

**Visvesvaraya Technological University, Belagavi**

**B.E (CBCS) Open Electives Lists**

**Open for Feedback till 24-07-2017**

**Note to Students:**

- 1) All B.E (CBCS) students (except B.Arch) should study one Open elective each in the 5<sup>th</sup> and 6<sup>th</sup> Semester as a part of their Programme.
- 2) Students should registers for the Open elective in the beginning of the 5<sup>th</sup>/6<sup>th</sup> semester in the department, where the elective is offered. An Open elective is not offered in a department if the registered student's strength is less than 10.
- 3) All Open electives are offered to students of all B.E Programmes (branches) of engineering in general (except B.Arch). However, if a student of a particular Programme has already studied/going to study, in higher semester a similar Core course with majority of topics same as that of a particular Open elective, then that Open elective is not offered to that student. In which case, the student has to select an alternative Open elective.
- 4) Having studied/selected a particular Open Elective, a student is not eligible to take a Professional elective of his/her Programme in the Higher semesters/same semester which will have majority of topics same as that of the Open elective studied/selected. In which case, the student has to select an alternative Professional elective.
- 5) Students are advised to select an Open elective of their interest and if they have a pre-requisite knowledge to study that particular Open elective.

**Note to Departments:**

- 1) Above conditions are to be monitored by an Open elective coordinator of the department to which the student belongs to and the Course coordinator of the department where the student registers for the Open elective in the beginning of the 5<sup>th</sup>/6<sup>th</sup> semester.

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**B.E (CBCS) 5<sup>th</sup> Semester Open Electives List:**

SL No	Course Code	Course Title	Teaching Department(s)	Offering Department(s)
1	15NC561	Essentials of NCC	This can be offered only in the Colleges having the NCC unit	Dept. offering the course
2	15PHY561	Laser Physics and Non-linear Optics	Physics	Physics
3	15CV561	Traffic Engineering	CV	CV
4	15CV562	Sustainability Concepts In Engineering	CV	CV
5	15CV563	Remote Sensing and GIS	CV	CV
6	15CV564	Occupational Health and Safety	CV	CV
7	15ME561	Optimization Techniques	Any Branch	ME
8	15ME562	Energy and Environment	ME/Auto	ME
9	15ME563	Automation & Robotics	ME/EC/Auto	ME
10	15ME564	Project Management	ME/Auto	ME
11	15IM/IP561	Professional Communication & Report Writing	Any Branch	IP/IEM
12	15IM/IP562	Concurrent Engineering	Any Branch	IP/IEM
13	15IM/IP563	Technology Management	Any Branch	IP/IEM
14	15IM/IP564	Human Resource Management	Any Branch	IP/IEM
15	15MA561	Mechatronics	Manufacturing Sc. & Engg	Manufacturing Sc. & Engg
16	15MA562	Theory of Elasticity	Manufacturing Sc. & Engg	Manufacturing Sc. & Engg
17	15MA563	Knowledge Management	Manufacturing Sc. & Engg	Manufacturing Sc. & Engg
18	15EC561	Automotive Electronics	EC	EC
19	15EC562	Object Oriented Programming using C++	CS/IS/EC/EE	EC
20	15EC563	Virtual Instrumentation	EC	EC
21	15EE561	Electronic Communication Systems	EE/EC/TC	EE
22	15EE562	Programmable Logic Controllers	EE	EE
23	15CS561	Programming in JAVA	CS/IS	CS
24	15CS562	Artificial Intelligence	CS/IS/EC	CS
25	15CS563	Embedded Systems	CS/IS/EE/EC	CS

26	15CS564	Dot Net Frame work for Application Development	CS/IS	CS
27	15EI/BM/ML561	Computer Organization	EI/BM/ML/CS/IS	EI/BM/ML
28	15EI562	Material Science	EI	EI
29	15EI/BM563	Operating Systems	EI/BM/CS/IS/EC	EI/BM
30	15EI564	Fundamentals of Nanotechnology	EI	EI
31	15EI/BM/ML565	Virtual Bio-Instrumentation	BM/ML/EI	BM/ML/EI
32	15BM/ML566	Medical Physics	BM/ML	BM/ML
33	15BM/ML567	Medical Electronics Design	ML/BM	ML/BM
34	15BM/ML568	Pharmacology & Drug Delivery	ML/BM	ML/BM
35	15BM569	Software Engineering	BM	BM
36	15BT561	Bio-Informatics	Bio-Tech	Bio-Tech
37	15BT562	Good manufacturing Practices	Bio-Tech	Bio-Tech
38	15BT563	Bio-Waste Management	Bio-Tech	Bio-Tech
39	15BT564	Biology for Engineers	Bio-Tech	Bio-Tech
40	15AE561	History of Flight & Technology Forecast	Aeronautical Engg.	Aeronautical Engg.
41	15AE562	Elements of Aeronautics	Aeronautical Engg.	Aeronautical Engg.
42	15AE563	Aircraft Transportation Systems	Aeronautical Engg.	Aeronautical Engg.
43	15AE564	Basics of Rockets & Design	Aeronautical Engg.	Aeronautical Engg.
44	15NT561	Introduction to Nano Science & Technology	Nanotechnology/ME	Nanotechnology
45	15NT562	Nanomaterials & their Applications	Nanotechnology/ME	Nanotechnology
46	15NT563	Nano Devices & Applications	Nanotechnology	Nanotechnology
47	15NT564	Nano Materials Synthesis & Characterization Techniques	Nanotechnology/Chemistry/ME	Nanotechnology
48	15CH561	Industrial Waste Water Management	Chemical	Chemical
49	15CH562	Design of Air Pollution control Equipment	Chemical	Chemical
50	15CH563	Solid Waste Management	Chemical	Chemical
51	15CH564	Industrial Safety & Disaster Management	Chemical	Chemical
52	15PC561	Composite Materials	Petro-Chem	Petro-Chem
53	15PC562	Organic Chemistry	Petro-Chem	Petro-Chem
54	15PC563	Reservoir Rocks & Fluid Properties	Petro-Chem	Petro-Chem
55	15PC564	Natural Gas Processing	Petro-Chem	Petro-Chem

