	Web Mining	3-0-0-3	CSE	Pre-requisites is not required	Open for all
CS8013	Mobile and Wireless Networks	3-0-0-3	CSE	Pre-requisites is not required	Open for all
EC8004	Pattern Recognition and Machine Learning	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE4E69	Optical Communication	3-0-0-3	ECE	Pre-requisites is not required	Open for all
ME8016	Biomaterials Science and Engineering	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE4M52	Rapid Product Development Technologies	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE4N77	Neno technology for Engineers	3-0-0-3	NS	Pre-requisites is not required	Open for all

**OE10 (Choose any one course from below elective)**

CS8032	Soft Computing	3-0-0-3	CSE	Pre-requisites is not required	Open for all
CS8004	Deep Learning and Applications	2-0-2-3	CSE	Pre-requisites is not required	Open for all
EC8006	Photovoltaics: Fundamentals and Applications	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE4E73	Statistical Signal Processing	3-0-0-3	ECE	Pre-requisites is not required	Open for all
OE4M22	Industrial Instrumentation & Metrology	3-0-0-3	ME	Pre-requisites is not required	Open for all
ME8010	MEMS: Microfabrication and Application	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE4L73	LIFE SKILLS MANAGEMENT	3-1-0-3	English/LA	Pre-requisites is not required	Open for all

**OE11 (Choose any one course from below elective)**

CS8007	Social Network Analysis	2-0-2-3	CSE	Pre-requisites is not required	Open for all
CS8025	Fuzzy Sets, Logic and Applications	3-0-0-3	CSE	Pre-requisites is not required	Open for all
<b>NEW</b>	<b>Wireless Communications</b>	<b>3-0-0-3</b>	<b>ECE</b>	<b>Pre-requisites is not required</b>	<b>Open for all</b>
EC5N01	Physics of Semiconductor Devices	3-0-0-3	ECE	Pre-requisites is not required	Open for all
ME5C01	Computer Aided Geometric Design	3-0-0-3	ME	Pre-requisites is not required	Open for all
ME8002	Design for Experiments	3-0-0-3	ME	Pre-requisites is not required	Open for all
OE4M74	AI and ML for Engineering	3-0-0-3	SM	Pre-requisites is not required	Open for all

**B.Des Semester-VII**

Course Code	Course Name	Credit	Offered By Discipline
DS4013	Design Seminar I	3	DS
DS4014	Design Thesis II	14	DS

**Year Long Courses (Common for B.Des. and B.Tech.)**

PC4004	Professional Development Course	1-0-0-1	Placement	Common for all
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