
APPENDIX B - LIST OF ELECTIVE DISCIPLINE EXAMINATIONS

Agricultural / Biosystems / Bioresource / Food Engineering Syllabus

04-Agric-B1	Systems Engineering and Materials Handling
04-Agric-B2	Structural Design for Agricultural, Biosystems, and Food Industries
04-Agric-B3	Machine Design for Agricultural, Biosystems, and Food Industries
04-Agric-B4	Machinery Analysis for Agricultural, Biosystems, and Food Industries
04-Agric-B5	Power Units for Agricultural, Biosystems, and Food Industries
04-Agric-B6	Irrigation, Drainage, and Erosion Control
04-Agric-B7	Principles of Hydrology
04-Agric-B8	Food Process Engineering (Part 1)
04-Agric-B9	Food Process Engineering (Part 2)
04-Agric-B10	Biochemical Engineering
04-Agric-B11	Principles of Waste Management
04-Agric-B12	Principles of Biological Waste Treatment
04-Agric-B13	Control and Monitoring
04-Agric-B14	Aquacultural Engineering
04-Agric-B15	Design of Buildings for Agricultural, Biosystems, and Food Industries

Biomedical / Biochemical Engineering

04-Bio-B1	Biochemical Separations
04-Bio-B2	Prostheses and Orthoses
04-Bio-B3	Biotransport Phenomena
04-Bio-B4	Digital Image Processing
04-Bio-B5	Cell and Tissue Engineering
04-Bio-B6	Bioinstrumentation
04-Bio-B7	Robotics and Manufacturing Automation
04-Bio-B8	Rehabilitation Engineering
04-Bio-B9	Artificial Intelligence and Expert Systems
04-Bio-B10	Analytical Biochemistry
04-Bio-B11	Ergonomics
04-Bio-B12	Applied Optics/Photonics

Building Engineering

07-Bid-B1	Computer Programming
07-Bid-B2	Advanced Structural Analysis
07-Bid-B3	Advanced Structural Design
07-Bid-B4	Modern Building Materials
07-Bid-B5	Fire and Smoke Control in Buildings
07-Bid-B6	Building Energy Conservation Technologies
07-Bid-B7	Indoor Air Quality
07-Bid-B8	Control system in Buildings
07-Bid-B9	Building Services

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Chemical Engineering

04-Chem-B1	Transport Phenomena
04-Chem-B2	Environmental Engineering
04-Chem-B3	Simulation, Modelling, and Optimization
04-Chem-B4	Biochemical Engineering
04-Chem-B5	Pulp and Paper Technology
04-Chem-B6	Petroleum Refining and Petrochemicals
04-Chem-B7	Extractive Metallurgy
04-Chem-B8	Polymer Engineering
04-Chem-B9	Advanced Materials
04-Chem-B10	Life Cycle Assessment (LCA)

Civil Engineering

98-Civ-B1	Advanced Structural Analysis
98-Civ-B2	Advanced Structural Design
98-Civ-B3	Geotechnical Design
98-Civ-B4	Engineering Hydrology
98-Civ-B5	Water Supply and Wastewater Treatment
98-Civ-B6	Urban and Regional Planning
98-Civ-B7	Highway Design, Construction, and Maintenance
98-Civ-B8	Management of Construction
98-Civ-B9	Civil Engineering Analysis and the Finite Element Method

Computer Engineering

98-Comp-B1	Advanced Computer Architecture
98-Comp-B2	Principles of VLSI
98-Comp-B3	Data Bases and File Systems
98-Comp-B4	Computer Graphics
98-Comp-B5	Computer Communications
98-Comp-B6	Computer Control and Robotics
98-Comp-B7	Digital Signal Processing
98-Comp-B8	Computer Integrated Manufacturing
98-Comp-B9	Artificial Intelligence and Expert Systems
98-Comp-B10	Distributed Systems
98-Comp-B11	Advanced Software Design

