Analisis karakteristik dinamik struktur dengan frequency response function metode rational fraction polynomial global = Dynamic analysis if structures by frequency response function with global rational fraction polynomial method

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Abstrak

Karakteristik dinamik merupakan parameter alami yang dimiliki struktur untuk menghasilkan respons akibat pembebanan dinamik yang bekerja. Nilai karakteristik dinamik dapat merepresentasikan kondisi dari suatu struktur. Melalui penelitian ini, analisa karakteristik dinamik dilakukan pada struktur model berdasarkan hasil simulasi pengujian modal. Adapun pengolahan data dilakukan dengan mengekstrak hasil Frequency Response Function (FRF) struktur dengan metode Rational Fraction Polynomial. Pengolahan data tersebut diintegrasikan kedalam bentuk program, sehingga terbentuk program untuk menganalisa data pengujian modal menjadi karakteristik dinamik secara tepat dan akurat. Dalam penelitian ini, karakteristik dinamik yang didapatkan dari program dibandingkan dengan hasil software SAP2000 dengan persentase error rataan sebesar 0.8583%.

.....Dynamic characteristics are some natural parameter of structure or materials to give a response or reaction for the dynamic loading that works on the structure. The dynamic characteristic value can represent the condition of the structure as its on service life. By this research, the dynamic analysis will be performed by utilizing the data of modal testing simulation on the object of bridge model. The global Rational Fraction Polynomial (RFP) method will be performed to extract the structure frequency response function to its dynamic characteristic. The data processing step are all be integrated in a program, then a program which can performed a dynamic analysis of vibration testing data with highly accurate and precise result. And by this research, the dynamic characteristic obtained by the program was compared to the result from SAP2000 software and have the average error percentage of 0.8583%.