

Electrical and Computer Engineering

Bachelor of Science in Electrical Engineering/ Bachelor of Science in Computer Engineering

The dual degree, B.S.E.E./B.S.C.P.E., combines all the essential elements of a broad-based, traditional B.S.E.E. Degree with the modern and progressive aspects of a B.S.C.P.E. Degree. This program contributes to the foundation of the new millennium, where computer hardware and

software are used in areas such as telecommunications, power electronics, digital signal processing, computer networks, and control systems. Freshmen entering IIT with a significant number of advanced placement credits may be able to complete both degrees in four years.

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Required Courses	Credit Hours	Required Courses	Credit Hours
Electrical Engineering Requirements ECE 100, 211, 212, 213, 214, 218, 242, 307, 308, 311, 312, 319, 429 (or 446), 441, 485	47	Engineering Science Requirement MMAE 200 or MMAE 320	3
Computer Engineering Requirements CS 115, 116, 330, 331, 351, 450, 487	19	Humanities and Social Sciences Requirements See general education requirements on page 25	21
Mathematics Requirements MATH 151, 152, 251, 252, 333, 474	24	Science Elective BIOL 107, BIOL 115, MS 201, or CHEM 126	3
Physics Requirements PHYS 123, 221, 224	11	Professional Electives	6/7
Chemistry Requirement CHEM 122	3	Technical Elective	3
		Interprofessional Projects	6
		Total Credit Hours	146/147

B.S.E.E./B.S.CPE. Curriculum

Semester 1					Semester 2				
		Lect.	Lab. Hrs.	Cr. Hrs.			Lect.	Lab. Hrs.	Cr. Hrs.
MATH 151	Calculus I	4	1	5	MATH 152	Calculus II	4	1	5
CHEM 122	Principles of Chemistry I	3	0	3	PHYS 123	Mechanics	3	3	4
CS 115	Object-Oriented Programming I	2	1	2	Science Elective*		3	0	3
ECE 100	Introduction to the Profession I	2	3	3	CS 116	Object-Oriented Programming II	2	1	2
Social Science Elective		3	0	3	Humanities 100-level Course		3	0	3
Totals		14	5	16	Totals		15	5	17
Semester 3					Semester 4				
MATH 252	Introduction to Differential Equations	4	0	4	MATH 251	Multivariate and Vector Calculus	4	0	4
PHYS 221	Electromagnetism and Optics	3	3	4	PHYS 224	Thermal and Modern Physics	3	0	3
ECE 211	Circuit Analysis I	3	0	3	ECE 213	Circuit Analysis II	3	0	3
ECE 212	Analog and Digital Laboratory I	0	3	1	ECE 214	Analog and Digital Laboratory II	0	3	1
ECE 218	Digital Systems	3	0	3	ECE 242	Digital Computers and Computing	3	0	3
CS 331	Data Structures and Algorithms	2	2	3	CS 330	Discrete Structures	3	0	3
Totals		15	8	18	Totals		16	3	17
Semester 5					Semester 6				
MATH 333	Matrix Algebra and Complex Variables	3	0	3	ECE 308	Signals & Systems	3	0	3
ECE 307	Electrodynamics	4	0	4	Engineering Science Elective**		3	0	3
ECE 311	Engineering Electronics	3	3	4	ECE 312	Electronic Circuits	3	3	4
IPRO I	Interprofessional Project I	1	6	3	ECE 319	Fundamentals of Power Engineering	3	3	4
CS 351	Systems Programming	2	2	3	Social Science Elective		3	0	3
Totals		13	11	17	Totals		15	6	17
Semester 7					Semester 8				
ECE 441	Microcomputers	3	3	4	ECE 429	Introduction to VLSI Design OR			
CS 450	Operating Systems	3	0	3	ECE 446	Advanced Logic Design	3	3	4
MATH 474	Probability & Statistics***	3	0	3	ECE 485	Computer Organization and Design****	3	0	3
IPRO II	Interprofessional Project II	1	6	3	CS 487	Software Engineering	3	0	3
Humanities Elective		3	0	3	Technical Elective††		3	0	3
Totals		13	9	16	Social Science Elective		3	0	3
Semester 9					Totals				
Professional Elective†		3	0/3	3/4	15		3		16
Professional Elective†		3	0	3					
Humanities Elective		3	0	3					
Humanities or Social Science Elective		3	0	3					
Totals		12	0/3	12/13					
Total Credit Hours				146/147					

* Science elective must be BIOL 107, BIOL 115, CHEM 126, or MS 201.

** Engineering science elective: Choose either MMAE 200 or MMAE 320.

*** ECE 475 may be substituted with adviser approval.

**** CS 470 may be substituted with adviser approval.

† ECE 400-level course with (P) designation and except for ECE 448.

A maximum of three credits of either ECE 491 or ECE 497.

†† Advisor-approved course from engineering, science, mathematics, or computer science that is more advanced than the academic level of the student.