Electrical Engineering

07-Elec-B1	Digital Signal Processing
07-Elec-B2	Advanced Control Systems
07-Elec-B3	Digital Communications Systems
07-Elec-B4	Information Technology Networks
07-Elec-B5	Advanced Electronics
07-Elec-B6	Integrated Circuit Engineering
07-Elec-B7	Power Systems Engineering
07-Elec-B8	Power Electronics and Drives
07-Elec-B9	Electromagnetic Field, Transmission Lines, Antennas, and Radiation
07-Elec-B10	Electro-Optical Engineering

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Engineering Physics

98-Phys-B1	Radiation Physics
98-Phys-B2	Electro-Optical Engineering
98-Phys-B3	Digital Systems and Computers
97-Phys-B4	Communications
97-Phys-B5	Control
97-Phys-B6	Applied Thermodynamics and Heat Transfer
97-Phys-B7	Structure of Materials

Environmental Engineering

04-Env-B1	Environmental Assessment and Management Systems
04-Env-B2	Water Resources
04-Env-B3	Contaminant Transport
04-Env-B4	Site Assessment and Remediation
04-Env-B5	Industrial & Hazardous Waste Management
04-Env-B6	Agricultural Waste Management
04-Env-B7	Environmental Sampling and Analysis
04-Env-B8	Instrumentation and Process Control
04-Env-B9	Environmental Chemistry and Microbiology

Forest Engineering

04-For-B1	Structural Analysis And Design
04-For-B2	Machine Design
04-For-B3	Soils Engineering
04-For-B4	Forest Operations Research
04-For-B5	Wood Properties
04-For-B6	Forest Operations Planning
04-For-B7	Forest Soils
04-For-B8	Geomorphology
04-For-B9	Wood Products

Geological Engineering

04-Geol-B1	Contaminant Hydrogeology
04-Geol-B2	Terrain Analysis
04-Geol-B3	Site Investigation
04-Geol-B4	Geomorphology and Pleistocene Geology
04-Geol-B5	Environmental Geology
04-Geol-B6	Resource Geology
04-Geol-B6-1	Petroleum Deposits
04-Geol-B6-2	Coal Deposits
04-Geol-B6-3	Metallic and Industrial Mineral Deposits
04-Geol-B7	Petroleum Development
04-Geol-B8	Resource Economics & Valuation
04-Geol-B9	Exploration & Mining Geology
04-Geol-B10	Geophysical Exploration Methods
04-Geol-B10-1	Gravity and Magnetic Fields
04-Geol-B10-2	Electrical Methods
04-Geol-B10-3	Exploration Seismology

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Geomatics Engineering

04-Geom-B1	Digital Terrain Modelling
04-Geom-B2	Satellite Navigation
04-Geom-B3	Networks and Precise Engineering Surveys
04-Geom-B4	Hydrography
04-Geom-B5	Survey Law
04-Geom-B6	Land Use Planning and Environmental Management

Industrial Engineering

98-Ind-B1	Applied Probability and Statistics
98-Ind-B2	Manufacturing Processes
98-Ind-B3	Computer Aided Design and Computer-Assisted Manufacturing
98-Ind-B4	Design of Information Systems
98-Ind-B5	Ergonomics
98-Ind-B6	Workplace Design
98-Ind-B7	Financial and Managerial Accounting
98-Ind-B8	Computer Integrated Manufacturing (CIM)
98-Ind-B9	Logistics: Transportation Aspects
98-Ind-B10	Industrial Safety and Health

Marine Engineering

98-Mar-B1	Advanced Machine Design
98-Mar-B2	Environmental Control in Ships
98-Mar-B3	System Analysis and Control
98-Mar-B4	Ship Production and Shipyard Management
98-Mar-B5	Fluid Machinery
98-Mar-B6	Electrical and Electronics Engineering
98-Mar-B7	Maritime Management

