

TECHNICAL CLUB: SCIENTIFIC COMPUTING

CORE DISCIPLINE : APPLIED MATHEMATICS

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TECHNICAL BACKGROUND AND UTILITY OF THE CLUB:

SCIENTIFIC COMPUTING DEALS WITH CONSTRUCTING MATHEMATICAL MODELS AND QUANTITATIVE TECHNIQUES AND USE COMPUTER TO SOLVE AND ANALYZE SCIENTIFIC PROBLEMS. SCIENTIFIC COMPUTING IS A COMPANION ALONG THE TRANSITION OF PHENOMENA INTO PREDICTION. THE SUCCESS OF TECHNOLOGICAL OR BUSINESS ENDEAVOUR IS HIGHLY DEPENDENT ON PRIOR ANALYSIS, THE SCIENTIFIC COMPUTING IS AN APPROPRIATE TOOL TO DO THIS. SOME EXAMPLE OF EFFICIENT USE OF SCIENTIFIC COMPUTING ARE; SCIENTIFIC RESEARCH; EARTHQUAKE, TSUNAMI, WEATHER PREDICTIONS, DISASTER MANAGEMENT; FINANCIAL MARKET ANALYSIS ETC.

THE FOLLOWING IMAGES SHOW THE VISUALIZATION PRODUCED DUE TO COMPUTER SIMULATION OF MATHEMATICAL MODELS.

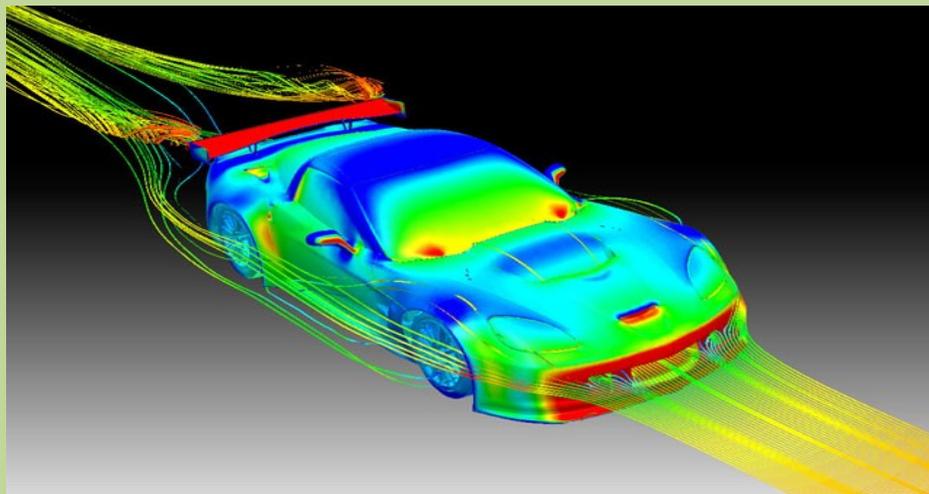


IMAGE 1. FLOW OF AIR ALONG A CAR TO ANALYZE THE AERODYNAMIC MODEL.

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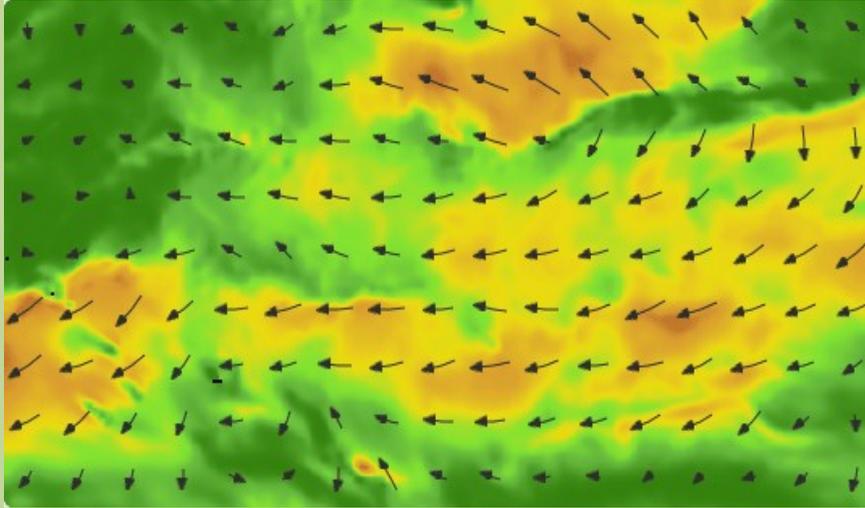


IMAGE 2. DIRECTION FIELD OF WIND FLOWING OVER REGION, USED FOR WEATHER PREDICTION.

SCIENTIFIC COMPUTING THUS PLAYS AN IMPORTANT ROLE IN TECHNOLOGICAL, BUSINESS AND MANAGERIAL ANALYSIS, THUS THE ROLE THIS CLUB IS TO HELP STUDENTS UNDERSTAND THE BASIC CONCEPT OF SCIENTIFIC COMPUTING AND ITS APPLICATION IN VARIOUS PROCESSES. WITH COMPETENCE IN THIS DOMAIN, STUDENTS COULD POSITIVELY LOOK FOR EXCITING CAREER IN ANALYSIS AND CONSULTANCY FIRMS, METEOROLOGY DEPARTMENT, PREMIER RESEARCH ORGANIZATIONS LIKE ; ISRO, DRDO, ETC.

ACTIVITIES TO BE CONSIDERED UNDER THE CLUB

THE ACTIVITIES OF THE CLUB HAVE BEEN WELL FORMULATED TO DEVELOP INTEREST AND COMPETENCE OF THE STUDENTS IN THE RELATED TECHNOLOGIES WITH EMPHASIS ON APPLICATION ASPECTS OF THE CONCEPTS. THE CLUB ENVISAGES THE SCIENTIFIC COMPUTING STUDY IN FOLLOWING BROAD ACTIVITIES CONSIDERING THE PROCESS OF MODELING, SIMULATION, VISUALIZATION AND EVALUATION AT CORE;

- LEARNING THROUGH TECHNICAL MAGAZINES AND JOURNALS
- DESIGNING OF DIFFERENTIAL EQUATIONS, VISUALIZING THE DIRECTION FIELDS AND NUMERICAL/COMPUTER WAYS OF SOLVING THEM.

TECHNICAL CLUB: SCIENTIFIC COMPUTING

- VISUAL UNDERSTANDING OF FOURIER SERIES, HARMONIC ATTRIBUTE RELATED TO COMPLEX NUMBERS, RESONANCE ETC.
- UNDERSTANDING OF CONVERGENCE CRITERIA OF FUNCTIONS AND SERIES, APPROXIMATION AND ESTIMATIONS, TAYLOR SERIES, QUADRATURES, ETC.
- PAPER WRITING & PRESENTATION
- QUIZ AND GROUP DISCUSSIONS ON THE CLUB THEME RELATED TOPICS
- CONDUCTION OF WORKSHOPS AND PRACTICAL TRAINING SESSIONS
- INTERACTION WITH EMINENT INDUSTRIAL AND ACADEMIC EXPERTS IN THE DOMAIN OF CLUB THEME
- INDUSTRIAL AND INSTITUTIONAL TOURS
- CONSIDERING INDUSTRIAL R&D PROJECTS IN THE DOMAIN OF CLUB THEME