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**B.E (CBCS) 6<sup>th</sup> Semester Open Electives List:**

<b>SL No</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Teaching Department(s)</b>	<b>Offering Department(s)</b>
1	15PHY661	Advanced Physics for Engineers	Physics	Physics
2	15CV661	Water Resources Management		
3	15CV662	Environmental protection and management	CV	CV
4	15CV663	Numerical Methods and Applications	Any Branch/Maths	CV
5	15CV664	Finite element Method	CV	CV
6	15ME661	Energy Auditing	ME/Auto	ME
7	15ME662	Total Quality Management	ME/Auto/IEM	ME
8	15ME663	Maintenance Engineering	ME/Auto	ME
9	15ME664	Industrial Safety	ME/Auto	ME
10	15IM/IP661	Management Information Systems	IP/IEM	IP/IEM
11	15IM/IP662	Advance Machining Process	IP/IEM	IP/IEM
12	15IM/IP663	Value Engineering	IP/IEM	IP/IEM
13	15IM664	Development of Enterprises	IEM	IEM
14	15MA661	Microprocessor & Microcontrollers/EC	Manufacturing Science &Engg	Manufacturing Science &Engg
15	15MA662	Theory of Plasticity	Manufacturing Science &Engg	Manufacturing Science &Engg
16	15MA663	Sensors	Manufacturing Science &Engg	Manufacturing Science &Engg
17	15MA664	Data Mining	Manufacturing Science &Engg	Manufacturing Science &Engg
18	15EC661	Data Structures Using C++	CS/IS/EC	EC
19	15EC662	Power Electronics	EC/EE	EC
20	15CS661	Mobile Application Development	Any Branch	CS
21	15CS662	Big Data Analytics	CS/IS	CS
22	15CS663	Cloud Computing	CS/IS	CS
23	15CS664	Wireless Networks & Mobile Computing	CS/IS	CS
24	15CS665	Python Application Programming	CS/IS	CS
25	15CS666	Service Oriented Architecture	CS/IS	CS
26	15CS/IS667	Multi-Core Architecture & Programming	IS	CS/IS
27	15EE661	Artificial Neural Networks & Fuzzy Logic	EE/EC	EE
28	15EE662	Renewable Energy	EE/ME	EE

29	15EI/BM/ML 661	Mobile Communication	EI/BM/ML/EC/TC	EI/BM/ML
30	15EI/BM662	MEMS&NEMS	EI/BM	EI/BM
31	15EI/BM/ML 663	Embedded System Design and Programming	EI/BM/ML	EI/BM/ML
32	15EI/BM664	Statistics & Numerical Methods	EI/BM/Maths	EI/BM
33	15BM/ML665	Embedded Real Time Systems	ML/BM	ML/BM
34	15BM/ML666	Bio-Materials & Artificial Organs	ML/BM	ML/BM
35	15BM667	Software Engineering	BM/CS/IS	BM
36	15MAT661	Linear Algebra	Maths/EC	Maths
37	15BT661	QC, QA & Validation	Bio-Tech	Bio-Tech
38	15BT662	Bio-Nanotechnology	Bio-Tech	Bio-Tech
39	15BT663	Bio-Reactor Design	Bio-Tech	Bio-Tech
40	15BT664	Computation Biology	Bio-Tech	Bio-Tech
41	15BT665	Patents & Regulatory Authorities	Bio-Tech	Bio-Tech
42	15CH661	Food technology	Chemical	Chemical
43	15CH662	Sugar Technology	Chemical	Chemical
44	15CH663	Petro Chemical Engineering	Chemical	Chemical
45	15CH664	Polymer & Plastic Engineering	Chemical	Chemical
46	15PC661	Modern Separation Technology	Petro-Chem	Petro-Chem
47	15PC662	Process Modelling & Simulation	Petro-Chem	Petro-Chem
48	15PC663	Material Science for Petro- Chemical Engineering	Petro-Chem	Petro-Chem
49	15PC664	Catalysis Science & Technology	Petro-Chem	Petro-Chem
50	15AE661	Unmanned Aerial Vehicles Basics & Applications	Aeronautical Engg.	Aeronautical Engg.
51	15AE662	Fundamentals of Aerodynamic Theory	Aeronautical Engg.	Aeronautical Engg.
52	15AE663	Elements of Jet Propulsion Systems	Aeronautical Engg.	Aeronautical Engg.
53	15AE664	Maintenance, Overhaul & Repair of Air Craft Systems	Aeronautical Engg.	Aeronautical Engg.
54	15NT661	Nanotechnology in Electrical & electronics Engineering	Nanotechnology/EE/ EC	Nanotechnology
55	15NT662	Nanotechnology in Civil & Environmental Engineering	Nanotechnology /CV/EV	Nanotechnology
56	15NT663	Nanotechnology in Mechanical & Aerospace Engineering	Nanotechnology/ME /AE	Nanotechnology
57	15NT664	Nanotechnology in Bio-Medical Engineering	Nanotechnology/BM /BT	Nanotechnology