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Mechanical Engineering

07-Mec-B1	Advanced Machine Design
07-Mec-B2	Environmental Control in Buildings
07-Mec-B3	Energy Conversion and Power Generation
07-Mec-B4	Integrated Manufacturing Systems
07-Mec-B5	Product Design and Development
07-Mec-B6	Advanced Fluid Mechanics
07-Mec-B7	Aero and Space Flight
07-Mec-B8	Engineering Materials
07-Mec-B9	Advanced Engineering Structures
07-Mec-B10	Finite Element Analysis
07-Mec-B11	Acoustics and Noise Control
07-Mec-B12	Robot Mechanics
07-Mec-B13	Biomechanics

Metallurgical Engineering

10-Met-B1	Mineral Processing
10-Met-B2	Hydrometallurgy and Electrometallurgy
10-Met-B3	Ironmaking and Steelmaking
10-Met-B4	Non-Ferrous Extractive Metallurgy
10-Met-B5	Metal Fabrication
10-Met-B6	Physical Metallurgy of Iron and Steel
10-Met-B7	Physical Metallurgy of Non-Ferrous Metals and Alloys
10-Met-B8	Ceramic Materials
10-Met-B9	Structure and Properties of Polymers
10-Met-B10	Advanced Electronic Materials

Mining and Mineral Processing Engineering

09-Mmp-B1	Applied Rock Mechanics
09-Mmp-B2	Rock Fragmentation
09-Mmp-B3	Material Handling
09-Mmp-B4	Occupational Health, Safety and Loss Management
09-Mmp-B5	Mill Design and Operations
09-Mmp-B6	Mill Process Control
09-Mmp-B7	Extractive Metallurgy
09-Mmp-B8	Mine Management and Systems Analysis
09-Mmp-B9	Rock Slope Engineering

Naval Architectural Engineering

98-Nav-B1	Applied Thermodynamics and Heat Transfer
98-Nav-B2	Marine Engineering
98-Nav-B3	Small Commercial Ships
98-Nav-B4	Advanced Structural Analysis
98-Nav-B5	Ship Production and Shipyard Management
98-Nav-B6	Design and Manufacture of Machine Elements
98-Nav-B7	Environmental Control in Ships

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Petroleum Engineering

98-Pet-B1	Well Logging and Formation Evaluation
98-Pet-B2	Natural Gas Engineering
98-Pet-B3	Oil and Gas Evaluation and Economics
98-Pet-B4	Petroleum Geology
98-Pet-B5	Well Testing

Software Engineering

04-Soft-B1	Advanced Object Oriented Design
04-Soft-B2	User interface
04-Soft-B3	Security/Safety
04-Soft-B4	Reliability and Fault Tolerance
04-Soft-B5	Software Modeling & Verification (Formal Methods)
04-Soft-B6	Advanced Software Project Management, Life Cycle Methodologies
04-Soft-B7	Reverse Engineering, Maintenance & Evolution
04-Soft-B8	Distributed Systems
04-Soft-B9	Parallel Computing
04-Soft-B10	Networking and Communications
04-Soft-B11	Process Control Systems
04-Soft-B12	Scientific Computation
04-Soft-B13	Performance Analysis & Simulation
04-Soft-B14	Safety Critical Systems
04-Soft-B15	Artificial Intelligence/Intelligent Systems
04-Soft-B16	Compilers
04-Soft-B17	Programming Language Paradigm
04-Soft-B18	Computer Graphics/Imaging/Visualization

Structural Engineering

07-Str-B1	Geotechnical Design
07-Str-B2	Management of Construction
07-Str-B3	Applications of Finite Elements
07-Str-B4	Structural Materials
07-Str-B5	Foundation Engineering
07-Str-B6	Building Engineering and Services
07-Str-B7	Forensic Engineering and Rehabilitation
07-Str-B8	Architectural Design and Engineering
07-Str-B9	Advanced Structural Mechanics
07-Str-B10	Earthquake Engineering
07-Str-B11	Hydraulic Engineering